

VIII SFRBM-SAG SCIENTIFIC PROGRAM

OCTOBER, MONDAY 14

12:00-18:30 Registration

13:00-14:00 FREE RADICAL SCHOOL

14:00-14:10 Welcome address by Cesar G. Fraga, Universidad de Buenos Aires, Buenos Aires, Argentina.

SESSION 1 Reactive oxygen and nitrogen species in plants

Chairs: Lorenzo Lamattina, Universidad Nacional de Mar del Plata, Mar del Plata, Argentina; Carlos G. Bartoli, Universidad Nacional de La Plata, La Plata, Argentina.

14:10-14:35

Regulating the redox gatekeeper: glutathione-dependent regulation of gene expression and plant growth.
Christine H. Foyer, University of Leeds, Leeds, UK.

14:35-15:00

Probing the role of reactive oxygen species generated in chloroplasts during the interaction of tobacco plants with pathogens.
Néstor Carrillo, Universidad Nacional de Rosario, Rosario, Argentina.

15:00-15:15

Linking nitric oxide synthesis and chloroplasts functionality.
Marcela Simontacchi, Universidad Nacional de La Plata, La Plata, Argentina.

15:15-15:30

Lipids: new messengers linked to nitric oxide signaling in plant defense.
Ana María Laxalt, Universidad Nacional de Mar del Plata, Mar del Plata, Argentina.

15:30-15:45

Control of antioxidant accumulation by plant hormones.
Carlos G. Bartoli, Universidad Nacional de La Plata, La Plata, Argentina.

15:45-16:15 Coffee break

SESSION 2

Elevated carbon dioxide levels: from physiology to ecology

Chairs: Sam Dukan, University of Aix-Marseille, Marseille, France; Susana Puntarulo, Universidad de Buenos Aires, Buenos Aires, Argentina.

16:15-16:40

Hypercapnia, innate immunity and lung host defense.
Peter H. S. Sporn, Northwestern University, Chicago, USA.

16:40-17:05

Oxidants derived from the bicarbonate buffer ($\text{HCO}_3^-/\text{CO}_2$).
Ohara Augusto, Universidade de São Paulo, São Paulo, Brasil.

17:05-17:30

CO_2 modulates oxygen toxicity to microorganisms.
Sam Dukan, University of Aix-Marseille, Marseille, France.

17:30-17:45

Regulation of the cardiac sodium/bicarbonate cotransport by angiotensin II, reactive oxygen species and elevated carbon dioxide.
Alejandro Aiello, Universidad de La Plata, La Plata, Argentina.

17:45-18:00

$\text{HCO}_3^-/\text{CO}_2$ increases damage in ischemia-reperfusion: possible sources.
Bruno B. Queliconi, Universidade de São Paulo, São Paulo, Brasil.

OPENING CEREMONY AND LECTURE

18:30-18:45 OPENING CEREMONY

Welcome address by Alberto Boveris, Universidad de Buenos Aires, Buenos Aires, Argentina.

18:45-19:30 OPENING LECTURE

Chair: Rafael Radi, Universidad de la República, Montevideo, Uruguay.

The false dichotomy of antioxidant defense and redox signaling.
Henry J. Forman, University of Southern California, Los Angeles, USA.

19:30-21:00 WELCOME RECEPTION

8:00-9:30 FREE RADICAL SCHOOL

SESSION 3

Lipid electrophiles: chemistry, signaling and therapeutics

Chairs: Homero Rubbo, Universidad de la República, Montevideo, Uruguay; Andrés Trostchansky, Universidad de la República, Montevideo, Uruguay.

9:30-9:55

Diminution of hyperglycemia and cardiopulmonary dysfunction in obesity: protective roles for xanthine oxidase, nitrite and electrophilic fatty acids.

Eric Kelley, University of Pittsburgh, Pittsburgh, USA.

9:55-10:20

Biological effects of nitro-fatty acids on intracellular signaling pathways: modulation of NOX2 and PKC in cells and *in vivo*.

Andrés Trostchansky, Universidad de la República, Montevideo, Uruguay.

10:20-10:45

Electrophilic lipids, a new molecular tool in the treatment of inflammatory process?

Gustavo Bonacci, Universidad Nacional de Córdoba, Córdoba, Argentina.

10:45-11:00

Nrf2 activation by nitro-fatty acids reverts astrocyte toxicity to motor neurons in an inherited Amyotrophic Lateral Sclerosis model.

