

REDOXBA 2023

Workshop on Redox Nutrition and Toxicology

School of Pharmacy and Biochemistry,
University of Buenos Aires.
Buenos Aires, Argentina

November **12-14, 2023**



Organizing Committee

Silvia Alvarez

Pablo Evelson

Cesar G. Fraga

Mónica Galleano

Local committee

Mariana Garcés

Natalia Magnani

Virginia Vanasco

Tamara Zaobornyj



Oxygen Club of California

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Program at a glance

Workshop on Redox Nutrition and Toxicology

Sunday, November 12th

14:00-15:00	Registration
Session I	<u>Redox biochemistry: hot topics in 2023</u>
15:00-16:30	Lectures by Invited Speakers
16:30-17:00	Coffee break
17:00-18:30	Lectures by Invited Speakers
18:30-19:00	Talks selected from abstracts

Monday, November 13th

Session II	<u>Redox nutrition</u>
09:30-10:30	Lectures by Invited Speakers
10:30-11:00	Talks selected from abstracts
11:00-11:30	Coffee break
11:30-13:00	Lectures by Invited Speakers
13:00-14:15	Lunch break
Session III	<u>Redox Toxicology</u>
14:15-15:45	Lectures by Invited Speakers
15:45-16:15	Talks selected from abstracts
16:15-16:45	Coffee break
Session IV	<u>Redox chemistry in biology</u>
16:45-17:45	Lectures by Invited Speakers
17:45-18:30	Talks selected from abstracts

Tuesday, November 14th

Session V	<u>Redox biochemistry by young investigators</u>
09:30-13:00	Oral presentations (5 min each)
13:00-13:10	Closing ceremony

WORKSHOP ON REDOX NUTRITION AND TOXICOLOGY

BUENOS AIRES, NOVEMBER 12-14, 2023

Program

Day 1 – Sunday, November 12, 2023

14:45-15:00 Opening

Session I – **Redox biochemistry: hot topics 2023**Chairpersons: **Patricia I. Oteiza**, University of California, Davis, USA
Fernando Dominici, University of Buenos Aires, Argentina15:00-15:30 **Kelvin J. A. Davies**, University of Southern California, USA
The role of proteases in adaptive homeostasis15:30-16:00 **Henry Forman**, University of Southern California, USA
Biochemical and physiological limitations of antioxidant therapy16:00-16:30 **Juan Sastre**, University of Valencia, Spain
Redox signaling in necroptosis

16:30-17:00 Coffee break

Chairpersons: **Silvia Alvarez**, University of Buenos Aires
Verónica D'annunzio, University of Buenos Aires17:00-17:30 **Francisco Laurindo**, University of Sao Paulo, Brazil
Breaking the protein disulfide isomerase code for redox signaling and homeostasis17:30-18:00 **Gabriela Salvador**, National University of Bahia Blanca, Argentina
Lipid reprogramming in neuronal ferroptosis18:00-18:30 **Darío C. Ramirez**, National University of San Luis, Argentina
Mechanism-based and potential therapeutic applications of the nitron spin trap DMPO for the treatment of inflammatory diseases18:30-18:45 **Ailén Hvozda Arana**, University of Buenos Aires, Argentina.
Experimental glaucoma induces alterations in mitochondrial dynamics in the primary visual cortex18:45-19:00 **Mariana Holubiec**, IBCN-CONICET, Argentina
Tau and mitochondria: Can mutations in tau lead to abnormal mitochondrial function?

Day 2 – Monday, November 13, 2023

Session II – Redox Nutrition

Chairpersons: **César G. Fraga**, University of Buenos Aires, Argentina
Gabriela Berg, University of Buenos Aires, Argentina

- 9:30-10:00 **Patricia I. Oteiza**, University of California-Davis, USA
The regulation of NOX1 by plant bioactives: relevance for intestinal physiology and pathology
- 10:00-10:30 **Andrés Trostchansky**, University of the Republic, Uruguay
Natural polyphenols modulate platelet aggregation and activation by redox mechanisms involving thiol isomerases and mitochondrial function
- 10:30-10:45 **Analía Karadayian**, University of Buenos Aires, Argentina
Understanding the mechanism of alcohol hangover: the role of acetaldehyde
- 10:45-11:00 **Luciana Erjavec**, University of Buenos Aires, Argentina
Resveratrol exerts different effects on renal epithelial cells depending on media osmolality
- 11:00-11:30 Coffee break

