

Redox Medicine Society

**HOW TO EVALUATE
OXIDATIVE STRESS &
ANTIOXIDANTS ACTIVITIES?**

From Initiation to Improvement...

WORKSHOP

June 21, 2023



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How to Evaluate Oxidative Stress & Antioxidants Activities?

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The Redox Medicine Society (RMS) will be organizing another workshop dedicated to **Oxidative Stress and Antioxidants - How to Evaluate Oxidative Stress & Antioxidants Activities?**

Oxidative stress results from an imbalance in the balance of antioxidants/free radicals in the body. An undesired phenomenon because it accelerates the aging of your body. It is therefore recommended to limit it and, for this, antioxidants have an essential role.

Oxidative stress, resulting from an imbalance in the balance of antioxidants / free radicals in the body, contributes to the appearance of several pathologies linked to aging such as cancers or cardiovascular diseases. This is accentuated by our lifestyles and some inappropriate eating habits. To prevent these pathologies linked to oxidative stress, it is necessary to better understand the concept of oxidative stress – antioxidants, as well as their origin.

Objectives of 2023 workshop:

The objectives of these training days are as follows:

- Present the latest scientific advances and perspectives on oxidative stress and antioxidants
- Discuss the subtlety of using antioxidants as food supplements
- Present in detail all the methods for evaluating antioxidant activity in different matrices
- Discuss the methods of measuring oxidative stress in humans and present the controversies linked to these methods
- Present extraction techniques in different industries

Special Section: Methods for evaluating antioxidant activity in humans

Presentation of methods for measuring protein alteration (glycation / carbonylation, etc.), alteration of lipids (lipoperoxidation) and DNA (8-OH-guanosine, etc.).

Discussion and Critics on many methods used to evaluate antioxidant capacity

At present, there are different methods for evaluating antioxidant capacity and oxidative stress. However, these methods are not standardized and can vary greatly from one laboratory to another.

Come with your project!

Do you have a product, an ingredient, or a food supplement...? Do you want to measure its antioxidant capacity? Come with your project, we will discuss it and offer you the best suitable method.

This workshop is intended for anyone who wish to improve their skills and knowledge in the field of oxidative stress and antioxidants.

Looking forward to meeting you very soon, please don't hesitate to contact us for any further information.

Best regards,



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Program

14:00 Welcome of Participants

14:05 Introduction of the workshop

Session 1 - Oxidants and antioxidants: physicochemical reminders

- Reactivity of oxygen with respect to living matter and the need for catalysts
- Free radical-oxidant distinction
- The cascade of oxidants derived from O₂
- The redox potential
- Mode of action of an antioxidant on the production of activated oxygen species (Reactive Oxygen Species: ROS) - stoichiometric action versus anticatalytic action
- Lipoperoxidation mechanisms

15:30 Break

Session 2 - What are the different methods to measure an antioxidants capacity?

15:45 Presentation of the most used methods, their main characteristics, advantages and disadvantages

- Synthetic antioxidants: history of their development, use in vitro, in vivo
 - Natural antioxidants: sources and main families
- Some data on extraction, purification and quantitative measurement techniques
- Qualities necessary for an antioxidant
- Techniques for measuring antioxidant power
 - Chemical methods (spectrophotometry, fluorescence, chemiluminescence)
 - Ex vivo methods (cell cultures, isolated blood cells, tissues and biological fluids)
 - Anti-catalytic methods
 - Combined methods
 - Lipoperoxidation measurement methods
 - Electrochemical methods

Presentation of practical cases

- *How to measure the antioxidant activity in food?*
- *How to measure the antioxidant activity in food supplements?*
- *How to measure the antioxidant activity in cosmetic products?*

Practical data (alphabetical index and table of the different methods, table of fluorescent probes, table of scavengers used in EPR)

Session 3 - Oxidants and antioxidants in vivo

- Sources of ROS in vivo (enzymes of O₂ metabolism, mitochondria, phagocytes, others, etc.)
- Natural antioxidant defenses (simple molecules, enzymes, etc.)
- Oxidative stress and the measurement of its markers
- Action of antioxidants in vivo: direct and indirect effects
- Preventive or curative use of antioxidants in vivo
 - Examples of studies in humans (cancerology, cardiology, etc.)
 - Examples of animal studies
- Conclusions of in vivo studies: discussed effects and why
 - Bioavailability (example of polyphenols)
 - Targeting and reaction kinetics
 - Monitoring of effects (which parameters to measure?)

17:20 – 18:00 Discussion

Do you have any questions? Come with your project! We will discuss it and we will give you all the keys and supports.

We will prepare an annex with protocols related to oxidative stress & antioxidants evaluations, methods, and technics you need in your future study:

- *Oxidants and antioxidants: physicochemical reminders*
- *Methods of measuring & evaluating an oxidative stress and antioxidants activities*
- *Evaluation of antioxidant activity in different matrices - practical cases*
- *Evaluation of antioxidant capacity in vivo: measurement of markers of oxidative stress*
- *Flavonoids, flavonols, anthocyanidins, isoflavones, phenolic acids, etc.*
- *Useful Publications*

18:00 End of the workshop

Registration

You can register to the Antioxidants workshop alone, but you also have the option to register for both our workshop and congress, Redox Medicine 2023, at the same time.

Registration

Who should attend ?

Are you a general practitioner, biologist, geneticist, researcher in oncology, neuroscience and pediatrics, or metabolic diseases? Research director, R&D director, engineer, research assistant, or business leader? You want to learn more about oxidative stress & antioxidants, their key roles in the cellular metabolism, last analytical tools and methods.

Teaching Resources

- Presentation support given to participants
- Presentation proposed by the speaker via Power Points
- Q&A session with all participants

Workshop Report & Recorded Video

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Each participant will receive a report book including the different methods to evaluate oxidative stress and antioxidant activities, along with practical information on them.

In case you cannot attend the workshop, you can still get the report book in PDF format by contacting us.

Replay



Workshop replay will also be available for attendees. Recording access will also be available for everybody upon request.

Contact us