

**OCC 2015**  
**OXYGEN CLUB OF CALIFORNIA**  
**WORLD CONGRESS 2015**

**OXIDANTS AND ANTIOXIDANTS IN BIOLOGY**

**SCIENTIFIC PROGRAMME**

JOINT MEETING OF

The Oxygen Club of California  
The Spanish Group for Research on Free Radicals  
The Portuguese Group of Free Radicals  
Le Société Française de Recherches sur les Radicaux Libres

## SCIENTIFIC PROGRAMME

24<sup>th</sup> June 2015

**09:00 – 09:15 h.      OPENING CEREMONY WITH THE RECTOR  
OF THE UNIVERSITY OF VALENCIA**

**09:15 – 10:15 h.      OPENING KEYNOTE LECTURE**

Chair: **Helmut Sies**, *Heinrich-Heine-Universität Duesseldorf, Germany*

- **Nitric oxide and Oxygen: actions and interactions in health and disease**

Salvador Moncada, *Wolfson Institute for Biomedical Research  
University College London, UK*

**10:15 – 11:00 h.      COFFEE BREAK AND POSTER SESSION I**

**11:00 - 13:00 h.      SESSION I. NUTRIENTS, OXYGEN BIOLOGY, AND MEDICINE**

Chairs: **Leopold Flohé**, *University of Padova, Molecular Medicine, Italy*  
**Guillermo Sáez**, *University of Valencia, Spain*

- **Prooxidant and anticancer potential of spice-derived nutraceuticals and their role in cancer**

Bharat Aggarwal, *The University of Texas MD Anderson Cancer Center, Houston, USA*

- **Targeting diabetic nephropathy through podocyte-specific soluble epoxide hydrolase deficiency in mice**

Fawaz Haj, *University of California Davis, USA*

- **Procyanidins interact with lipid rafts: mechanisms and biological consequences**

Patricia Oteiza, *University of California at Davis, USA*

- **Benefits of alpha-lipoic acid and caloric restriction in obesity**

Mulchand S. Patel, *University of Buffalo, Buffalo, New York, USA*

**13:00 – 14:30 h.      LUNCH**

**14:30 – 16:30 h. SESSION II. REDOX SIGNALING IN INFLAMMATION**

Chairs: **César Fraga**, *University of Buenos Aires-CONICET, Argentina*  
**José María Mato**, *CIC bioGUNE, Bizkaia, Spain*

- **Lipoic acid supplementation decreases biomarkers of inflammation and lipid peroxidation in overweight or obese adults: results of a randomized, double-blind, placebo-controlled study**  
Balz Frei, *Linus Pauling Institute, Oregon State University*
- **GSH in cholestatic liver injury**  
Shelly Lu, *Cedars-Sinai Medical Center, Los Angeles, USA*
- **Impaired mitophagy leads to stress-induced cellular senescence**  
Irfan Rahman, *University of Rochester Medical Center, New York, USA*
- **Redox regulation of FOXO transcription factors**  
Tobias B. Dansen, *University Medical Center Utrecht, The Netherlands*

**16:30 – 17:00 h. COFFEE BREAK**

**17:00 – 18:30 h.**

- **Oxidized phospholipids and cell signaling in inflammation**  
Corinne Spickett, *Aston University, Birmingham, UK*
- **Ca<sup>2+</sup>- independent biosynthesis of lipid mediators via oxygenation and hydrolysis of mitochondrial cardiolipins**  
Valerian E. Kagan, *University of Pittsburgh, USA*
- **Biochemical mechanisms of mitochondrial SOD nitration and inactivation: pathological relevance**  
Rafael Radi, *Universidad de la Republica, Montevideo, Uruguay*

**18:30 – 19:30 h. ORAL COMMUNICATIONS I**

Chairs: **Arlette Delamarche**, *University Rennes 2, France*  
**Jordi Muntané**, *Hospital Universitario “Virgen del Rocío-Virgen Macarena”, Sevilla, Spain*

