Introduction Note by the President of World Mitochondria Society

Dear Colleagues and Friends,

I am excited and honored to announce on behalf of the Scientific Committee of the World Mitochondria Society the 9th World Congress on Targeting Mitochondria, which will be held in Berlin, Germany, on October 23-25, 2018.

The overarching themes of our 9th 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, 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, this year we will also focus on the cross-talk between mitochondria and microbiota as well as on mitochondrial dynamics in health and disease. Furthermore, we will address nutritional and pharmaceuticals interventions for mitochondrial respiratory deficiencies and we will highlight the role of mitochondria in the process of aging.

For the 9th edition of “Targeting Mitochondria”, the scientific committee has again succeeded in inviting 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 (a few invitations are still pending). Basic researches 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 9th World Congress on Targeting Mitochondria will be at least as exciting and as successful as many of our previous meetings.

Our conference will involve the following sessions, for more details please see our preliminary program below.

- Recent advances on mitochondrial dysfunction and dynamics in etiology and pathogenesis of human diseases: the mechanistics
- The challenge of qualitative and quantitative assessment of mitochondrial function in vitro and in vivo
- Mitochondria & Microbiota Intertalk
- Strategies to target mitochondria: Clinical trials and potential mitochondria-based therapies
- Special workshop on Mitochondria and ageing

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

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

9th World Congress on
Targeting Mitochondria
October 23-25, 2018 – Steigenberger Hotel, Berlin, Germany

Scientific Agenda

Chairpersons:
Volkmar Weissig, Marvin Edeas, Eric Barrey, Martin Bergö, Alessandro Prigione, Carole Nicco, Bartosz Szczesny, Vladimir Gogvadze, Carsten Culmsee, Laurent Chatre, Maria Ricchetti, Alessia Angelin, Keshav Singh, Werner Koopman, Maik Hüttemann, Egbert Mik

Day 1 – Tuesday October 23, 2018

17h00 – 18h00  Registration & material delivery

Day 2 – Wednesday October 24, 2018

7h45  Registration & material delivery

8h20  Introduction of Targeting Mitochondria by the President of World Society Mitochondria, Prof. Volkmar Weissig

Session 1: Recent advances on mitochondrial dysfunctions and dynamics in chronic diseases: the mechanistics

Chairs: Marvin Edeas, Volkmar Weissig

8h25  Reflexions on an increasingly central player in physiology and disease
Miria Ricchetti, Pasteur Institute, France

8h50  Metabolic switches saving mitochondria from oxidative stress
Carsten Culmsee, University of Marburg, Germany

9h15  Targeting mitochondrial metabolism, geroprotection to treating Alzheimer’s disease
Antonio Currais, The Salk Institute for Biological Studies, USA

9h40  FOXP3 increases oxidative phosphorylation and NAD oxidation, adapting regulatory T cells to low glucose high lactate environments
Alessia Angelin, Children’s Hospital of Philadelphia, USA

10h05  Mitochondrial involvement in cell life/death regulation: presentation of new scientific results
Vladimir Gogvadze, Korolinska Institute, Sweden

10h30  Coffee Break & Poster Session

Chairs: Alessia Angelin, Håkan Westerblad

11h20  Utilizing a human hepatoma cell line to study off-target effects of drugs on mitochondrial DNA maintenance and bioenergetics
Matthew Young, Southern Illinois University School of Medicine, USA

11h45  Mitochondrial fission in human diseases
Madhavika N. Serasinghe, Icahn School of Medicine at Mount Sinai, USA

12h05  Mitochondrial dynamics in cell life and death
Stephanie Herkenne, University of Padova, Italy
12h15 Mitophagy as a cell death regulator
*Alibek Abdrakhmanov*, Lomonosov Moscow State University, Russian Federation

12h25 The impact of mitochondrial fission on metabolic adaptation
*Miriam Valera-Alberni*, Nestlé Institute of Health Sciences, Switzerland

12h35 Lunch Break, Networking & Poster Session
Chairs: Miria Ricchetti, Adam Szewczyk

14h00 Mitochondrial potassium channels: new regulation mechanism?
*Adam Szewczyk*, Nencki Institute of Experimental Biology, Poland

14h25 ROMO1 is a mitochondrial non-selective cation channel with viroporin-like characteristics
*Young Do Yoo*, University of Korea, Republic of South Korea

