



OXYGEN CLUB OF CALIFORNIA

2016

OXIDANTS AND ANTIOXIDANTS IN BIOLOGY

REDOX MEDICINE AND NUTRITION

PROGRAM

4-6 MAY 2016
UNIVERSITY OF CALIFORNIA DAVIS CONFERENCE CENTER
DAVIS, CALIFORNIA

OXIDANTS AND ANTIOXIDANTS IN BIOLOGY
REDOX MEDICINE AND NUTRITION
4-6 MAY 2016
UNIVERSITY OF CALIFORNIA DAVIS CONFERENCE CENTER

CONFERENCE ORGANIZERS

César G. Fraga

PHYSICAL CHEMISTRY INSTITUTE FOR MOLECULAR BIOCHEMISTRY AND MOLECULAR MEDICINE,
SCHOOL OF PHARMACY AND BIOCHEMISTRY, UNIVERSITY OF BUENOS AIRES, ARGENTINA

Patricia Oteiza

DEPARTMENT OF NUTRITION, UNIVERSITY OF CALIFORNIA, DAVIS, CALIFORNIA, USA

Helmut Sies

INSTITUTE OF BIOCHEMISTRY AND MOLECULAR BIOLOGY I,
HEINRICH-HEINE-UNIVERSITY DÜSSELDORF, DÜSSELDORF, GERMANY

SCIENTIFIC ADVISORY COMMITTEE

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PHARMACOLOGY & PHARMACEUTICAL SCIENCES, SCHOOL OF PHARMACY,
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Maret G. Traber

SCHOOL OF BIOLOGICAL AND POPULATION HEALTH SCIENCES, LINUS PAULING INSTITUTE,
OREGON STATE UNIVERSITY, CORVALLIS, OREGON, USA

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OHIO STATE UNIVERSITY WEXNER MEDICAL CENTER, COLUMBUS, OHIO, USA

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VETERINARY MEDICINE, MOLECULAR BIOSCIENCES, UNIVERSITY OF CALIFORNIA, DAVIS, CALIFORNIA, USA

Hagen Schroeter

MARS INC., MCLEAN, VIRGINIA, USA

WEDNESDAY, MAY 4

10:00 – 12:00 REGISTRATION

01:00 – 01:15 WELCOME

César G. Fraga

PHYSICAL CHEMISTRY INSTITUTE FOR MOLECULAR BIOCHEMISTRY AND MOLECULAR
MEDICINE, SCHOOL OF PHARMACY AND BIOCHEMISTRY, UNIVERSITY OF BUENOS
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Helmut Sies

INSTITUTE OF BIOCHEMISTRY AND MOLECULAR BIOLOGY I, HEINRICH-HEINE-
UNIVERSITY DÜSSELDORF, DÜSSELDORF, GERMANY

01:15 – 02:00 PLenary LECTURE

CHAIRPERSON *Balz Frei*

LINUS PAULING INSTITUTE, DEPARTMENT OF BIOCHEMISTRY AND BIOPHYSICS,
OREGON STATE UNIVERSITY, CORVALLIS, OR, USA

The remarkable effects of altering copper metabolism in
familial SOD-linked amyotrophic lateral sclerosis

Joseph S. Beckman

LINUS PAULING INSTITUTE, DEPARTMENT OF BIOCHEMISTRY AND BIOPHYSICS,
OREGON STATE UNIVERSITY, CORVALLIS, OR, USA

SESSION I REDOX REGULATION OF CELL SIGNALING

CHAIRPERSONS *Junji Yodoi*

DEPARTMENT OF BIOLOGICAL RESPONSES, INSTITUTE FOR VIRUS RESEARCH,
GRADUATE SCHOOL OF MEDICINE, KYOTO UNIVERSITY, KYOTO, JAPAN

Fawaz Haj

DEPARTMENT OF NUTRITION, UNIVERSITY OF CALIFORNIA, DAVIS, USA

02:00 – 02:30 Sites of mitochondrial ROS production

Martin D. Brand

BUCK INSTITUTE FOR RESEARCH ON AGING, NOVATO, CA, USA

02:30 – 03:00 Role of redox-sensitive p38a in the regulation of cytokinesis
in the liver

Juan Sastre

DEPARTMENT OF PHYSIOLOGY, FACULTY OF PHARMACY, UNIVERSITY OF
VALENCIA, VALENCIA, SPAIN

03:00 – 03:30 Finding the right balance: how exquisite interrelationships of
conformation and chemistry govern peroxiredoxin catalysis

