

WORLD MITOCHONDRIA SOCIETY

10th Anniversary of

TARGETING MITOCHONDRIA CONGRESS



FINAL AGENDA

OCTOBER 27-29, 2019 - BERLIN, GERMANY



www.targeting-mitochondria.com



10th World Congress on Targeting Mitochondria

October 28-29, 2019 – InterContinental Berlin Hotel, Germany



Dear Colleagues and Friends,

I am excited and honored to announce on behalf of the Scientific Committee of the World Mitochondria Society, “**The 10th Anniversary World Congress on Targeting Mitochondria**”, which will be held in Berlin, Germany, on October 28-29, 2019.

The overarching themes of our 10th Anniversary 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, secondly how to assess and above all quantify mitochondrial dysfunction in vitro and in vivo and finally, thirdly, how to target and manipulate mitochondrial function in order to develop future mitochondria-based therapies.

Further, in continuation of last year’s successful conference, we will invite speakers to focus on the cross-talk between mitochondria and microbiota as well as on mitochondrial dynamics in health and disease. Also we will focus on intracellular stress pathways involving mitochondrial dysfunction and cell death.

For the 10th edition of “Targeting Mitochondria”, the scientific committee will invite again key players in Mitochondrial Medicine, i.e. investigators who have been pushing the progress in their particular field of mitochondrial research over the last few years. Basic researchers 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 jubilee World Congress on Targeting Mitochondria will be at least as exciting and successful as majority of our previous meetings.

As always, we look forward to seeing you very much in Berlin for this exciting event.



Prof. Volkmar Weissig

President of the World Mitochondria Society
Midwestern University, USA



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Scientific Agenda

Sunday October 27, 2019

17h00 – 18h00 Registration & material delivery

Monday October 28, 2019

7h45 Registration & material delivery

8h20 Introduction of Targeting Mitochondria

Prof. Volkmar Weissig, President of World Society Mitochondria, Germany

8h30 Honorary Lecture: Mitochondrial genetics and Human Disease

Douglas C. Wallace, Center for Mitochondrial and Epigenomic Medicine, USA

Session 1: Recent advances on mitochondrial dysfunctions and dynamics in chronic diseases: The mechanistic

Chairs: Marvin Edeas, Volkmar Weissig

8h55 Metabolic Determination of Cell Fate through Selective Inheritance of Mitochondria

Pekka Katajisto, Center of Excellence in Stem Cell Metabolism, Finland

9h15 Cardiac Glycosides Modulate Neuroblastoma Stem Cell Survival by Dysfunctional Mitophagy

Marc Diederich, Seoul National University, South Korea

9h35 Mitochondria, as Central Regulators of Neural Stem Cell Fate

Ruth Slacks, University of Ottawa, Canada

9h55 The brain MITOxy Project: From Mitochondria to Proteases and Reactive Species Interactome in Brain

Laurent Chatre, Université de Caen-Normandie, CEA, France

10h15 Increased Hydrogen Peroxide and Decreased Glutathione Redox Potential May Cause Dopaminergic Neurodegeneration in Parkin Loss-of-Function

Lori M. Buhlman, Midwestern University, USA

10h35 Coffee Break & Poster Session

Chairs: Douglas C. Wallace, Egbert Mik

11h20 Mitochondria & Microbiota Inter-Talk: Strategic Role of Metabolites

Marvin Edeas, University Paris Descartes, INSERM U1016, France

11h40 Host Mitochondria Influence Gut Microbiome Diversity: A Role for ROS

Tal Yardeni, Children's Hospital of Philadelphia, USA

12h00 The Challenge of Qualitative and Quantitative Assessment of Mitochondrial Function in Vitro And in Vivo: What We Know in 2019?

Egbert Mik, University Medical Center Rotterdam, The Netherlands

12h20 Mitochondrial defects in an accelerated ageing syndrome are also key determinant of replicative senescence of normal cells

Miria Ricchetti, Institut Pasteur, France

12h30 Lunch Break, Networking & Poster Session

Chairs: Vladimir Gogvadze & Miria Ricchetti

14h00 Cytoskeletal mitochondrial interactions in collagen VI related disorders

Alessia Angelin, Children's Hospital of Philadelphia, USA

14h20 The Cellular Stress Protein MNRR1/CHCHD2 and Mitochondrial Disease

Lawrence Grossman, Wayne State University, USA

14h40 Mitochondrial Copper Toxicity with a Focus on Wilson Disease

Hans Zischka, Institute of Molecular Toxicology and Pharmacology, Germany

Short oral presentations of Sessions 1 (7 minutes for presentation)