14h35 SK channel activation prevents ferroptosis by metabolic reprogramming
*Amalia Dolga*, Groningen Research Institute of Pharmacy, The Netherlands

14h45 The mitochondrial link to cocaine addiction: recent scientific advances
*Mary Kay Lobo*, University of Maryland School of Medicine, USA

15h10 Healing the heart through mitochondrial dynamics: a love-hate relationship
*Sang-Bing Ong*, Duke-NUS Medical School, Singapore

15h35 MNRR1 (CHCHD2) and mitochondrial UPR: a novel nexus
*Lawrence Grossman*, Wayne State University, USA

15h45 Coffee Break, Networking & Poster Session
Chairs: Martin Bergö, Carsten Culmsee

16h25 The transcriptomic and proteomic landscape of mitochondrial dysfunction in mouse
*Inge Kühl*, CNRS - Institut de Biologie Intégrative de la cellule, France

16h50 Dedicated surveillance mechanism controls G-quadruplex forming non-coding RNAs in human mitochondria.
*Roman J. Szczesny*, Institute of Biochemistry and Biophysics PAS, Poland

17h00 Synaptic activity mediates gene transcription-dependent metabolic plasticity in neurons
*Carlos Bas Orth*, University of Heidelberg, Germany

17h10 Mitochondrial dysfunction activates innate immunity via toxic RNA
*Jana Key*, Goethe University Frankfurt, Germany

17h20 Mitochondria: central players in microglia-neuron interactions
*Csaba Cserep*, Hungarian Academy of Sciences, Hungary

17h30 Nicotinic acetylcholine receptors regulate mitochondria-driven apoptosis
*Maryna Skok*, Palladin Institute of Biochemistry, Ukraine

17h40 Sirtuin 3 silencing impairs mitochondrial function in SW620 colon cancer cells
*Margarida Torrens-Mas*, University of Balearic Islands, Spain

17h50 The role of the Pink1/Parkin pathway in neuroblastoma chemo-resistance
*Flavia Radogna*, Laboratoire de Biologie Moléculaire et Cellulaire du Cancer, Luxembourg
Day 3 – Thursday October 25, 2018

Session 2: The challenge of qualitative and quantitative assessment of mitochondrial function in vitro and in vivo

Chairs: Egbert Mik, Carole Nicco

18h00 Mitochondrial dysfunction in Alzheimer’s disease: differential impact of amyloid precursor protein-derived fragments
Mounia Chami, Université Côte d’Azur, France

18h10 Proteomic characterization of synaptosomes from human substantia nigra indicates altered mitochondrial translation in Parkinson’s disease
Katrin Marcus, Ruhr-Universität Bochum, Germany

18h20 Protective role of soluble adenylyl cyclase against reperfusion-induced injury
Yury Ladilov, Charité, Germany

18h30 IPSC-derived neuronal/astrocyte composite cultures identify functional and bioenergetic defects in Leigh syndrome patients carrying surf1 mutations
Gizem Inak, MDC Berlin, Germany

18h40 Implication of the P53-regulator E4F1 in Leigh syndrome
Laurent Le Cam, Montpellier Cancer Center, France

18h50 End of the first day

20h30 Targeting Mitochondria Dinner
The dinner will be at Steinberger Hotel.
Appointment in the piano bar of the Hotel.

Session 2: The challenge of qualitative and quantitative assessment of mitochondrial function in vitro and in vivo

Chairs: Egbert Mik, Carole Nicco

8h30 Mitochondria evaluation 2018: outlines
Egbert Mik, Erasmus MC, The Netherlands

8h35 Cellomics of mitochondrial morphofunction
Werner Koopman, RadboudUMC University, The Netherlands

9h00 Using live imaging to investigate the causes and consequences of mitochondrial toxicity in the kidney
Andrew Hall, University of Zurich, Switzerland

9h25 3D visualization uncovers heterogeneity of cardiac mitochondria and artefacts of 2D images
Jacqueline Heinen-Weiler, University Hospital Essen, University Duisburg-Essen, Germany

9h35 A new method adapted for sequencing the mitochondrial genomes
Sophie Dhorne-Pollet, INRA, University Paris Saclay, France

9h45 Quantifying and visualizing mitochondrial fission/fusion and the organelle interactome from time-lapse microscopy imaging
Andrew R. Cohen, Drexel University, USA

