

Serbian Society for Mitochondrial and Free Radical Physiology

Fifth International Congress

REDOX BIOLOGY: A Paradigm of the Foundation of Life



PROGRAMME

Belgrade, September 27-29th 2024.

University of Belgrade
Rectorate Palace, Studentski trg 1



2024.ssmfrp.edu.rs

Friday, 27 September 2024

08.00–09.00 **Registration**

09.00–09.25 **Opening ceremony and welcome address**

Jelena Begovic, Minister of Science, Technological development and Innovation of the Republic of Serbia

Juan Sastre, President of Society for Free Radical Research – Europe

Josiane Cillard, Representative of Society for Free Radical Research – Europe

Aleksandra Jankovic, Representative of Serbian Society for Mitochondrial and Free Radical Physiology (SSMFRP)

Sir Salvador Moncada, Honorary President of SSMFRP

09.25–09.30 **Bato Korac**: In memoriam to Mihajlo B. Spasic

09.30–10.30 **Opening lecture**

Chairpersons: Giuseppe Poli, Aleksandra Jankovic, Andreas Daiber

Barry Halliwell, Singapore | Antioxidants and free radicals in human health and disease

10.30–11.00 **Coffee break**

11.00–13.00 **SESSION 1: Redox biology in the light of nutrigenomics, diet and microbiota**

Chairpersons: Michail Christou Rallis, Juan Sastre, Florian Gruber

Keynote lectures

Francesco Galli, Italy | Nutrigenomics of vitamin E and fatty acid metabolism in lipotoxicity and oxidative stress-related diseases

Nesrin Kartal Ozer, Turkey | Hepatocyte seipin silencing reduces cholesterol-mediated lipid droplet maturation in fatty liver model

Barbara S Rocha, Portugal | Dietary nitrate as a pivot on the gut microbiota-host redox communication

Ron Kohen, Israel | Affecting cutaneous Nrf2-Keap1 pathway by unique exogenous and endogenous activators

13.00–14.00 **Lunch**

14.00–15.30 **SESSION 2: E-mit and SSMFRP joint session**

Chairpersons: Giuseppe Valacchi, Tomas Mracek, Ivana Stojanovic

Keynote lectures

Carlo Viscomi, Italy | Mitochondrial disease: From mechanisms to therapy

Michelangelo Mancuso, Italy | Trial readiness in mitochondrial medicine

Aleksandra Korac, Serbia | Insulin modulates mitochondrial structural and functional mosaicism in brown adipocytes

15.30–16.00 **Coffee break**

16.00–17.30 **SESSION 3: Redox regulation of biological rhythms**

Chairpersons: Michelangelo Mancuso, Aleksandra Korac, Ana Ledo

Keynote lectures

Kelly L Drew, USA | Redox regulation in hibernating arctic ground squirrels: implications for neuroprotection

Vanja Pekovic-Vaughan, UK | Nrf2/AMPK axis is required for redox-mediated phase resetting of musculoskeletal clocks upon acute mechanical loading

Selected oral presentations

Marin Kuntic, Germany | Differential spatial distribution of synthetic nano- and micro-particles explains the effects on cardiovascular function – implications for air pollution health effects

Masanta Suchismita, Poland | Fmp40 ampylase regulates cell survival upon oxidative stress by controlling Prx1 and Trx3 oxidation

Milena Radakovic, Serbia | Friend or foe: Association of uric acid with oxidative stress in canine hyperadrenocorticism

17.30–18.30 **Short oral presentations (3+2 min)**

Chairpersons: Andreas Daiber, Ana Ledo, Carlo Viscomi, Francesco Galli, Joao Laranjinha, Bato Korac

Marija Petrushevska, RN Macedonia | Vitamin misuse during the Covid-19 pandemic – single center experience

Dragica Zendelovska, RN Macedonia | Adjuvant treatment with polyphenols reduces oxidative stress parameters in imatinib treated patients with chronic myeloid leukemia

Ivana Kuntic, Germany | Characterizing the brain-heart-vessel axis in aircraft noise-induced neuropsychiatric and cardiovascular complications