Non-invasive live cell imaging overcomes phototoxicity problem while imaging cellular and mitochondrial processes
Jamin Jung, Nanolive SA, Switzerland

Using direct Long RNA Sequencing to explore the whole Mitochondrial Transcriptome: Model of the Equine Mitochondrial RNA
Eric Barrey, INRA, France

Mitochondrial Complex II Activity during Hypoxic Reperfusion in Low and High Fat Diet Mice Heart
Yin Hua Zhang, Seoul National University, South Korea

Amyloid Pores - A New Class of Mitochondrial Porins?
Neville Vassallo, University of Malta, Malta

15h30 Coffee Break, Networking & Poster Session

Chairs: Martin Bergö, Hans Zischka

16:10 Short oral presentations of Sessions 1 (7 minutes for presentation)

Role of Mitochondria in Regulation of Insulin and Glucagon Secretion
Marko Marhl, University of Maribor, Slovenia

The Arduous Path of Iron from Plasma Transferrin to Mitochondrial Ferrochelatase: Kiss-and-Run Mechanism
Amel Hamdi, Lady Davis institute for Medical Research & McGill University, Canada

Mitochondrial Dysfunction in Human Primary Alveolar Type II Cells in Emphysema
Karim Bahmed, Temple University, USA

SK Channel Activation Potentiates Auranofin-Induced Cell Death in GLIO-and Neuroblastoma Cells
Inge Eline Krabbendam, University of Groningen, The Netherlands

Activation of Respiratory Chain Complexes by Unique Mitochondrial Ribosomes during Stem Cell Differentiation
Yan Qin, Chinese Academy of Sciences, China

The ESRE Network: A Conserved Master Stress Response that Surveils Mitochondrial Damage
Natasha Kirienko, Rice University, USA

Mitochondrial Dysfunction and Insulin Resistance Induced by Endotoxin was Restored by GPR120 Agonist, TUG-891 in Brown Adipocytes
Farah Omran, University of Warwick, United Kingdom

Whole Exome Sequencing of Chagas Disease Cardiomyopathy Families Reveals Accumulation of Rare Variants in Mitochondrial and Inflammation-Associated Genes
Edecio Cunha-Neto, University of São Paulo School of Medicine, Brazil

Importance of Distinction between Primary Mitochondrial Disease and Secondary Mitochondrial Dysfunction
Dmitriy Niyazov, Ochsner/Tulane/Queensland, USA

The Role of Mitochondrial DNA During Chondrogenesis using Human Mesenchymal Stem Cell without MTDNA (RHO-0)
Mercedes Fernandez-Moreno, Institute for Biomedical Research iNIBIC, Spain

Mitochondria-Mediated Multi-Organ crosstalk in Amyotrophic Lateral Sclerosis (ALS)
Jingsong Zhou, University of Texas at Arlington, USA

Quantum Chemistry Molecular Modeling for Mitochondria as Powerhouse of Cells
Shozo Yanagida, Osaka University, Japan

Transmitotic Mitochondrial Resistance to Extrinsic Apoptosis is Governed by the Druggable BCL-2 Family Member MCL-1
Markus Morrison Rehm, University of Stuttgart, Germany

Chairs: Lori M. Buhlman & Carole Nicco

Adenosine Triphosphate (ATP) Synthesis by Endogenous UV Radiation
Thomas Valentine Prevenslik, QED Radiations, Germany

A Novel Mutation in Spart Gene Causes a Severe Neurodevelopmental delay due to Mitochondrial Dysfunction with complex I Impairments and Altered Pyruvate Metabolism
Irene Liparulo, University of Bologna, Italy

Neuropilin-1 Controls Endothelial Homeostasis by Regulating Mitochondrial Function and Iron-Dependent Oxidative Stress
Claudio Raimondi, Queen Mary University of London, United Kingdom

FRET Biosensors to Monitor Autophagy and Mitophagy in Living Cells
Giulia Bertolin, CNRS-University of Rennes-Genetics and Development Institute of Rennes, France

Loss of CLEC16A Function Predisposes to Neurodegeneration, Autoinflammation and Lipodystrophy by Means of Defective Mitophagy
Marina Bakay, Children's Hospital of Philadelphia, USA