9h55 Studying oxidative phosphorylation in vitro models. How to cope with the crabtree phenomenon?
Michèle Johanna Celina de Kok, LUMC, The Netherlands

10h05 A luminescent assay for mitochondrial injury measurement upon targeting mitochondria by DNAi
Saman Hosseinkhani, Tarbiat Modares University, Iran

10h15 Macropinocytic entry of isolated mitochondria in epidermal growth factor-activated human osteosarcoma cells
Dipali Patel, University of Cambridge, United Kingdom

10h25 Coffee Break, Networking & Poster Session
11h05  Harmonizing mitochondrial DNA alignment across genetics
Walther Parson, The Pennsylvania State University, USA

11h15  The levels of serum S-(2-succinyl)cysteine, a marker for mitochondria dysfunction, increases with diabetes and its complications
Ryoji Nagai, University of Tokai, Japan

11h25  New mitochondrial function assay technology
Barry Bochner, Biolog Inc; USA

Session 3: Crosstalk between microbiota and mitochondria
Chairs: Eric Barrey, Vladimir Gogvadze

11h50  Microbiota-Mitochondria interactions
Marvin Edeas, Institute Cochin, University Paris Descartes, France

12h15  Pathobiont adherent-invasive E. Coli (AIEC) induces mitochondrial fission in epithelial cells, promoting intracellular bacterial persistence
Nicole Mancini, University of Calgary, Canada

12h25  Metabolic regulation of neurogenesis by gut microbiome during nonalcoholic steatohepatitis
Maria Filipe Ribeiro, Universidade de Lisboa, Portugal

12h35  Lunch Break, Networking & Poster Session

13h45  Brucella-infected cells display a fragmented mitochondrial population that does not change cell sensitivity to TNF-α-induced Apoptosis (microbiota)
Thierry Arnould, University of Namur, Belgium

13h55  Special talk: Reversing wrinkled skin and lost hair in mice by restoring mitochondrial function
Keshav Singh, University of Alabama at Birmingham, USA

Session 4: Strategies to target mitochondrial: clinical trials and potential mitochondria-based therapies
Chairs: Keshav Singh, Werner Koopman

14h20  Therapeutic application of specific near infrared light wavelengths that inhibit cytochrome C oxidase results in robust neuroprotection
Maik Hüttemann, Wayne State University School of Medicine, USA

14h45  Mechanism and therapeutic potential of cyclophilin inhibitors for prevention of mitochondrial myopathy progression
Håkan Westerblad, Karolinska Institutet, Sweden

15h10  Phase 2 motor study of Omaveloxolone in patients with mitochondrial myopathies
John Vissing, Copenhagen University, Denmark

15h35  Rescue of impaired mitochondrial performance in familial forms of Parkinson's disease by stomatin-like protein 2 expression
Irene Pichler, Eurac Research, Italy

15h45  Coffee Break, Networking & Poster Session

16h10  Nutritional interventions and dietary supplementation for mitochondrial disease patients
Marni J. Falk, University of Pennsylvania Perelman School of Medicine, USA

16h35  The legal framework for mitochondrial therapy: identifying and preventing legal pitfalls within the translation from bench to bedside
Timo Faltus, Martin-Luther-Universität Halle-Wittenberg, Germany
17h00  Mitochondria-targeted antioxidants in human hepatic cells: A conceivable therapy for non-alcoholic fatty liver disease
   *Paulo J. Oliveira*, University of Coimbra, Portugal

17h10  Mitochondria-targeted hexokinase and ADP recycling: mechanism to prevent ROS generation and to mobilize carbohydrates
   *Vladimir Skulachev*, Lomonosso Moscow State University, Russian Federation

17h20  The Nicotinamide Riboside Journey from Discovery to Clinical Efficacy
   *Frank Jaksch*, ChromaDex, USA

17h30  Penetration of mitochondria into nuclei reprograms adult peripheral blood stem cells in humans
   *Yong Zhao*, Hackensack University Medical Center, USA

17h40  Associations of sperm mitochondrial copy number and deletion rate with fertilization and embryo development in a clinical setting
   *Richard Pilsner*, University of Massachusetts Amherst, USA

17h50  Discussion & concluding remarks with chairpersons & scientific committee

18h10  End of Targeting Mitochondria 2018