

25TH

International
Conference

REDOX MEDICINE

JUNE
21-23

2023
PARIS
FRANCE



PROGRAM
2023



June 21-23, 2023 - IRIS Conference Center - Paris, France



Hallmarks of Aging & Redox Medicine: An Expanding Universe

Guido Kroemer, Université de Paris Cité, Hôpital Européen George Pompidou, France



Ferroptosis: A Decade Before and After the Coining

Marcus Conrad, Helmholtz Zentrum München, Germany



Redox Medicine 2023: What's Next?

Chandan K. Sen, Indiana University, USA



Redox Homeostasis and Sarcopenia: Targeting Mitochondria

Francesco Bellanti, University of Foggia, Italy



Chronobiology: The Reactive Species Interactome-Mitochondria Axis, the Hands of the Circadian Clock ?

Laurent Chatre, Normandie University, UNICAEN Cycleron, Centre national de la recherche scientifique (CNRS), France



A Redox Theory of Biological Regulation

Jérôme Santolini, Laboratoire Stress Oxydant et Détoxication, France



Awakening Adult Retinal Stem Cells: A New Function of NOX Signaling in the Xenopus Retina

Morgane Locker, Université Paris-Saclay, France



Redox Balance as a Biomarker: Towards Personalized Interventions for Health

Dong-Yun Shi, Fudan University, China



Effects of Reactive Sulfur Species in Macrophage Activation and Regulation of Apoptosis/Necrosis Pathways in Cancer Cells

Moran Benhar, Technion University, Israel



Friedreich's Ataxia: the Pathological Iron-redox Axis Revisited

Benoit D'Autrèaux, Paris-Saclay University, France



Antioxidant Capacity Biomarkers, A Path Forward to Develop Ros-inducing Drugs for Cancer Therapy

Nikolas Gunkel, Deutsches Krebsforschungszentrum (DKFZ), Germany



Workshop: From Antioxidants to Redox Medicine: How to Evaluate Oxidative Stress and Protect Redox Homeostasis?

Ginette Deby-Dupont, University of Liège, Belgium



Redox Medicine in the Anthropocene How do we make it work?

Martin Feelisch, University of Southampton, United Kingdom



**- Ferroptosis 2023: New Insights & Discoveries
- Targeting Mitochondrial Copper: Therapeutic Strategies**

Raphael Rodriguez, Institut Curie, France



Redox Medicine, Mitochondria & Aging: The Underestimated Link

Amalia M. Dolga, University of Groningen, The Netherlands



Antibacterial Strategies Based on Reactive Oxygen Species

Wee Han Ang, National University of Singapore, Singapore



Precision Redox: The Key for Antioxidant Pharmacology

Chang Chen, Institute of Biophysics, Chinese Academy of Sciences, China



The Skin Redoxome: Perspectives in Photodamage and Sun Care

Mauricio S. Baptista, Universidade de São Paulo, Brazil



The Determination of Intracellular Labile Ironome for Diagnosis and Prognosis of Iron-Related Disorders: the Example of Friedreich's Ataxia

Charareh Pourzand, University of Bath, United Kingdom



Mitochondrial Involvement in Different Model Systems of Ferroptosis

Melanie Merkel, Philipps-Universität Marburg, Germany



Redox Medicine & Signaling: Molecular Mechanisms Underlying Age-Related Muscle Decline

Robert A Heaton, University of Liverpool, United Kingdom



Arsenic-Copper: A Double-Edged Sword for a Unique Double Benefit against Immunological Disorders

Carole Nicco, President of RMS, Université de Paris, France and BioSenic SA, Belgium



REDOX-MEDICINE.COM

The International Conference on Redox Medicine 2023, to be held June 21-23, will be organized to bring together academic and industry experts in redox to discuss advances and recent innovation in this vast field. We will highlight recent clinical applications of antioxidants in health and disease. We will spend more time covering all the devices and methods for the assessment of oxidative stress.

Reactive oxygen species (ROS) have been studied for decades, but the results remain controversial. ROS are beneficial to biological mechanisms, yet they also have harmful effects such as causing tissue and organ damage. The work and results presented at the Redox Medicine Congress will give us the opportunity to view ROS from a different dimension that may explain the conflicting results or provide a broader perspective. The exchange of ideas will help us to think differently about the neglected features and potentials of ROS, to relate medicine to redox balance, and to explore the mechanisms described in other disciplines.

In an era of increasing health challenges, it is imperative that we seriously consider the innovative alternatives offered by organic and inorganic redox-active compounds. It has significantly diversified the field of redox medicine, paving the way for visionary approaches to the development of biotechnology and healthcare. The translation of many disciplines in which the fields of redox biology and free radical research have brought important scientific advances to society, the clinic, and industry will help strengthen our field. One of our main goals is to also connect redox drugs with other key players: mitochondrial and microbiotal medicine.

