

4th World Congress on
Targeting Mitochondria

Strategies, Innovations & Clinical Applications

**Targeting Liver, Brain & Muscle Mitochondria:
Opportunities and Challenges**



Scientific Program

October 17-18, 2013

Ritz Carlton, Berlin - Germany

www.targeting-mitochondria.com



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Dear Colleagues,

After the success of the third editions, the Scientific Committee of the International Society of Antioxidants in Nutrition and Health (**ISANH**) decided to organize the **4th World Congress on Targeting Mitochondria** which will be held in **Berlin in October 17-18, 2013**.

Mitochondrial dysfunction has been associated with the aging process and a variety of human disorders, such as cardiovascular and neurodegenerative diseases, cancer, migraine, infertility, kidney and liver diseases, toxicity of HIV drugs... It is well recognized that the (patho)physiological role of mitochondria widely exceeds that of solely being the biochemical power plant of our cells.

Over recent years, mitochondria have become an interesting target for drug therapy, and the research field aimed at "Targeting Mitochondria" is active and expanding as witnessed by the third edition of the world congress on this topic. It is becoming a necessity and an urge to know why and how to target mitochondria with bioactive molecules and drugs in order **to treat and prevent** these pathologies and chronic diseases.

This 4th World Congress on **Targeting Mitochondria** will cover a variety of new strategies and innovations as well as clinical applications in Mitochondrial Medicine. Just as for the previous editions of "Targeting Mitochondria", the scientific committee has again succeeded in inviting an outstanding panel of speakers; each one of which a leader in their particular field.

Special Session Dedicated to Targeting Liver, Brain and Muscle Mitochondria

The Scientific Committee of Targeting Mitochondria 2013 has selected **to highlight Liver, Brain and Muscle Mitochondria**. **We need to talk about the central and strategic role of mitochondria in all liver, brain and muscle diseases related to inflammation and oxidative stress. We will discuss how to protect muscle, brain and liver mitochondria** and avoid their dysfunction. We will attract all scientific and industrial teams to present their strategies and innovations.

Special Session Dedicated to Microbiota, Intestinal Redox Biology & Mitochondria: A Promising Target

During Targeting Mitochondria 2013, the scientific committee will discuss how oxidative stress can modulate microbiota diversity and quality, and the relation with chronic inflammatory diseases or general inflammation. One of the strategic targets will be to modulate microbiota redox state and control signaling pathways by increasing antioxidant defense system. Obesity will be one the microbiota target by modulating oxidative stress & microbiota.

Targeting Mitochondria 2013 sessions:

- Mitochondrial dysfunctions in chronic diseases: recent advances and conclusions
- Devices, Methods & Mitochondria: Innovations & New Opportunities
- Targeting Liver, Muscle and Muscle Mitochondria : Opportunities and Challenges
- Microbiota, Intestinal Redox Biology & Mitochondria
- Strategies to target mitochondria : Recent Clinical data and potential Therapeutic Studies

Round Table Discussion: How Mitochondria can act on Redox Signaling Pathways to Restore or Reset it?

With this exciting program, we look forward to welcoming you in Berlin for this particular event.

Pr Marvin Edeas - Pr Volkmar Weissig

Chairmen of the Scientific Committee

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October 17-18, 2013- *Hotel Ritz Carlton, Berlin – Germany*

Scientific Program

Day 1 - October 17, 2013

7h30 Opening of Registrations

9h00 Opening Ceremony by Targeting Mitochondria 2013 Chairmen

9h10 General Introduction of Targeting Mitochondria 2013: Mitochondria: Huge Steps to New Medicine
Douglas Wallace, Center of Mitochondrial and Epigenomic Medicine, Philadelphia, USA

Session 1: Recent Advances on Mitochondrial Dysfunctions in Chronic Diseases

9h45 Structural Classification as a Platform for Predicting the Function of Mitochondrial Mutations
Rhiannon Lloyd, Institute of Biomedical and Biomolecular Sciences, University of Portsmouth, United Kingdom

10h15 Targeting Small-Conductance Calcium-Activated Potassium (SK2) Mitochondrial Channels: A Promising Target for Neuroprotective Strategies
Carsten Culmsee, Philipps University of Marburg, Marburg, Germany