Novel Role of ATPase Inhibitor Factor-1 (IF-1) in Mitochondrial Calcium Handling and Cardiomyocyte Hypertrophy
Mario G. Pavez-Giani, University Medical Center of Groningen, The Netherlands

Membrane - Mediated Modulation of the Activity of Mitochondrial Calcium-Activated Potassium Channel of Large Conductance
Piotr Koprowski, The Nencki Institute of Experimental Biology, Poland

A Catalogue of Novel Mitochondrial Microproteins in The Human Heart
Jana F. Schulz, MDC Berlin, Germany

ALCAT1 Overexpression Prevents Supercomplex Formation and Promotes Increased ROS Production in Respiring Mitochondria
Bettina Rieger, Münster University (WWU), Germany

Keratin 6A Mutations Lead to Impaired Mitophagy
Sonja Maria Lehmann, Institute of Molecular and Cellular Anatomy, University Hospital Aachen, Germany

Investigation of Microbiome Metabolites and Mitochondrial Function in Non-Alcoholic Fatty Liver Disease
Paula Boeira, University of Plymouth, United Kingdom

A Novel Role of MCUR1 in Mitophagy
Karthik Babu Mallilankaraman, National University of Singapore, Singapore

19h00 **End of the first day**

20h30 **Targeting Mitochondria Dinner will be held at InterContinental Hotel Berlin**
Appointment in the lobby of the hotel. If you would like to participate, please register online or contact the staff on site.





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Tuesday October 29, 2019

Symposium

Actin(g) on mitochondria:

The role of actin-regulating proteins on mitochondria in health and disease

Chairs: Carsten Culmsee & Marco Rust

- 08h00 Introduction: Role of Actin-regulating Proteins on Mitochondria
Carsten Culmsee, University of Marburg, Germany
- Role of Mitochondria in Ferroptosis
Minghui Gao, University of Harbin, China
- Mitochondrial Functions of The Actin-Regulatory Protein Cofilin1
Marco Rust, University of Marburg, Germany
- Cofilin Dependent Mitochondrial Dysfunction Following Hemorrhagic Brain Injury and Neuroinflammation
Zahoor Shah, University of Toledo, USA
- Mitochondrial Pathways in Neuronal Cell Death
Changlian Zhu, Zhengzhou University, China
- Knock-down of ADF/Cofilin in *C. Elegans* - Effects on Mitochondrial Function
Gunter Eckert, University of Giessen, Germany
- Mitochondrial Parameters in Cardiomyocytes in Health and Disease
Christoph Maack, University Hospital Würzburg, Germany
- Mitochondrial Calcium Regulation in Hypertensive Heart Disease
Jelena Plakic & Jens Kockskämper, University of Marburg, Germany
- Mitochondrial Alterations in Heart Failure
Susanne Rohrbach, University of Giessen, Germany
- Blocking Mitochondria-targeted Ferroptosis Prevents Cardiomyopathy
Fudi Wang, University School of Medicine, China

10h30 Coffee Break, Networking & Poster Session

Session 2: Mitochondria & Skin: Recent Advances

Chairperson: Lionel Breton

- 11h15 Role of PGC-1S in Human Epidermal Physiology
Sibylle Jäger, L'Oréal Research & Innovation, France
- 11h35 Cannabinoids and Skin: The "C(ut)annabinoid" System as a Novel Player in Regulating Cutaneous Mitochondrial Biology
Attila Oláh, University of Debrecen, Hungary
- 11h55 Mitochondria and Skin: Mitochondria in Wound Healing
Jakob Wikström, Karolinska University Hospital, Sweden
- 12h15 Short oral presentations (7 minutes for presentation)
- The Cytoprotective Potential of Novel Mitochondria-Targeted Iron Chelators Against UVA- and Hydrogen Peroxide-Mediated Oxidative Cell Death in Friedreich's Ataxia Fibroblasts
Charareh Pourzand, University of Bath, United Kingdom

12h25 Lunch Break, Networking & Poster Session

Session 3: Mitochondria Innovations 2019

Strategies to target mitochondria: Clinical trials and potential mitochondria-based therapies

