World Mitochondria Society

12th World Congress on Targeting Mitochondria

Programme

October 27-29, 2021
Berlin, Germany & Online

www.targeting-mitochondria.com
Welcome Note

On behalf of the Scientific Committee of the World Mitochondria Society (WMS) I am excited to announce the 12th Conference on Targeting Mitochondria for October 27-29, 2021. We have confidence that by this time the pandemic will be under control and easy traveling will again be possible, therefore we are hoping to see you all in person in Berlin at a venue still to be announced.

On this occasion I would like to state frankly that the success of our virtual congress exceeded my expectations. From the numerous feedbacks we have received I can conclude that COVID19 was unable to diminish our enthusiasm for the cell organelle we all revere so much. Even more, the special online format we chose seemed to have provided some unexpected benefits. For example, there was no Session Chair who had to enforce any schedule, which allowed for more extensive discussion sections as appreciated by many of us. Further, the availability of all conference contributions for an extended period of time was certainly also a very valuable feature of our 11th conference. Nevertheless, one of the most important aspects of any scientific meeting was missing, which is the personal interaction with colleagues from around the world, be it in the lecture hall, or during the coffee break or last but not least during our conference dinner. Therefore, we all are very much looking forward to the next, the 12th edition of our conference series.

Independent on its format, any conference can only be as good as its speakers and its organizers. Knowing that the Organizing Committee under Prof. Marvin Edeas’ leadership will again excel in setting up the next conference, and knowing that the Scientific Committee will again invite key players in the field of Mitochondrial Medicine I assure anyone who is going to join us in Berlin in October 2021 that you won’t be disappointed, excellent venue, again excellent speakers and again an excellent organization!

While we have just started working on the outline of our next conference edition, I believe that the overarching themes of our 12th World Congress on Targeting Mitochondria will not significantly deviate from topics discussed at preceding editions of our conference series. Again, we will focus on three major areas, which are first the role of mitochondrial dysfunction in etiology and pathogenesis of chronic diseases including aging, second how to assess and above all quantify mitochondrial dysfunction in vitro and in vivo and finally, third, how to target and manipulate mitochondrial function in order to develop future mitochondria-based therapies. However, we will also try to further extend the profile and scope of our conference by inviting researchers who have never participated in our meeting before, established and new investigators alike.

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. We strongly believe that our 12th World Congress on Targeting Mitochondria will be at least as exciting and as successful as our virtual 11th conference. Please feel free to contact us at any time for further information and with questions you might have.

All our warmest regards.

Prof. Volkmar Weissig
President of the World Mitochondria Society
Midwestern University, US
## KEY DATES TO REMEMBER

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<th>Aug. 23, 2021</th>
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<td>Oct. 9 &amp; Oct. 15</td>
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## SPEAKERS 2021

**Introduction Note**
Volkmart Weisigm, President of the World Mitochondria Society, Midwestern University, USA

**Nuclear-mitochondrial interactions and their effect on longevity and health: Introduction**
Miria Ricchetti, Institut Pasteur, France

**Extracellular Mitochondria for Therapy and Diagnosis in Stroke**
Kazuhide Hayakawa, Harvard Medical School / Massachusetts General Hospital, USA

**Regulation of Physiological Mitophagy**
Thomas G. McWilliams, University of Helsinki, Finland

**Circulating Mitochondrial DNA as an early indicator of Severe Lung Disease**
Andrew E. Geman, Washington University School of Medicine, USA

**Mitochondrial arginase-2 is essential for IL-10 metabolic reprogramming of inflammatory macrophages**
Claire McCoy, Royal College of Surgeons in Ireland, Ireland

**Optimization of Energy Homeostasis in old age by SIRT6**
Haim Cohen, Bar-Ilan University, Israel

**Mechanism of membrane-tethered mitochondrial protein synthesis**
Antoni Barrientos, University of Miami Miller School of Medicine, USA

**Cardiorespiratory fitness and mitochondrial health as modulators of COVID-19**
Johannes Burtscher, University of Lausanne, Suisse

**A Mitochondria-Targeted Caffeic Acid Derivative Reverses Cellular and Mitochondrial Defects in Human Skin Fibroblasts**
Paulo J. Oliveira, University of Coimbra, Portugal

**Glucose Metabolism Control of T Cell Immunity**
Ming Li, Immunology Program, Memorial Sloan Kettering Cancer Center, USA

**Clinical Application of Antioxidants to Improve Human Occyte Mitochondrial Function: Advances and Perspective**
Cristina Rodríguez-Varela, Medical Research Institute Hospital La Fe, Spain

**Dysregulation of Mitochondria-Lysosome Contacts by GBA1 Dysfunction in Dopaaminergic Neuronal Models of Parkinson’s Disease**
Dimitri Krainev, The Northwestern University Feinberg School of Medicine, USA