I am delighted to be the President of the Society of Redox Medicine to bring you the 2023 Paris International Conference on Redox Medicine with the latest advances in this field, to help each of us establish strong interactions and strengthen our underlying technology and knowledge sharing networks in basic and clinical redox research and medicine.

We look forward to meeting you during our 25th anniversary this June.

All our best regards,



Dr. Carole Nicco,
President of Redox Medicine Society

Day 1 - Wednesday, June 21, 2023

**From Antioxidants to Redox Medicine:
How to Evaluate Oxidative Stress and Protect Redox Homeostasis?**

13h00 – 18h00

13h00 Welcoming of Participants and Badges

13h55 Introduction of the workshop

14h00 **Session 1 - Reactive species derived from oxygen (ROS) and antioxidants**

14h45 **Session 2 - The different methods to measure an antioxidant power**

15:30 – Coffee Break

16h00 **Session 3 - REDOX Homeostasis: From Antioxidants to Redox Medicine**

16h45 **Discussion**

17h15 End of the workshop



Ginette Deby-Dupont,
University of Liège, Centre for Oxygen,
Research & Development (CORD),
Liege, Belgium

Workshop Agenda

Day 2 - Thursday, June 22, 2023

8h00 Welcoming of attendees & Badge Distribution



8h50 **General Introduction of Redox Medicine 2023:**

Carole Nicco, *President of Redox Medicine Society,
Institut Cochin - INSERM U1016, Université de Paris
BioSenic SA, Belgium*



9h00 **Keynote Speech on Hallmarks of Aging & Redox Medicine: An Expanding Universe**

Guido Kroemer, *Université de Paris Cité, Hôpital Européen George Pompidou, France*

Session 1: Oxidative Stress & Antioxidants: A Step Closer to Redox Medicine

Chairs: Carole Nicco, Marcus Conrad

Presentations length: 25 minutes. Questions will be answered before each break



9h30 **Redox Medicine in the Anthropocene – How do we make it work?**

Martin Feelisch, *University of Southampton, United Kingdom*



9h55 **A Redox Theory of Biological Regulation**

Jérôme Santolini, *Laboratoire Stress Oxydant et Détoxication, France*

10h20 **Questions to Speakers**

10h30 – 11h10 Coffee Break, Poster & Exhibition Session



11h10 **Awakening Adult Retinal Stem Cells: A New Function of NOX Signaling in the Xenopus Retina**

Morgane Locker, *Université Paris-Saclay, France*



11h35 **Cross-talk Chronobiology: The Reactive Species Interactome-Mitochondria Axis, the Hands of the Circadian Clock?**

Laurent Chatre, *Normandie University, UNICAEN Cyceron, CNRS, France*



12h00 **Antibacterial Strategies Based on Reactive Oxygen Species**

Wee Han Ang, National University of Singapore, Singapore

12h25 **Questions to Speakers**

12h40 – 14h00 Lunch Break, Poster & Exhibition Session

Group picture outside

Session 2: Ferroptosis 10 Years Later: What's Next?

Chairs: Carole Peyssonnaud, Raphael Rodriguez

Presentations length: 25 minutes. Questions will be answered before each break



14h00 **Ferroptosis: A Decade Before and After the Coining**

Marcus Conrad, Helmholtz Zentrum München, Germany



14h25 **Ferroptosis 2023: New Insights & Discoveries**

Raphael Rodriguez, Institut Curie, France



14h50 **Mitochondrial Involvement in Different Model Systems of Ferroptosis**

Melanie Merkel, Philipps-Universität Marburg, Germany

15h15 **Questions to Speakers**

15h30 – 16h10 Coffee Break, Poster & Exhibition Session

16h10 – **Short Oral Presentations**

Presentations length: 8 minutes + 2 minutes Q&A

Mitochondrial assays in your hands by Agilent

Christophe lochem, Agilent, France

The Link Between Alzheimer's Disease and Ferroptosis-Related Pathways

Nad'a Majerniková, University of Groningen, The Netherlands

***In Vitro* Study of the Implication of Reactive Species Interactome and Bioenergetics Metabolisms in the Cellular Response of Glioblastoma Cells Treated with a SOD-Mimetic Agent Combined to X-rays Irradiation, Under Normoxic or Hypoxic Condition**

Elise Malard, Université de Caen Normandie, France

Unveiling Lipopolysaccharide-induced Brain Region-dependent Iron Metabolism and Microglial Changes and Modulation by Iron Pre-treatment in C57BL/6J Mice