Aleksandra Yu Andreyeva, Russia | Mediterranean mussels (*Mytilus galloprovincialis*) under salinity stress: Effects on antioxidant capacity

Ana Ruzanovic, Serbia | Relationship between plasma/erythrocytes glutathione ratio and health status

Marija Milosevic, Serbia | Impact of sulfur amino acids supplementation on performance, oxidative stress, and liver histology in feed-restricted Inshas cockerels

Sanja Stojanovic, Serbia | Uncoupling protein 1 expression in lipoma tissue and lipoma-derived stem cells

Isidora Protic, Serbia | Impact of hypothyroidism on CuZnSOD and MnSOD during spermatogenesis in rats

Strahinja Djuric, Serbia | Effects of chronic cold exposure on antioxidant defense in brown adipose tissue and liver of aged rats

Jelena Jevtic, Serbia | Redox metabolic changes in tumor and associated adipose tissue of colon cancer patients

Maja Vukobratovic, Serbia | The role of Nrf2-dependent metabolic reprogramming of brown adipose tissue in orthotopic breast cancer model

Vladana Petkovic, Serbia | Application of free radical scavengers in human lung cancer cells irradiated with photons and carbon ions

19.00– Welcome cocktail at Rectorate Palace

Saturday, 28 September 2024

08.00–09.00 **Registration**

09.00–10.30 **Plenary lectures**

Chairpersons: Barry Halliwell, Biljana Buzadzic, Federico V Pallardó

Giuseppe Poli, Italy | Oxysterols: From molecular biology to medicine and industry

Andreas Daiber, Germany | Nitric oxide, superoxide and peroxynitrite - redox regulation of the cardiovascular system by nitro-oxidative stress and S-nitros(y)ation

10.30–11.00 **Coffee break**

11.00–13.00 **SESSION 4: Mitochondria in diseases**

Chairpersons: Carlo Viscomi, Kelly L Drew, Daniel C Moreira

Keynote lectures

Federico V Pallardó, Spain | Role of mitochondria in the physiopathology of the cardiomyopathy associated to Friedreich's ataxia. Studies in human iPS cells

Giuseppe Valacchi, Italy | Aberrant mitochondria-inflammasome cross-talk in Rett syndrome

Tomas Mracek, Czech Republic | Mitochondrial translation is the primary determinant of secondary mitochondrial complex I deficiencies

Ana Ledo, Portugal | Nitrite mitigates oxidative burst in ischemia/reperfusion in brain slices

13.00–14.00 **Lunch**

14.00–15.30 **SESSION 5: Tracing ROS**

Chairpersons: Francesco Galli, Willem H Koppenol, Barbara S Rocha

Keynote lectures

Jacek Zielonka, USA | Novel targeted viologen for the induction of superoxide production in mitochondria

Florian Gruber, Austria | Multimodal imaging of cellular senescence - oxidized lipids and enzymatic adaptations in aging skin at the single cell level

Vsevolod Belousov, Russia | Bioimaging and chemogenetics in redox metabolism studies

15.30–16.00 **Coffee break**

16.00–17.30 **SESSION 6: ROS and cancer (Supported by REFRAME, Science Fund of the Republic of Serbia)**

Chairpersons: Daniela Caporossi, Sandra Sobocanec, Joel Pincemail

Keynote lectures

Michail Christou Rallis, Greece | Experimental data on squamous cell carcinoma

Aleksandra Jankovic, Serbia | Redox and metabolic reprogramming of breast cancer cells and associated adipose tissue - the cornerstones of adaptive tumour behaviour

Selected oral presentations

Alex Lyakhovich, Turkey | Mitochondrial targeting as a means of overcoming cancer drug resistance

Biljana Srdic Galic, Serbia | Body size, body shape and breast cancer risk – metabolic and redox link

17.30–18.30 **Short oral presentations (3+2 min)**

Chairpersons: Giuseppe Poli, Daniela Caporossi, Federico V Pallardó, Giuseppe Valacchi, Juan Sastre, Aleksandra Jankovic