Chairpersons: **Mónica Galleano**, University of Buenos Aires, Argentina
Ana Adamo, University of Buenos Aires, Argentina

- 11:30-12:00 **Angela Mastaloudis**, Brassica Protection Products, USA
Sulforaphane protect intestinal cell monolayers from inflammation/oxidative stress-induced permeabilization
- 12:00-12:30 **José Viña**, University of Valencia, Spain
Nutritionally-based successful therapies to delay progression to Alzheimer's disease
- 12:30-13:00 **Marzia Perluigi**, Sapienza University of Rome, Italy
Targeting brain energy metabolism to prevent cognitive decline
- 13:00-14:15 Lunch break

Session III – Redox Toxicology

Chairpersons: **Natalia Magnani**, University of Buenos Aires, Argentina
María C. Fernandez, University of Buenos Aires, Argentina

- 14:15-14:45 **Florian Gruber**, Medical University of Vienna-CDL SKINMAGINE, Austria
Multimodal imaging of ultraviolet light effects on the epidermal lipidome and metabolic activity
- 14:45-15:15 **Valerie Schini-Kerth**, University of Strasbourg, France
Fine dust and nano- plastics-induced premature endothelial senescence and dysfunction

- 15:15-15:45 **Pablo Evelson**, University of Buenos Aires, Argentina
Underlying mechanisms of the effects of particulate matter in primary and distant organs
- 15:45-16:00 **Pablo E. Tapia**, Nacional University of Tucumán, Argentina
Lemon wastes as a resource of antioxidant agents and their toxicological profiles in multiple models
- 16:00-16:15 **Mariana Garcés**, University of Buenos Aires, Argentina
In vitro protective role of ibuprofen-curcumin micelles against oxidative stress and inflammasome activation mediated by indoor pollution exposure
- 16:15-16:45 Coffee break

Session IV – Redox chemistry in biology

Chairpersons: **Karina Alleva**, University of Buenos Aires, Argentina
Alejandra Erlejman, University of Buenos Aires, Argentina

- 16:45-17:15 **Camilo López-Alarcón**, University of Chile, Chile
Key enzymes of the pentose phosphate pathway as targets of peroxy radicals: consequences for NADPH production
- 17:15-17:45 **Darío Estrín**, University of Buenos Aires, Argentina
Computer simulation of the interaction of reactive sulphur- and nitrogen-species with heme-proteins
- 17:45-18:00 **Carolina Lorente**, National University of La Plata, Argentina
Avoiding one-electron oxidation of tyrosine by DOPA
- 18:00-18:15 **Sandra E. Gomez Mejiba**, National University of San Luis, Argentina
Inmunospin trapping of DNA-centered radicals in a mouse model of Acute lung Distress Respiratory Syndrome (ADRS)
- 18:15-18:30 **Ana Sofía Valles**, National University of the South, Argentina
Maternal metabolic syndrome affects the progeny's redox balance and increases neuroinflammation with neurodevelopmental and metabolic adverse consequences

Day 3 – Tuesday, November 14, 2023

Session V– Redox biochemistry by young investigators

Oral presentations (5-min flash presentations from submitted abstracts)

Chairpersons: **Tamara Zaobornyj**, University of Buenos Aires, Argentina
Virginia Vanasco, University of Buenos Aires, Argentina

- 09:30-09:38 **Agostina Aramburu**, Department of Biological Chemistry/IQUIBICEN-CONICET, Department of Industry/ITAPROQ-CONICET,

Antioxidant activity of natural polyphenols from fibre microparticles of japanese plum (*Prunus salicina*) and sweet cherry (*Prunus avium* L.).