**Big change from small player - Mitochondria alter body Metabolism and Gene Expression**
Scott Ballinger, University of Alabama at Birmingham, USA

**Mitochondrial transplantation therapy, the Recent Advances and Perspective**
James McCully, Harvard Medical School, Boston Children’s Hospital, USA

**Impact of mitochondrial dynamics on stem cell function: insights from physiology, diseases and aging**
Mireille Khacho, Faculty of Medicine, University of Ottawa, Canada

**Extracellular Mitochondria for Therapy and Diagnosis in Stroke**
Kazuhide Hayakawa, Harvard Medical School / Massachusetts General Hospital, USA

**RMitochondrial DNA in cancer: The overlooked oncogene**
Payam A. Gammage, CRLUK Beatson Institute, United Kingdom

**Nuclear sensing of breaks in mitochondrial DNA enhances immune surveillance**
Agnel Steir, Memorial Sloan Kettering Cancer Center, USA

**Patient-specific brain organoids for modeling mitochondrial diseases**
Alessandro Prigione, Heinrich Heine University (HHU), Germany

**Avian red blood cell mitochondria produce more heat in winter than in autumn**
Andreas Nord, Lund University, Sweden

**Deciphering Strategic Interactions between Mitochondrial and Nuclear Genome**
José Antonio Enríquez, Centro Nacional de Investigaciones Cardiovasculares Carlos III, Spain

**Age-related mitochondrial dysfunction as a key factor in COVID-19 disease**
Guillermo Lópeze-Lluch, Universidad Pablo de Olavide-CSIC, Spain

**Exercise-induced, mitochondrial-mediated cell death in Arrhythmogenic Cardiomyopathy**
Stephen Cheiko, Florida State University, USA

**Introduction Remarks: Past, Present and Future**
Egbert Milh, University Medical Center Rotterdam, The Netherlands

**The One-Carbon Pool Controls Mitochondrial Energy Metabolism via Complex I and Iron-Sulfur Clusters**
Anna Wredenberg, Max Planck Institute Biology of Ageing–Karolinska Institutet Laboratory, Sweden
Wednesday, October 27, 2021

Dedicated to Online Workshop

Mitochondria Workshop 2021: How to Evaluate Mitochondria Function?

Part 1: Bioenergetics. Metabolism, mitochondrial respiration rates, ATP synthesis, mitochondrial membrane potential and respiratory chain activities

Part 2: Mitochondrial biogenesis, dynamics and mitophagy

Part 3: Biochemical diagnosis of mitochondrial diseases

Dr. 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
12th World Congress on Targeting Mitochondria
October 27-29, 2021 – Berlin, Germany & Online

Scientific Agenda

– Day One –
Thursday, October 28, 2021

9h00: Welcome Note of Targeting Mitochondria 2021
Volkmars Weissig, President of the World Mitochondria Society, Midwestern University, USA

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

Session 1: Recent Advances on Mitochondrial Dysfunctions and Dynamics in Chronic Diseases
9h00 – 11h00

Big Change from Small Player - Mitochondria Alter Body Metabolism and Gene Expression
Scott Ballinger, University of Alabama at Birmingham, USA

Circulating Mitochondrial DNA as an Early Indicator of Severe Lung Disease
Andrew E. Gelman, Washington University School of Medicine, USA

Regulation of Physiological Mitophagy
Thomas G. McWilliams, University of Helsinki, Finland

Exercise-Induced, Mitochondrial-Mediated Cell Death in Arrhythmogenic Cardiomyopathy
Stephen Chelko, Department of Biomedical Sciences, Florida State University, USA

Impact of Mitochondrial Dynamics on Stem Cell Function: Insights from Physiology, Diseases and Ageing
Mireille Khacho, Faculty of Medicine, University of Ottawa, Canada

Mitochondrial Arginase-2 is Essential for IL-10 Metabolic Reprogramming of Inflammatory Macrophages
Claire McCoy, Royal College of Surgeons in Ireland, Ireland

The One-Carbon Pool Controls Mitochondrial Energy Metabolism via Complex I and Iron-Sulfur Clusters
Anna Wredenberg, Max Planck Institute Biology of Ageing–Karolinska Institutet Laboratory, Sweden

Short Oral Presentations (3 Slots)

Mitophagy Mitigates Fatty Acid β-Oxidation (FAO) Deficient Cardiomyopathy
Nuo Sun, The Ohio State University, USA

12h00 – Lunch Break
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Scientific Agenda

12h45 – 14h30

Glucose Metabolism Control of T Cell Immunity
*Ming Li*, Immunology Program, Memorial Sloan Kettering Cancer Center, USA

Mechanism of Membrane-Tethered Mitochondrial Protein Synthesis
*Antoni Barrientos*, University of Miami Miller School of Medicine, USA

Dysregulation of Mitochondria-Lysosome Contacts by GBA1 Dysfunction in Dopaminergic Neuronal Models of Parkinson’s Disease
*Dimitri Krainc*, Northwestern University Feinberg, USA