Homero Rubbo, Universidad de la República, Montevideo, Uruguay.

11:00-11:15

Inactivation of Bcl-2 through I κ B kinase (IKK)-dependent phosphorylation mediates apoptosis upon exposure to 4-hydroxynonenal (HNE).

Huveйда Basaga, Sabanci University, Istanbul, Turkey.

11:15-11:30

Cytochrome *c* reacts with cholesterol hydroperoxides producing protein and lipid carbon-centered radicals.

Thiago Genaro-Mattos, Universidade de São Paulo, São Paulo, Brasil.

11:30-12:00 Coffee break

12:00-12:45 PLENARY LECTURE

Chair: Alberto Boveris, Universidad de Buenos Aires, Buenos Aires, Argentina.

The still growing and intriguing tale of oxysterols in human physiology and pathology.

Giuseppe Poli, University of Turin, Turin, Italy.

12:45-14:00

Lunch

POSTER VIEWING A

Topics 1-6

SESSION 4

Protein modification by oxidation and nitration: chemistry and biology

Chairs: Rafael Radi, Universidad de la República, Montevideo, Uruguay; Tilman Grune, Friedrich Schiller University Jena, Jena, Germany.

14:00-14:25

Nitrated proteins: degradation or denitration?

Tilman Grune, Friedrich Schiller University Jena, Jena, Germany.

14:25-14:50

Understanding the reactivity of oxidants with fast reacting thiols.

Madia Trujillo, Universidad de la República, Montevideo, Uruguay.

14:50-15:15

Reduction of disulfides in peroxiredoxins: a neglected step with possible relevant consequences in signaling and cell biology.

Luis Eduardo Soares Netto, Universidade de São Paulo, São Paulo, Brasil.

15:15-15:30

Biochemistry of tyrosine oxidative modifications: role of nitric oxide-derived oxidants and lipids.

Silvina Bartesaghi, Universidad de la República, Montevideo, Uruguay.

15:30-15:45

Structural and molecular basis of the peroxynitrite-mediated nitration and inactivation of *Trypanosoma cruzi* Fe-superoxide dismutases A and B: disparate susceptibilities and biological relevance.

Alejandra Martinez, Universidad de la República, Montevideo, Uruguay.

15:45-16:00

Functional and structural analysis of the interplay between Prx2 nitration and overoxidation.

Lia Randall, Universidad de la República, Montevideo, Uruguay.

16:00- 16:30 Coffee break

SESSION 5**Mechanisms of thiol-mediated signaling**

Chairs: Hugo P. Monteiro, Universidade Federal de São Paulo, São Paulo, Brasil; Laura Castro, Universidad de la República, Montevideo, Uruguay.

16:30-16:55

Thioredoxin (TRX)/TBP-2 system forming redoxosome complex: redox control of transmembrane and epithelial immune-inflammatory responses.

Junji Yodoi, Kyoto University, Kyoto, Japan.

16:55-17:20

Nitrosative/oxidative stress conditions regulate thioredoxin-interacting protein (TXNIP) expression and thioredoxin-1 (TRX-1) nuclear localization.

Hugo P. Monteiro, Universidade Federal de São Paulo, São Paulo, Brasil.

17:20-17:45

Probing the mechanisms of peroxiredoxin function and protein cysteine oxidation in cell signaling.

Leslie B. Poole, Wake Forest School of Medicine, Winston-Salem, USA.

17:45-18:00

Protein S-mycothiolation functions as redox-switch under oxidative stress.

Joris Messens, VIB-VUB Vrije Universiteit Brussel, Brussel, Belgium.

18:00-18:15

Molecular basis of thiol oxidation by peroxides.

Ari Zeida, Universidad de Buenos Aires, Buenos Aires, Argentina.

18:15-18:30

Insights of yeast typical 2-Cys peroxiredoxin overoxidation by organic hydroperoxides.

Carlos A. Breyer, Universidade Federal de São Carlos, São Vicente, Brasil.

18:30-20:00**POSTER PRESENTATION A
Topics 1-6****OCTOBER, WEDNESDAY 16****8:00-9:30****FREE RADICAL SCHOOL****SESSION 6****Mitochondrial bioenergetics and redox signaling**

Chairs: Juan J. Poderoso, Universidad de Buenos Aires, Buenos Aires, Argentina; Laura B. Valdez, Universidad de Buenos Aires, Buenos Aires, Argentina.

9:30-9:55

Mitochondrial nitric oxide synthase and the inhibition of oxygen uptake.