- O1 Nitrite reductase activity of xanthine oxidase, xanthine dehydrogenase and aldehyde oxidase: evaluation of their contribution to NO formation *in vivo***  
Maia, Luisa and Moura, José J. G. *Universidade Nova de Lisboa, Portugal*
- O2 Peroxynitrite-dependent inactivation of human glutamine synthetase: biochemical characterization and functional consequences”**  
Bartessaghi, Silvina<sup>1</sup>; Campolo, Nicolás<sup>1</sup>; Ott, Christiane<sup>2</sup>; Hugo-Pereira, Martín<sup>2</sup>; Meinl, Walter<sup>2</sup>; Grune, Tilman<sup>2</sup>; and Radi, Rafael<sup>1</sup>.  
<sup>1</sup>*Universidad de la República Uruguay; and* <sup>2</sup>*German Institute of Human Nutrition, Germany.*
- O3 Chronic intake of the optimized EPA:DHA 6:1 formulation protects against angiotensin II-induced hypertension, oxidative stress and endothelial dysfunction in rats**  
 Zahid, Rasul; Grazielle C. , Silva; Thais, Porto Ribeiro; Faraj, Zgheel; Cyril, Auger; and Valérie B., Schini-Kerth. *University of Strasbourg, France.*
- O4 Effects of high versus low dietary intake of bioactive food compounds on biomarkers of oxidative stress and metabolic and vascular health in the BIOCLAIMS cohort**  
Winklhofer-Roob, Brigitte M.; Faustmann, Gernot; Kieslinger, Petra; Walter, Natalie; Maimari, Theopisti; Hafner-Giessauf, Hildegard; Zelzer, Sieglinde; Sattler, Matteo C.; Meinitzer, Andreas; Öttl, Karl; Wonisch, Willibald; Obermayer-Pietsch, Barbara; Tiran, Beate; and Roob, Johannes M. *University of Graz, Austria.*
- O5 Pancreatic beta cell response to nutrient overload is triggered by phospholipid remodelling and lipid peroxidation**  
Sasson, Shlomo (*The Hebrew University of Jerusalem (Faculty of Medicine), Institute for drug Research, Israel*)

19:30 h.

**GENERAL ASSEMBLY OF THE SPANISH GROUP FOR RESEARCH ON FREE RADICALS (GEIRLI)**

25<sup>th</sup> June 2015

09:00 – 11:00 h.

**SESSION III. AGING AND LONGEVITY**

- Chairs: **Regina Brigelius**, *University of Potsdam, Germany*  
**Enrique Cadenas**, *University of Southern California, Los Angeles, USA*
- **Redox biology: Where exposome meets genome**  
Dean P. Jones, *Emory University, Atlanta, USA*
  - **Impact of mitochondrial fusion proteins on ROS handling**  
Antonio Zorzano, *Universitat de Barcelona, Spain*
  - **The role of the mitochondrial sirtuin SIRT3 in aging and its retardation by caloric restriction**  
Tomas Prolla, *University of Wisconsin, Madison, USA*
  - **Mitochondrial regulation of hematopoietic stem cell aging and rejuvenation**  
Danica Chen, *University of California, Berkeley, USA*

11:00 – 12:00 h.

**COFFEE BREAK AND POSTER SESSION (II)**

12:00 – 13:00 h.

**ORAL COMMUNICATIONS II**

- Chairs: **M<sup>a</sup> Begoña Ruiz Larrea**, *University of the Basque Country, UPV/EHU, Spain*  
**Fernando Antunes**, *Universidade de Lisboa, Portugal*
- O6** **Redox dependent selective targeting of mutant K-Ras expressing cancer cells**  
Iskandar, Kartini; Rezlan, Majidah; Bellot, Gregory; Yadav, Sanjiv; Foo, Jonathan; and Pervaiz, Shazib. *National University of Singapore, Singapore.*
- O7** **Repair of peroxidized membrane phospholipids: critical role of peroxiredoxin 6**  
Fisher, Aron; and LI, Haito. *University of Pennsylvania, USA.*
- O8** **Oxidant-induced cellular senescence is caused by alteration in telomere shelterin complex**  
Tormos, Ana M.; Ahmed, Tanveer; Sundar, Isaac K.; Yao, Hongwei; and Rahman, Irfan. *University of Rochester, USA*

**O09 Complex I assembly into supercomplexes regulates mitochondrial ROS production in neurons and astrocytes.**

Lopez-Fabuel, I.<sup>1</sup>; Le Douce, J.<sup>2</sup>; Bonvento, G.<sup>2</sup>; James, A.M.<sup>3</sup>; Murphy, M.P.<sup>3</sup>; Almeida, A.<sup>4</sup>; and Bolanos, J.P.<sup>1</sup>. <sup>1</sup>*University of Salamanca-CSIC, Spain*; <sup>2</sup>*CNRS, France*; <sup>3</sup>*Medical Research Council Mitochondrial Biology Unit, United Kingdom*; and <sup>4</sup>*University Hospital of Salamanca, Spain*

**O10 Maintenance of mitochondrial function by site-specific ROS signalling extends animal lifespan**

Mallikarjun, Venkatesh<sup>1</sup>; Scialo, Filippo<sup>1</sup>; Sriram, Ashwin<sup>1</sup>; Gubina, Nina<sup>2</sup>; Löhmus, Madis<sup>3</sup>; Nelson, Glyn<sup>1</sup>; Logan, Angela<sup>4</sup>; Cooper, Helen<sup>3</sup>; Enriquez, Jose Antonio<sup>5</sup>; Murphy, Michael<sup>4</sup>; and Sanz, Alberto<sup>1</sup>. <sup>1</sup>*Newcastle University*; <sup>2</sup>*The Institute of Theoretical and Experimental Biophysics RAS*; <sup>3</sup>*Åbo Akademi University*; <sup>4</sup>*MRC Mitochondrial Biology Unit*; and <sup>5</sup>*CNIC, Spain*

13:00 – 14:30 h.