10h45 Coffee Break, Posters Session
& Exhibition Space Visit

11h15 Mitochondrial Dysfunction Modifies Stem Cell Function
Riikka Hamalainen, University of Helsinki, Helsinki, Finland

**Session 2: Devices, Methods & Mitochondria:
Innovations & New Opportunities**

11h45 Nanofluidic Platform for Single Mitochondria Analysis using Fluorescence Microscopy
Douglas Wallace, Center of Mitochondrial and Epigenomic Medicine, Philadelphia, USA

12h00 mTRIP, a Novel Imaging Tool to Diagnose *in situ* Mitochondrial DNA Processing Dysfunction
Laurent Chatre, Pasteur Institute, Paris, France

12h30 Lunch Break, Posters Session
& Exhibition Space Visit

14h00 A Yeast-based Assay to Identify Drugs Active against Human Mitochondrial Disorders
Jean-Paul di Rago, CNRS, Bordeaux, France

14h30 Carbon Nanotubes for Mitochondrial Targeting: State of the Art & Strategies
Alessia Battigelli, CNRS, Strasbourg, France

**Session 3: Strategies to Target Mitochondria:
Recent Clinical Data and Potential Therapeutic Studies**

- Part 1 -

15h00 Mitochondria & Liver: State of the Art & Perspectives

Rifaat Safadi, Hadassah Hebrew University Hospital, Jerusalem, Israel

**15h30 Coffee Break, Posters Session
& Exhibition Space Visit**

16h00 Liver, Oxidative Stress & Mitochondria: The Subtle Balance

José C. Fernandez-Checa, Spanish National Research Council, Barcelona, Spain

16h30 Short Oral Presentations

Damaged Mitochondrial DNA, a Novel Putative Target for Treatment of Diabetic Complications and Other Diseases of Mitochondrial Dysfunction

Afshan Malik, King's College London, London, United Kingdom

16h40 The Measurement of Nitrotyrosine in Blood as an Early Predictive Parameter of Nitrosative Stress and Functional Mitochondriopathy

Clauss Muss, St. Elisabeth Universität für Forschung und Soziales, Bratislava, Slovakia

16h50 Cutaneous Respirometry in Healthy Volunteers: A Novel Technique for Monitoring Mitochondrial Function

Floor A. Harms, Erasmus MC, University Medical Center, Rotterdam, The Netherlands

17h00 Melanin Reduces Acute Mitochondrial Superoxide Generation: A Real-Time Amperometric Study

Sarah Jayne Boulton, Institute of Cellular Medicine, Newcastle, United Kingdom

17h10 The Mitosafe® Bioenergetic Balance Screening (BBS): An Innovative Method to Profile Modulators of the Mitochondrial Metabolic Functions

Emilie Cornille-Robert, ICDD, Predictive Toxicity Department, Meyreuil, France

17h20 Calcium co-Regulates Oxidative Metabolism and ATP-Synthase Dependent Respiration in Pancreatic Beta-Cells

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

17h30 Changed Mitochondrial Properties after Expression of *Ciona intestinalis* Alternative Oxidase (Aox) in Mouse Heart

Frank N. Gellerich, Otto-Von-Guericke University, Magdeburg, Germany

17h40 Oxidative Stress alters Mitochondrial Dynamics at the Nodes of Ranvier in ex vivo transected Axons

Elena Bros, Institute For Medical Immunology, Charité-Universitätmedizin Berlin, Germany

17h50 Stomatin-Like Protein-2 Modulates Cell Function by Regulating Mitochondrial Membrane Compartmentalization and Respiration

Joaquín Madrenas, Microbiome and Disease Tolerance Centre, McGill University, Montreal, Canada

18h00 Characterization of Proteins involved in RNA Trafficking into Human Mitochondria

Ali Gowher, University of Strasbourg - CNRS, Strasbourg, France

18h10 End of the First Day

19h30 Dinner between Speakers & Attendees

Day 2 - October 18, 2013

**Session 3: Strategies to Target Mitochondria:
Recent Clinical Data and Potential Therapeutic Studies**

- Part 2 -

9h00 Role of Mitochondrial Quality Control in Aging

Mitochondria Quality Control: An Integrated Network of Pathways.