- 09:38-09:46 **Agustina Camporino**, Universidad de Buenos Aires, Facultad de Ciencias Veterinarias, Instituto de Investigación y Tecnología en Reproducción Animal (INITRA), Buenos Aires, Argentina.
Impact of carbonyl cyanide 3-chlorophenyl hydrazone (CCCP) treatment in ROS production and meiotic progression during the in vitro maturation of porcine oocytes.
- 09:46-09:54 **Julieta Borello**, Centro de Excelencia en Productos y Procesos, Córdoba; Ministerio de Ciencia y Tecnología de Córdoba, Argentina.
Veterinary drugs in effluents from the dairy region of Córdoba, Argentina, used as fertilizer for horticultural crops. Risk of bacterial resistance in water for human and animal consumption.
- 09:54-10:02 **Jonathan Chevriau**, Universidad de Buenos Aires, Facultad de Farmacia y Bioquímica, Departamento de Fisicomatemática, Cátedra de Física, Argentina, QUIFIB, UBA-CONICET, Argentina.
Diversity and Mechanism of Hydrogen Peroxide Transport Across MIP Channels
- 10:02-10:10 **Florencia de la Rosa**, Instituto de Ciencias Básicas y Experimentales, Universidad de Morón; Consejo Nacional de Investigaciones Científicas y Técnicas de Argentina.
Lipid shifts in the invasive bivalve *Limnoperna fortunei* grazing on *Microcystis aeruginosa* during a heatwave simulated conditions.
- 10:10-10:18 **Heryerli Fernandez**, Instituto de Investigaciones Fisicoquímicas Teóricas y Aplicadas (INIFTA), Departamento de Química, Facultad de Ciencias Exactas, Universidad Nacional de La Plata (UNLP), CCT La Plata-CONICET.
Antioxidant properties of vanillin during photosensitized oxidation of biomolecules.
- 10:18-10:26 **Tomás A. Gadze**, Universidad de Buenos Aires, Facultad de Ciencias Veterinarias, Instituto de Investigación y Tecnología en Reproducción Animal (INITRA), Buenos Aires, Argentina.
Effect of Trolox on oocyte oxidative status during in vitro maturation of bovine oocytes.
- 10:26-10:34 **Miriam Virgolini**, Instituto de Farmacología Experimental de Cordoba, CONICET; Departamento de Farmacología Otto Orsingher, Facultad de Ciencias Químicas, Universidad Nacional de Córdoba, Argentina.
Ferrostatin-1 mitigates cellular damage in a ferroptosis-like environment in *Caenorhabditis elegans*.
- 10:34-11:00 **Coffee break**
- 11:00-11:08 **Agustina Freire**, Universidad de Buenos Aires. Instituto de Bioquímica y Medicina Molecular (IBIMOL UBA-CONICET), Facultad de Farmacia y Bioquímica. Buenos Aires, Argentina.
Urban Air Exposure in Buenos Aires City Induces Neuroinflammation, Oxidative Stress, and Olfactory Bulb Functional Alterations in Mice.

- 11:08-11:16 **Romina Higa**, Laboratory of Reproduction and Metabolism. CEFYBO-CONICET. School of Medicine, University of Buenos Aires, Argentina.
Advanced maternal age increases lipid oxidative damage of the decidua during early pregnancy in rats.
- 11:16-11:24 **Agustin Lucini Mas**, Instituto de Ciencia y Tecnología de Alimentos Córdoba. (ICYTAC-CONICET) SeCyT - Universidad Nacional de Córdoba, Córdoba, Argentina. Departamento de Química Orgánica, Facultad de Ciencias Químicas, Universidad Nacional de Córdoba, Córdoba, Argentina.
Sesame Defatted Flour Supplementation: Effects in Carbohydrate Metabolism and Redox State in High-Fructose/High-Saturated Fatty Acids Diet-Fed Mice.
- 11:24-11:32 **Sofía Reynoso**, Universidad de Buenos Aires, Instituto de Bioquímica y Medicina Molecular Prof. Alberto Boveris (IBIMOL-UBA-CONICET), Buenos Aires, Argentina.
The urban particulate matter exposure induced-oxi-inflammatory response impairs lung damage repair mechanisms.
- 11:32-11:40 **Juan Santiago Adán Areán**, Instituto de Bioquímica y Medicina Molecular "Prof. Alberto Boveris", Facultad de Farmacia y Bioquímica, Universidad de Buenos Aires.
Mitochondrial pathways in endotoxemia: bioenergetics and ROS production in H9c2 cardiomyocytes.
- 11:40-11:48 **Ezequiel Hid**, Fisicoquímica, Fac. de Farmacia y Bioquímica, Universidad de Buenos Aires, Buenos Aires, Argentina. 2 CONICET- Universidad de Buenos Aires (IBIMOL), Buenos Aires, Argentina.
(-)-Epicatechin administration attenuates NFkappaB activation through NOX modulation in perivascular adipose tissue of high fructose fed rats.
- 11:48-11:56 **Analía Czerniczyniec**, Instituto de Bioquímica y Medicina Molecular Profesor Alberto Boveris (UBA-CONICET), Facultad de Farmacia y Bioquímica, Universidad de Buenos Aires, Buenos Aires, Argentina.
Differences in mitochondrial function between brain and heart of rats exposed to hyperbaric hyperoxia treatment. Role of nitric oxide.
- 12:00-12:10 **Closing Ceremony**