LUNCH

14:30 – 16:00 h.

Chairs:

**Nesrin Kartal-Özer**, *Marmara University, Istanbul, Turkey*  
**Abraham Reznick**, *Rappaport Faculty of Medicine, Haifa, Israel*

• **Aggregated lipids and proteins in aging, Alzheimer’s disease, and diabetes**

Tilman Grune, *German Institute of Human Nutrition, Nuthetal, Germany*

• **The aged proteome - impact of protein oxidative modifications on cellular aging**

Bertrand Friguet, *Université Pierre et Marie Curie, Paris, France*

• **Clock genes regulate neuronal redox homeostasis in brain**

Gaetano Serviddio, *University of Foggia, Italy*

16:00 – 16:30 h.

COFFEE BREAK

16:30-17:30 h.

• **Frailty and sarcopenia**

Leocadio Rodríguez-Mañas, *Hospital Universitario de Getafe, Madrid, Spain*

• **Reactive oxygen species production in skeletal muscle during contractile activity and aging**

Malcolm Jackson, *University of Liverpool, UK*

**17:30 – 18:30 h.**

**ROUND TABLE DISCUSSION ON AGING AND LONGEVITY**

Discussion Leader:

**Michael Murphy**, *MRC, Mitochondrial Biology Unit, Cambridge, UK*

Panel Members:

Speakers of the Aging and Longevity session

**20:00 h.**

**GALA DINNER**

26<sup>th</sup> June 2015**09:00 – 10:30 h. SESSION IV. REDOX BIOLOGY IN VASCULAR DISEASE**

- Chairs: **Michael J. Davies**, *University of Copenhagen, Denmark*  
**Lisardo Boscá**, *Institute of Biomedical Research Alberto Sols, CSIC-UAM, Madrid, Spain*
- **How mitochondria produce ROS during cardiac ischaemia-reperfusion injury**  
 Michael Murphy, *MRC, Mitochondrial Biology Unit, Cambridge, UK*
  - **Mechanisms of redox responses to endothelial shear stress: from peroxide to nitric oxide**  
 Santiago Lamas, *Centro de Biología Molecular Severo Ochoa, CSIC, Madrid, Spain*
  - **Vascular endothelial and smooth muscle cell redox signaling and function in health and disease**  
 Giovanni Mann, *British Heart Foundation Centre of Research Excellence, King's College London, UK*

**10:30 – 11:30 h. COFFEE BREAK AND POSTER SESSION (III)****11:30 – 12:30 h. ORAL COMMUNICATIONS III**

- Chairs: **Anne Negré Salvayre**, *University of Toulouse, France*  
**María Teresa Mitjavila**, *University of Barcelona, Spain*
- O11 Regulation of endothelial function and angiogenesis by PGC-1 $\alpha$  relies on ROS control of vascular stability**  
 García-Quintans, Nieves<sup>1</sup>; Sánchez-Ramos, Cristina<sup>1</sup>; Tierrez, Alberto<sup>2</sup>; Olmos, Yolanda<sup>2</sup>; Luque, Alfonso<sup>2</sup>; Arza, Elvira<sup>2</sup>; Alfranca, Arantazu<sup>2</sup>; Redondo, Juan Miguel<sup>2</sup>; and Monsalve, Maria<sup>1</sup>.<sup>1</sup>*CSIC (IIBm); and* <sup>2</sup>*CNIC, Spain).*
- O12 The transcription factor Nrf2 mediates UCP3 upregulation in response to 4-hydroxynonenal in mouse cardiomyocytes**  
 López-Bernardo, Elia<sup>1</sup>; Anedda, Andrea<sup>2</sup>; Sánchez-Pérez, Patricia<sup>1</sup>; Acosta-Iborra, Bárbara<sup>2</sup>; and Cadenas, Susana<sup>1</sup>.<sup>1</sup>*Centro de Biología Molecular Severo Ochoa, CSIC-UAM, Spain; and* <sup>2</sup>*Instituto de Investigación Sanitaria Princesa, Spain.*