Marin Kuntic, Germany | Mitigation of PM_{2.5}-induced cardiovascular damage by statins and ACE inhibitors

Anastasiya Volkova, Russia | Different degrees of oxidation cause different cell transformations and formation of microparticles

Maria Jose Saucedo-Rodriguez, Czech Republic | Effect of succinate dehydrogenase deficiency on mitochondrial function

Svetlana G Despotovic, Serbia | Combined effects of glyphosate-based pesticides and elevated temperature on oxidative stress parameters and acetylcholinesterase activity of Balkan crested newt (*Triturus ivanbureschi*) larvae

Tamara G Petrovic, Serbia | Effects of artificial light on oxidative stress parameters in amphibians: A case study of *Hyla arborea*

Nejla H Zupic, Serbia | Neuropeptide Y disrupts redox balance in human extravillous trophoblasts

Slavica Rankovic, Serbia | Fatty acid profiles differ between healthy and multiple sclerosis-diagnosed adults

Ljupka Gligorovska, Serbia | The role of macrophage migration inhibitory factor in liver inflammation, oxidative stress and apoptosis in mice on a fructose diet

Mirjana Udicki, Serbia | The association of tumor size and the presence of lymph node metastases in breast cancer patients

Zorka Drvendzija, Serbia | Tumor size as the best predictor for the presence of breast cancer metastases in axillary lymph nodes

Azra Guzonjic, Serbia | Prognostic potential of leukocyte telomere length and paraoxonase 1 activity in small cell lung cancer

Sanja Erceg, Serbia | Predictive value of total oxidant status and total antioxidant status in non-alcoholic fatty liver disease

Marko D Prokic, Serbia | Artificial light disrupts natural day/night variation in antioxidant system of tree frog (*Hyla arborea*)

20.00-22.00 **Conference dinner at Botanic garden "Jevremovac"**

Sunday, 29 September 2024

08.00–09.00 **Registration**

09.00–10.30 **Plenary lectures**

Chairpersons: Jacek Zielonka, Joao Laranjinha, Vsevolod Belousov

Fulvio Ursini, Italy | Oxygen, sulfur, selenium and lipid peroxidation: How GPx4 controls life and death

Willem H Koppenol, Switzerland | $\text{CO}_3^{\bullet-}$, the radical that connects peroxyntirite and Fenton chemistry

10.30–11.00 **Coffee break**

11.00–13.00 **SESSION 7: Redox regulation in pathology**

Chairpersons: Josiane Cillard, Jelena Kotur-Stevuljevic, Alex Lyakhovich

Keynote lectures

Juan Sastre, Spain | Regulation of intracellular cystine reduction and protein cysteinylolation

Joel Pincemail, Belgium | Blood redox status in different human pathologies

Daniel C Moreira, Brazil | Preparation for oxidative stress: History, recent advances and future directions

Selected oral presentations

Ana Popovic Bijelic, Serbia | Is redox-hyperactivity in extremophilic microalgae linked to their increased metabolic burden?

Ksenija Vujacic Mirski, Germany | Mitochondrial tests that expose disease clues and lifestyle effects

Ana Penezic, Serbia | miR-146a and miR-21 from PBMCS and extracellular vesicles in gestational diabetes: A comparison of paired samples for the analysis of potential indicators of the redox status

13.00–14.00 ***Lunch***

14.00–15.30 **SESSION 8: Aging and exercise**

Chairpersons: Fulvio Ursini, Nesrin Kartal Ozer, Bato Korac

Keynote lectures

Daniela Caporossi, Italy | Exercise-induced systemic response: The role of circulating extracellular vesicles

Joao Laranjinha, Portugal | Redox regulation of neurovascular coupling by nitric oxide to improve cognition in aging and neurodegeneration

Sandra Sobocanec, Croatia | Mitochondrial sirtuin 3 (Sirt3) in ageing: Exploring cellular responses to etoposide-induced DNA damage in male and female mouse embryonic fibroblasts

15.30–16.00 ***Closing ceremony***