Alberto Boveris, Universidad de Buenos Aires, Buenos Aires, Argentina.

9:55-10:20

The insulin-mimetic effect of lipoic acid on synaptic plasticity, mitochondrial function, and signaling pathways.

Enrique Cadenas, University of Southern California, Los Angeles, USA.

10:20-10:45

Mitochondrial role in sepsis progression.

María Cecilia Carreras, Universidad de Buenos Aires, Buenos Aires, Argentina.

10:45-11:00

Regulation of heart mitochondrial respiration and calcium transport by nitric oxide.

Tamara Zaobornyj, Universidad de Buenos Aires, Buenos Aires, Argentina.

11:00-11:15

Diphenyl diselenide prevents peroxynitrite-induced mitochondria dysfunction in endothelial cells.

Andreza Fabro de Bem, Universidade Federal de Santa Catarina, Florianópolis, Brasil.

11:15-11:30

Inhibition of mitochondrial complex III by nitric oxide.

Darío E. Iglesias, Universidad de Buenos Aires, Buenos Aires, Argentina.

11:30-12:00

Coffee break

12:00-12:45**PLENARY LECTURE**

Chair: Enrique Cadenas, University of Southern California, Los Angeles, USA.

Mitochondrial NADP redox state and membrane permeability transition.

Anibal E. Vercesi, Universidade Estadual de Campinas, Campinas, Brasil.

12:45-14:00

Lunch
**POSTER VIEWING B
Topics 7-10**

SESSION 7**Redox pathophysiology of cardiometabolic diseases**

Chairs: Alicia Kowaltowski, Universidade Federal de São Paulo, São Paulo, Brasil; Silvia Alvarez, Universidad de Buenos Aires, Buenos Aires, Argentina.

14:00-14:25

Nox1 NADPH oxidase: regulatory mechanisms and role in cardiovascular pathophysiology.
Francis Miller Jr., University of Iowa, Coralville, USA.

14:25-14:50

Vascular Peroxidase 1: a novel source of hypochlorous acid in vascular tissues and its implication in atherosclerosis.
Guangjie Cheng, University of Alabama at Birmingham, Birmingham, USA.

14:50-15:15

Diet-sensitive sources of reactive oxygen species in liver mitochondria: role of very long chain acyl-CoA dehydrogenases.
Alicia Kowaltowski, Universidade Federal de São Paulo, São Paulo, Brasil.

15:15-15:30

New insights on intracellular redox signaling in experimental myocardial infarction.
Adriane Belló-Klein, Universidade Federal do Rio Grande do Sul, Porto Alegre, Brasil.

15:30-15:45

Oxidative status and nitric oxide production in young female rats with predisposition to high blood pressure.
Iveta Bernatova, Slovak Academy of Sciences, Bratislava, Slovakia.

15:45-16:00

Heart mitochondrial dysfunction in diabetic rats.
Silvina S. Bombicino, Universidad de Buenos Aires, Buenos Aires, Argentina.

16:00-17:30

Coffee break
POSTER PRESENTATION B
Topics 7-10

Opening of the VI International Conference on Polyphenols and Health (ICPH-6) at the School of Medicine, University of Buenos Aires. Lectures in the Honor of Federico Leighton.

18:30-18:45

Welcome address by Cesar G. Fraga, Universidad de Buenos Aires, Buenos Aires, Argentina.

18:45-19:30**PLENARY LECTURE**

Chair: Ricardo J. Gelpi, Universidad de Buenos Aires, Buenos Aires, Argentina.

Myocardial stretch induces reactive oxygen species production: its mechanical counterpart.
Horacio Cingolani, Universidad Nacional de La Plata, La Plata, Argentina.

19:30-20:15**PLENARY LECTURE**

Chair: Patricia I. Oteiza, University of California, Davis, USA.

Redox biology and dietary polyphenols.
Helmut Sies, Heinrich-Heine University Dusseldorf, Dusseldorf, Germany.

OCTOBER, THURSDAY 17**American Physiological Society Symposia****SESSION 8****Redox regulation of lung physiology**

Chairs: Henry Forman, University of Southern California, Los Angeles, USA; Pablo A. Evelson, Universidad de Buenos Aires, Buenos Aires, Argentina.

8:30-8:55

Oxidative stress: the link between particulate matter (PM) toxicity, lung inflammation and health outcomes.
Frank Kelly, King's College London, London, UK.