Avian Red Blood Cell Mitochondria Produce more heat in Winter than in Autumn
*Andreas Nord*, Lund University, Sweden

Short Oral Presentations (3 slots)

Fumarylacetoacetate Hydrolase Domain Containing Protein 1 (FAHD1) Acts as a Regulatory Enzyme in the TCA Cycle, and Genetic Inactivation of FAHD1 Induces Mitochondrial Dysfunction
*Alexander K.H. Weiss*, University of Innsbruck, Research Institute for Biomedical Aging Research, Austria

Session 2: Mitochondria and Strategic Role in Intracellular Communication: Targeting mtDNA–Containing Exosomes

14h30 – 16h55

Mitochondrial DNA in Cancer: The Overlooked Oncogenome
*Payam A. Gammage*, CRUK Beatson Institute, United Kingdom

Nuclear Sensing of Breaks in Mitochondrial DNA Enhances Immune Surveillance
*Agnel Sfeir*, Memorial Sloan Kettering Cancer Center, USA

Age-Related Mitochondrial Dysfunction as a Key Factor in COVID-19 Disease
*Guillermo López-Lluch*, Universidad Pablo de Olavide-CSIC, Spain

Cardiorespiratory Fitness and Mitochondrial Health as Modulators of COVID-19
*Johannes Burtscher*, University of Lausanne, Switzerland

15h20 – 15h35 Coffee Break

Short Oral Presentations (3 Slots)

mtDNA Methylation in the Heavy Strand Promoter Correlates with Mitochondrial Gene Expression
*Romain Guitton*, University of Bergen, Norway
Session 3: Nuclear-Mitochondrial Interactions and their Effect on Longevity and Health

16h55 – 19h10

Introduction & Presentation of Session
Miria Ricchetti, Team Stability of Nuclear and Mitochondrial DNA, Institut Pasteur, France

Deciphering Strategic Interactions between Mitochondrial and Nuclear Genome
José Antonio Enríquez, Centro Nacional de Investigaciones Cardiovasculares Carlos III, Spain

Optimization of Energy Homeostasis in Old Age by SIRT6
Haim Cohen, Head of the Molecular Mechanism of Aging Laboratory at Bar-Ilan University, Israel

The Mitochondria Connection Between Stress and Turn Hair Gray
Martin Picard, Associate Professor of Behavioral Medicine at Columbia University Vagelos College of Physicians and Surgeons, USA

Short Oral Presentations (3 slots)

Beclin-1 Improves Mitochondria-Associated Membranes in the Heart During Endotoxemia
Q. Sophia Zhang, Loyola University Chicago, Stritch School of Medicine, USA

End of the first day
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Scientific Agenda

– Day Two –
Friday, October 29, 2021

Session 4 – The Challenge of Qualitative and Quantitative Assessment of Mitochondrial Function

9h00 – 10h00

Introduction Remarks: Mitochondria Function 2021 - Past, Present and Future

Egbert Mik, University Medical Center Rotterdam, The Netherlands

Session 5 - Strategies to Target Mitochondria: Clinical Trials and Potential Mitochondria-based Therapies

10h00 – 12h35

Patient-Specific Brain Organoids for Modeling Mitochondrial Diseases

Alessandro Prigione, Heinrich Heine Université, Germany

Extracellular Mitochondria for Therapy and Diagnosis in Stroke

Kazuhide Hayakawa, Assistant Professor at Harvard Medical School/ Massachusetts General Hospital, USA

Mitochondrial Transplantation Therapy, the Recent Advances and Perspective

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

A Mitochondria-Targeted Caffeic Acid Derivative Reverts Cellular and Mitochondrial Defects in Human Skin Fibroblasts from Male Sporadic Parkinson’s Disease Patients

Paulo J. Oliveira, University of Coimbra, Portugal

Clinical Application of Antioxidants to Improve Human Oocyte Mitochondrial Function: Advances and Perspective

Cristina Rodriguez-Varela, Medical Research Institute Hospital La Fe (IIS La Fe) in Valencia, Spain

Short Oral Presentations (3 slots)

Transplantation Of Muscle Stem Cell-Derived Mitochondria Rejuvenates the Bioenergetic Function of Aged Host Muscle

Young Charles Jang, Georgia Institute of Technology, USA

12h35 – Lunch Break
Session 6 - WMS Challenges in the Acceleration of Mitochondrial Medicine

13h30 – 16h30 - Submit your innovation and technology for review by WMS Scientific Committee.

Top ranked Innovations will be offered an opportunity to showcase your technology to all World Mitochondria Society Members. Submit your innovation before August 30, 2021.

Short Oral Presentations

16h30 – Coffee Break

17h00 - Concluding Remarks and Scientific & Innovations Awards

19:00 - End of Targeting Mitochondria 2021