P. Andrew Karplus

DEPARTMENT OF BIOCHEMISTRY AND BIOPHYSICS, OREGON STATE UNIVERSITY,
CORVALLIS, OREGON, USA

03:30 – 04:00 *Coffee break*

04:00 – 04:30 Translational bioenergetics and oxidative stress in human
patients

Victor Darley-Usmar

DEPARTMENT OF PATHOLOGY, UNIVERSITY OF ALABAMA AT BIRMINGHAM,
BIRMINGHAM, ALABAMA, USA

04:30 – 05:00 Aryl hydrocarbon receptor (AhR): ligand promiscuity and diversity of response

Michael S. Denison

DEPARTMENT OF ENVIRONMENTAL TOXICOLOGY, UNIVERSITY OF CALIFORNIA,
DAVIS, CA, USA

05:00 – 05:15 Nitrite-mediated S-nitrosylation of caspase-6 prevents hypoxia-induced neural injury

Tzu-Ching Meng

INSTITUTE OF BIOLOGICAL CHEMISTRY, ACADEMIA SINICA, TAIPEI, TAIWAN

05:15 – 05:30 Nrf2 signaling as potential therapy for mitochondrial diseases

Genki Hayashi

MOLECULAR BIOSCIENCES, SCHOOL OF VETERINARY MEDICINE, UNIVERSITY OF
CALIFORNIA, DAVIS, USA

ROUND TABLE DISCUSSION

05:30 – 06:30 **REDOX CHEMISTRY IN CELL FUNCTIONS**

Dean P. Jones, Discussion Leader

DIVISION OF PULMONARY, ALLERGY, AND CRITICAL CARE MEDICINE,
EMORY UNIVERSITY, ATLANTA, GA, USA

Martin D. Brand

BUCK INSTITUTE FOR RESEARCH ON AGING, NOVATO, CA, USA

Bob Buchanan

DEPARTMENT OF PLANT AND MICROBIAL BIOLOGY, UNIVERSITY OF CALIFORNIA,
BERKELEY, CA, USA

P. Andrew Karplus

DEPARTMENT OF BIOCHEMISTRY AND BIOPHYSICS, OREGON STATE UNIVERSITY,
CORVALLIS, OREGON, USA

Santiago Lamas

CENTRO DE BIOLOGÍA MOLECULAR “SEVERO OCHOA” (CSIC-UAM), MADRID, SPAIN

06:30 – 08:00 *Poster Viewing and Welcome Reception*

THURSDAY, MAY 5

SESSION II NUTRITION AND THE GENOME-EPIGENOME

CHAIRPERSONS *Maret G. Traber*

LINUS PAULING INSTITUTE, DEPARTMENT OF BIOCHEMISTRY AND BIOPHYSICS,
OREGON STATE UNIVERSITY, CORVALLIS, OR, USA

Tilman Grune

GERMAN INSTITUTE OF HUMAN NUTRITION POTSDAM-REHBRÜKE, NUTHETAL,
GERMANY

09:00 – 09:30 Lactoferrin and its receptor: Effects on gene transcription

Bo Lonnerdal

DEPARTMENT OF NUTRITION, UNIVERSITY OF CALIFORNIA, DAVIS, CA, USA

09:30 – 10:00 Iron overload and genome alterations

Shinya Toyokuni

DEPARTMENT OF PATHOLOGY AND BIOLOGICAL RES-ONSES, NAGOYA UNIVERSITY
GRADUATE SCHOOL OF MEDICINE, NAGOYA, JAPAN

10:00 – 10:30 Proteomic profiles in humans in response to diet:

Inflammation and oxidative stress biomarkers

Johanna W. Lampe

PUBLIC HEALTH SCIENCES DIVISION, FRED HUTCHINSON CANCER RESEARCH
CENTER, SEATTLE, WA, USA

10:30 – 11:00 *Coffee break*

CHAIRPERSONS *Francene M. Steinberg*

DEPARTMENT OF NUTRITION, UNIVERSITY OF CALIFORNIA, DAVIS, CA, USA

Patricia I. Oteiza

DEPARTMENT OF NUTRITION, UNIVERSITY OF CALIFORNIA, DAVIS, CA, USA

11:00 – 11:30 **Epigenetics in differentiation and development**

Frederick Domann

DEPARTMENT OF RADIATION ONCOLOGY AND HOLDEN COMPREHENSIVE CANCER CENTER, THE UNIVERSITY OF IOWA, IOWA CITY, IA, USA

11:30 – 12:00 **Nutritional regulation of cathelicidin antimicrobial peptide gene expression**

Adrian F. Gombart

LINUS PAULING INSTITUTE, DEPARTMENT OF BIOCHEMISTRY AND BIOPHYSICS, OREGON STATE UNIVERSITY, CORVALLIS, OR, USA

12:00 – 12:15 **Tocotrienols induce apoptosis via endoplasmic reticulum stress in HeLa cells**