Heinz Osiewacz, Johann Wolfgang Goethe University, Frankfurt, Germany

9h30 Targeting Muscle Mitochondria with Vitamin D: Strategies and Perspectives

Timothy Cheetham, University of Newcastle, Newcastle, United Kingdom

10h00 Cancer & Mitochondria: Therapeutics Strategies

Classification of mitocans, anti-cancer drugs acting on mitochondria

Jiri Neuzil, Griffith Health Institute, Southport, Australia

**10h30 Coffee Break, Posters Session
& Exhibition Space Visit**

11h00 Mitochondrial Uncoupling Proteins and its Role in Cancer

Keshav Singh, University of Alabama, Birmingham, USA

**11h30 Mitochondria-Targeting Strategies in Cancer Bioenergetic Therapies: Recent Advances
& Perspectives**

Rodrigue Rossignol, University of Bordeaux, Bordeaux, France

**12h00 Effects of Oral Supplementation with Sanomit[®] on Tinnitus-Induced Distress:
Double Blind, Randomized, Placebo-Controlled Study**

Agnieszka J. Szczeppek, Charité – Universitätsmedizin, Berlin, Germany

12h30 New Antioxidant Product on Market to Target Mitochondria: Presentations and Results

Vladimir Skulachev, Moscow University, Moscow, Russia

**12h45 Lunch Break, Posters Session
& Exhibition Space Visit**

14h00 Impact of Antioxidants on Mitochondria in Primary Cells and in Cancer-derived Cell Lines

Miria Ricchetti, Pasteur Institute, Paris, France

14h30 Mitochondria-Targeted Nanoparticles for Atherosclerosis and Cancer

Shanta Dhar, University of Georgia, Athens, USA

15h00 Short Oral Presentations

Mitochondria-Specific Genistein Lipidic Nanocarriers

Tamer Elbayoumi, Midwestern University, College, Glendale, USA

15h10 HB229: A Novel Parkin-Independent Inducer of Mitophagy

Michelangelo Campanella, RVC and UCL Consortium for Mitochondrial Research, London, United Kingdom

15h20 Low Abundance of the Matrix Arm of Complex I in the Mitochondria Predicts Longevity

Thomas Von Zglinicki, Institute for Ageing and Health, Newcastle University, Newcastle, United Kingdom

**15h30 Targeting Mitochondria of Cancer Cells With Dichloroacetate: The Case of Oral Squamous Cell
Carcinoma**

Vitalba Ruggieri, I.R.C.C.S. Centro Di Riferimento Oncologico Della Basilicata, Rionero In Vulture, Italy

15h40 Selective Mitochondrial Targeting for Anxiolytic Treatment

Michaela Filiou, Max Planck Institute of Psychiatry, Munich, Germany

15h50 An Immunomodulating Fatty Acid Analogue Targeting Mitochondria Exerts Anti-Atherosclerotic Effect beyond Plasma Cholesterol-Lowering Activity in apoe^{-/-}Mice

Rolf Berge, Department of Clinical Science, University of Bergen, Bergen, Norway

16h00 Bornavirus X Protein: A New Tool against Neurodegenerative Disorders?

Marion Szelechowski, INSERM, CHU Purpan, Toulouse, France

16h10 Mitochondrial Targeting Cell Penetrating Peptides: A New Mitochondrial Peptide Based Gene Delivery System

Trevor MacMillan, Agriculture and Agri-Food Canada, Lethbridge Research Centre, Lethbridge, Canada

16h20 Microbiota & Mitochondria: A Promising Target

The scientific committee will discuss the axes of the next upcoming Targeting Mitochondria World Congress 2014. One of the strategic axes will be **Modulation Diversity & Variety of Microbiota by Mitochondria**.

Speakers will discuss also about Mitochondria, Oxidative Stress, Relation to Energy Metabolism and Impact on Microbiota Quality & Diversity

Conclusion of Targeting Mitochondria 2013

Targeting Mitochondria Awards

16h45 All together around Drink & Snacks – Business Card Exchanges

17h30 End of Targeting Mitochondria 2013



Registration form Available on
www.targeting-mitochondria.com