Chairs: John G. Geisler, Richard C. Hartley

- 13h30 **Mitochondrial Antioxidant Therapy for Treating Vascular Aging**
Douglas R Seals, University of Colorado Boulder, USA
- 13h50 **2,4-Dinitrophenol as Medicine**
John G. Geisler, Mitochon Pharmaceuticals, Inc, USA
- 14h10 **Mitochondria-Targeted Low-Molecular Weight Compounds for Probing Mitochondrial Functions**
Richard C. Hartley, University of Glasgow, United Kingdom
- 14h30 **Mitochondrial Transplantation - From Animal Studies to Clinical Relevance**
James D. McCully, Harvard Medical School, Boston Children's Hospital, USA
- 14h50 **Short oral presentations (7 minutes for presentation)**
- Monitoring of Patients' Mitochondrial Function and Tissue Metabolic Score (TMS) in Critical Care Medicine: A New Standard of Care?**
Avraham Mayevsky, Bar Ilan University, Israel
- Mitochondria-Targeted Therapeutics for Alzheimer's Disease**
Eugenia Trushina, Mayo Clinic, USA
- Precise Intra Mitochondrial Delivery of PT(LV) Anticancer Complexes for Enhanced Anticancer Activity and Reduced Nephrotoxicity**
Giorgia Pastorin, National University of Singapore, Singapore
- Antioxidant, Hormetic-Like Properties of ANTIOXCIN4, A Novel Hydroxinnamic Acid-Based Mitochondria-Targeted Agent**
Paulo J. Oliveira, Center for Neuroscience and Cell Biology, University of Coimbra, Portugal

15h10 Coffee Break, Networking & Poster Session

Chairs: Lawrence Grossman, Alessandro Prigione

- 15h40 **Stem Cell-driven Drug Discovery of OXPHOS Diseases**
Alessandro Prigione, Max Delbrueck Center for Molecular Medicine, German
- 16h00 **Mitochondria-Targeted Nanocarriers for Mitochondrial Therapies**
Shanta Dhar, University of Miami, USA
- 16h20 **Short oral presentations (7 minutes for presentation)**
- Therapeutic Application of Specific Near-Infrared Light Wavelengths that Inhibit Cytochrome C Oxidase Results in Robust Neuroprotection**
Maik Hüttemann, Wayne State University, USA
- Advanced Mitochondrial Electron Flow Assays**
Barry R. Bochner, Biolog, Inc., USA
- Targeting Mitochondrial Complex I for fighting Diabetes**
Liang-Jun Yan, University of North Texas Health Science Center, USA
- Blood Contains circulating Cell Free Respiratory Competent Mitochondria**
Zahra Al Amir Dache, Institut de recherche en Cancérologie de Montpellier, France
- The Psychiatric Risk Gene CACNA1C Regulates Mitochondrial Function In LPS-Stimulated Microglial Cells**
Susanne Michels, University of Marburg, Germany
- Targeting Mitochondrial Calcium with the Plant Polyphenol Kaempferol, to Promote Metabolism/Secretion Coupling in Pancreatic Insulin-Secreting Cells**
Umberto De Marchi, Nestlé Research, Switzerland
- Editing of Mitochondrial Genome: Cationic Liposomes as the Perspective Mean of Targeted Delivery of Nucleic Acids into Mitochondria**
Igor A. Sobenin, National Medical Research Center of Cardiology, Russian Federation
- Effects Of Fluorescent Light Energy on Mitochondria Dynamics**
Michela Zago, KLOX technologies Inc., Canada
- Mitochondrial Augmentation Therapy: Mitochondrial Enrichment of Hematopoietic Stem Cells in Patients with Mitochondrial Disease**
Noa Sher, Minovia, Israel
- 5-Aminolevulinic Acid as a Potential Drug Affecting Dysfunctional Mitochondria**
Alexander Orekhov, Institute of General Pathology and Pathophysiology, Russian Federation
- Pharmacological Inhibition of Metap2 Causes Rapid and Sustained Changes to Mitochondria**
Jonathan Jung, University of Glasgow, United Kingdom
- A Mitochondrial Role Of SV2A Protein in Aging and Alzheimer's Disease**
Kristina Friedland, JGU Mainz, Germany

Assess Safety of an Autologous Myogenic Stemcell Therapy for Carriers of a Heteroplasmic Mitochondrial DNA Mutation
Irenaeus F. De Coo, Maastricht University, The Netherlands

Delay of Neurodegenerative Disease by Nano-PSO (Granagard) is Associated with Restoring Normal Mitochondrial Function
Guy Keller, Hadassah-Hebrew University Medical Center, Israel

17h50 Discussion & Concluding Remarks with Chairpersons & Scientific Committee

Targeting Mitochondria 2019 Awards

18h00 End of Targeting Mitochondria 2019