- O13 Searching for biomarkers of Charcot-Marie-Tooth, a neuromuscular rare disease**  
Seco-Cervera, Marta<sup>1</sup>; Ibáñez-Cabellos, Jose Santiago<sup>2</sup>; García-Giménez, Jose Luis<sup>3</sup>; Berenguer-Pascual, Ester<sup>1</sup>; Reyes-Palomares, Armando<sup>4</sup>; Rodríguez-López, Rocío<sup>4</sup>; Sánchez-Jiménez, Francisca<sup>4</sup>; Sevilla, Teresa<sup>5</sup>; Espinós, Carmen<sup>6</sup>; Palau, Francesc<sup>7</sup>; and Pallardó, Federico V.<sup>1</sup>. <sup>1</sup>*INCLIVA-University of Valencia*,; <sup>2</sup>*SISTEMAS GENÓMICOS S.L.*; <sup>3,6,7</sup>*CIBERER-UV*; <sup>4</sup>*University of Malaga, Spain*; <sup>5</sup>*La Fe hospital, Spain*.
- O14 Oxidative stress and NOX4 up-regulation contribute to aortic wall injuries in Marfan syndrome aortic aneurysms**  
Meirelles, Thayna<sup>1</sup>; Crosas-Molist, Eva <sup>2</sup>; Gorbenko del Blanco, Darya <sup>1</sup>; Hernández, Vanessa<sup>1</sup>; García-Calero, Carolina <sup>3</sup>; Condom, Enric<sup>4</sup>; Forteza, Alberto<sup>5</sup>; Rodríguez-Pascual, Fernando<sup>6</sup>; Brandes, Ralf<sup>7</sup>; Mas Stachurska, Aleksandra<sup>8</sup>; Sitges, Marta<sup>8</sup>; Sorolla, M. Alba<sup>9</sup>; Ros, Joaquim <sup>9</sup>; Laurindo, Francisco<sup>10</sup>; Fabregat, Isabel <sup>2</sup>; and Egea, Gustavo<sup>1</sup>. <sup>1,4</sup>*Universitat de Barcelona, Spain*; <sup>2</sup>*Institut d'Investigacions Biomèdiques de Bellvitge, Spain*; <sup>3</sup>*Hospital de Bellvitge-IDIBELL, Spain*; <sup>5</sup>*Hospital 12 de Octubre, Madrid, Spain*; <sup>6</sup>*Centro de Biología Molecular Severo Ochoa, Madrid, Spain*; <sup>7</sup>*Goethe-University Frankfurt, Germany*; <sup>8</sup>*Hospital Clínic, IDIBAPS, Spain*; <sup>9</sup>*Universitat de Lleida, Spain*; and <sup>10</sup>*University of São Paulo, Brazil*
- O15 Nitrite/ascorbate redox interaction leads to nitric oxide production in the brain hippocampus, supporting neurovascular coupling. An in vivo study in real-time.**  
Ferreira, Nuno R.; Lourenço, Cátia F.; Costa, Sérgio M.; Barbosa, Rui M.; and Laranjinha, João. <sup>1</sup>*University of Coimbra, Portugal*

12:30 – 14:00 h.

LUNCH

14:00 – 15:30 h.

SESSION V. REDOX BIOLOGY IN NEURODEGENERATIVE DISEASES (Sponsored by the University of Valencia)

Chairs:

**Leonor Almeida**, *University of Coimbra, Portugal*  
**Giuseppe Valacchi**, *University of Ferrara, Italy*

- **Amyloid-β disrupts calcium and redox homeostasis in brain endothelial cells**

Catarina Oliveira, *Center for Neuroscience and Cell Biology, University of Coimbra Portugal*

- **Possible role of oxysterols in the brain pathophysiology**  
Giuseppe Poli, *University of Turin at S. Luigi Gonzaga Hospital, Italy*
- **Alzheimer's Disease: from oxidative stress to ApoE- mediated therapeutics**  
José Viña, *University of Valencia, Spain*

15:30 – 16:00 h.

**COFFEE BREAK**

16:00 – 17:00 h.

- **Neurotransmission-dependent metabolic and redox coupling between neurons and astrocytes**  
Juan Bolaños, *Institute of Functional Biology and Genomics, University of Salamanca-CSIC, Spain*
- **The role and mechanisms of mitochondrial cholesterol in neurodegeneration**  
José Carlos Fernández-Checa, *Instituto Investigaciones Biomedicas de Barcelona (IIBB)-CSIC, Barcelona, Spain; and University of Southern California, Los Angeles, USA*

17:00 – 18:00 h.

**CLOSING KEYNOTE LECTURE**

Chair:

**Josiane Cillard**, *University of Rennes 1, France*

- **Impaired inducibility of the mitochondrial lon protease in ageing: an example of declining adaptive homeostasis**  
Kelvin Davies, *University of Southern California, Los Angeles, USA*

18:00 – 18:30 h.

- **Prizes and Awards**

Oxygen Club of California and Jarrow Formulas Health Sciences Prize

Young Investigator Awards:

- Oxygen Club of California
- ABB

- Linus Pauling Institute

- Society for Free Radical Research-Europe

- **Closing Remarks**

Juan Sastre, Josiane Cillard, João Laranjinha