8:55-9:20

Air Pollutants exposure affect lung SRB1 levels and cellular distribution via post-translational modifications.
Giuseppe Valacchi, University of Ferrara, Ferrara, Italy.

9:20-9:45

Mitochondrial ROS Regulate Adaptation to Hypoxia in alveolar epithelial cells.
Laura Dada, Northwestern University, Chicago, USA.

9:45-10:00

Mitochondrial dysfunction and NADPH oxidase activation after the exposure to residual oil fly ash.
Pablo A. Evelson, Universidad de Buenos Aires, Buenos Aires, Argentina.

10:00-10:15

N-acetylcysteine improves redox imbalance in hyperoxia-induced pulmonary inflammatory response.
Ana Carla Balthar Bandeira, Federal University of Ouro Preto, Ouro Preto, Brasil.

10:15-10:30

Antioxidant and antigenotoxic activities of the Brazilian pine Araucaria angustifolia in human lung fibroblasts
Mirian Salvador, University of Caxias do Sul, Caxias do Sul, Brasil.

10:30-11:00

Coffee break

SESSION 9**Redox regulation of brain physiology**

Chairs: João Laranjinha, University of Coimbra, Coimbra, Portugal; Gabriela Salvador, Universidad Nacional del Sur, Bahía Blanca, Argentina.

11:00-11:25

Dietary levels of pure flavonoids improve spatial memory performance and increase hippocampal brain-derived neurotrophic factor: a role for hippocampal PSA-NCAM and NMDA-NR2B receptor activity in flavonoid-induced spatial memory improvements in young rats.

Jeremy P. Spencer, University of Reading, Reading, UK.

11:25-11:50

Neurovascular coupling: a self-controlled mechanism critical for brain function prone to dysfunction in Alzheimer's disease and during aging.

João Laranjinha, University of Coimbra, Coimbra, Portugal.

11:50-12:15

The role of the mitochondrial energy-redox axis in brain aging.

Fei Yin, University of Southern California, Los Angeles, USA.

12:15-12:30

Zinc modulates the neuronal response to dopamine-induced oxidative stress.

Gabriela Salvador, Universidad Nacional del Sur, Bahía Blanca, Argentina.

12:30-12:45

Cell toxicity of alpha-synuclein oligomeric species.

Cecilia Chavarría, Universidad de la República, Montevideo, Uruguay.

12:45-13:00

Age-related changes in mitochondrial function and oxygen radical production in synaptic and non-synaptic brain cortex mitochondria.

Silvia Lores Arnaiz, Universidad de Buenos Aires, Buenos Aires, Argentina.

13:00-14:00 Lunch

SESSION 10**Redox regulation of cardiovascular physiology**

Chairs: Ricardo J. Gelpi, Universidad de Buenos Aires, Buenos Aires, Argentina; Tamara Zaobornyj, Universidad de Buenos Aires, Buenos Aires, Argentina.

14:00-14:25

Ventricular remodeling is associated with increased NADPH oxidase activity.

Francisco Laurindo, Universidade de São Paulo, São Paulo, Brasil.

14:25-14:50

Role of the parasympathetic nervous system in cardioprotection by remote hindlimb ischemic preconditioning.

Ricardo J. Gelpi, Universidad de Buenos Aires, Buenos Aires, Argentina.

14:50-15:15

Type 5 adenylyl cyclase disruption protects, whereas its overexpression enhances oxidative stress in cardiomyopathy.

Stephen F. Vatner, University of Medicine and Dentistry of New Jersey, Newark, USA.

15:15-15:30

Oxidative stress and metabolic alterations in the heart of fructose-fed rats.

Barbara Piotrkowski, Universidad de Buenos Aires, Buenos Aires, Argentina.

15:30-15:45

Thioredoxin-1 ameliorates post-ischemic ventricular and mitochondrial dysfunction (myocardial stunning) in isolated mice hearts.

Verónica D'Annunzio, Universidad de Buenos Aires, Buenos Aires, Argentina.

15:45-16:00

Association of N-acetylcysteine and deferoxamine improves cardiac function in Wistar rats after acute myocardial infarction.

Amanda Phaelante, Universidade Federal do Rio Grande do Sul, Porto Alegre, Brasil.

16:00-16:30 Presentation of Young Investigator Awards
Closing ceremony

Oxygen Club of California
Society for Free Radical Research International
Free Radical Biology and Medicine - Elsevier
Society for Free Radical Research - Europe