Po-Wah So, King's College London, United Kingdom

Mitochondria-Related Oxidative Stress: An Unexplored Field in Diverticular Disease

Martina Cappelletti, Sapienza Università Di Roma, Italy

Formation of Neutrophil Extracellular Traps (Nets): Study by Atomic Force Microscopy

Viktoria Sergunova, V.A. Negovsky Research Institute of General Reanimatology, Russian Federation

Influence of Reactive Oxygen Species on Red Blood Cell Morphology, Membrane and Cytoskeleton Nanostructure: Atomic Force Microscopy Study

Elena Kozlova, V.A. Negovsky Research Institute of General Reanimatology, Russian Federation

A New Electrochemical Device for Total Antioxidant Activity Determination in Biological Samples

Henar Muñoz-Cimadevilla, Bioquochem SL, Spain

Reductase 1 (TR1) Modulates Pigmentation and Photobiology of Murine Melanocytes *in vivo*

Arup Kumar Indra, Oregon State University, USA

Ascorbic Acid – Prooxidant or Antioxidant? The Effects on Human Cell Line U-937

Ankush Prasad, Palacký University, Czech Republic

Maternal Oxidative Stress during Pregnancy Associated with Emotional and Behavioural Problems in Early Childhood: Implications for Fetal Programming

Cindy Pham, Murdoch Children's Research Institute, Royal Children's Hospital, Australia

17h50 – **End of Redox Medicine 2023 Day 1**

20h00 – **Speakers' Dinner (For ticket holders only)**

Day 3 - Friday, June 23, 2023

8h00 **Welcoming of Attendees & Registration**

Session 3: Redox Medicine in Health & Diseases: Innovations, & Strategies

Chairs: Marvin Edeas, Martin Feelisch

Presentations length: 25 minutes. Questions will be answered before each break



8h30 **Redox Balance as a Biomarker: Towards Personalized Interventions for Health**
Dong-Yun Shi, Fudan University, China



8h55 **Targeting Mitochondrial Copper: Therapeutic Strategies**
Raphael Rodriguez, Institut Curie, France



9h20 **Arsenic-Copper: A Double-Edged Sword for a Unique Double Benefit against Immunological Disorders**
Carole Nicco, Institut Cochin - INSERM U1016, Université de Paris, France
BioSenic SA, Belgium



9h45 **Effects of Reactive Sulfur Species in Macrophage Activation and Regulation of Apoptosis/Necrosis Pathways in Cancer Cells**
Moran Benhar, Technion University, Israel

10h10 **Questions to Speakers**

10h30 – 10h55 Coffee Break, Networking, Poster & Exhibition Session

Chairs: Miria Ricchetti, Jérôme Santolini



10h55 **Antioxidant Capacity Biomarkers, a Path Forward to Develop ROS-Inducing Drugs for Cancer Therapy**
Nikolas Gunkel, Deutsches Krebsforschungszentrum (DKFZ), Germany



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Benoît D'Autréaux, Paris-Saclay University, France



11h35 **The Determination of Intracellular Labile Ironome for Diagnosis And Prognosis of Iron-Related Disorders: The Example of Friedreich's Ataxia**
Charareh Pourzand, *University of Bath, United Kingdom*



12h00 **Redox Medicine & Signaling: Molecular Mechanisms Underlying Age-Related Muscle Decline**
Robert A Heaton, *University of Liverpool, United Kingdom*

12h25 **Questions to Speakers**

12h45 – 13h50 Lunch Break, Poster & Exhibition Session

Group picture inside

Chairs: Charareh Pourzand, Laurent Chatre



13h50 **The Skin Redoxome: Perspectives in Photodamage and Sun Care**
Mauricio S. Baptista, *Universidade de São Paulo, Brazil*



14h15 **Precision Redox: The Key for Antioxidant Pharmacology**
Chang Chen, *Institute of Biophysics, Chinese Academy of Sciences, China*



14h40 **Redox Homeostasis and Sarcopenia: Targeting Mitochondria**
Francesco Bellanti, *University of Foggia, Italy*



15h05 **Redox Medicine, Mitochondria & Aging: The Underestimated Link**
Amalia M. Dolga, *University of Groningen, The Netherlands*

15h30 **Questions to Speakers**



15h50 **Concluding Remarks – Redox Medicine 2023: What's Next?**
Chandan K. Sen, *Editor in Chief of Antioxidants & Redox Signaling Journal, Indiana University, USA*

16h00 – **Awards of Redox Medicine Society 2023**

16h15 – **End of Redox Medicine Society 2023**