Fabio Virgili

COUNCIL AGRICULTURAL RES AND ECONOMICS - FOOD AND NUTRITION RESEARCH CENTRE, ROME, ITALY

12:15 – 12:30 **Soluble epoxide hydrolase podocyte deficiency protects against hyperglycemia-induced renal injury and improves systemic glucose homeostasis**

Ming-Fo Hsu

DEPARTMENT OF NUTRITION, UNIVERSITY OF CALIFORNIA, DAVIS, CA, USA

12:30 – 01:00 *Group Photo*

01:00 – 02:00 *Lunch and Poster Viewing*

SESSION III REGENERATIVE MEDICINE

CHAIRPERSONS *Giuseppe Poli*

DEPARTMENT OF CLINICAL AND BIOLOGICAL SCIENCES, UNIVERSITY OF TORINO,
SAN LUIGI HOSPITAL, TORINO, ITALY

Chandan K. Sen

CENTER FOR REGENERATIVE MEDICINE AND CELL BASED THERAPIES, THE OHIO
STATE UNIVERSITY WEXNER MEDICAL CENTER, COLUMBUS, OH, USA

02:00 – 02:30 Non-selenocysteine containing phospholipid hydroper-oxide
glutathione peroxidase: a critical role in regenerative wound
healing

Chandan K. Sen

CENTER FOR REGENERATIVE MEDICINE AND CELL BASED THERAPIES, THE OHIO
STATE UNIVERSITY WEXNER MEDICAL CENTER, COLUMBUS, OH, USA

02:30 – 03:00 Stem cell defects and impaired diabetic wound healing

Geoff Gurtner

STANFORD UNIVERSITY SCHOOL OF MEDICINE, STANFORD, CA, USA

03:00 – 03:30 miRNA in resolution of inflammation

Sashwati Roy

CENTER FOR REGENERATIVE MEDICINE AND CELL BASED THERAPIES, THE OHIO
STATE UNIVERSITY WEXNER MEDICAL CENTER, COLUMBUS, OH, USA

03:30 – 04:00 *Coffee break*

04:00 – 04:30 The role of reactive oxygen species in airway basal stem cell
homeostasis and repair

Brigitte Gomperts

DEPARTMENT OF PEDIATRICS/HEMATOLOGY-ONCOLOGY, UNIVERSITY OF
CALIFORNIA, LOS ANGELES, CA, USA

- 4:30 – 05:00 Redoximirs involved in organ fibrosis
Santiago Lamas
CENTRO DE BIOLOGÍA MOLECULAR “SEVERO OCHOA” (CSIC-UAM), MADRID,
SPAIN
- 05:00 – 05:15 Scavenger receptor B1 as a possible player in cutaneous
tissue proliferation and differentiation
Giuseppe Valacchi
DEPARTMENT OF LIFE SCIENCES AND BIOTECHNOLOGY, UNIVERSITY OF FERRARA,
FERRARA, ITALY
- 05:15 – 05:30 Nanotechnology-enabled non-viral tissue reprogramming
Daniel Gallego-Perez
DEPARTMENTS OF SURGERY AND BIOMEDICAL ENGINEERING, CENTER FOR
AFFORDABLE NANOENGINEERING OF POLYMERIC BIOMEDICAL DEVICES, CENTER
FOR REGENERATIVE MEDICINE AND CELL-BASED THERAPIES, THE OHIO STATE
UNIVERSITY, COLUMBUS, OH
- 05:30 – 05:45 Oral supplementation of fermented papaya preparation to
type 2 diabetes mellitus patients improves the respiratory
burst function in chronic wound-site macrophages
Ryan Dickerson
DEPARTMENT OF SURGERY, THE OHIO STATE UNIVERSITY WEXNER MEDICAL
CENTER, COLUMBUS, OH, USA
- 05:45 – 07:00 *Poster Viewing*

FRIDAY, MAY 6

SESSION IV BIOACTIVES: COGNITION AND AGING

CHAIRPERSONS *Helmut Sies*

INSTITUTE OF BIOCHEMISTRY AND MOLECULAR BIOLOGY I, HEINRICH-HEINE-UNIVERSITY DÜSSELDORF, DÜSSELDORF, GERMANY

César G. Fraga

PHYSICAL CHEMISTRY-INSTITUTE FOR BIOCHEMISTRY AND MOLECULAR MEDICINE, SCHOOL OF PHARMACY AND BIOCHEMISTRY, UNIVERSITY OF BUENOS AIRES, ARGENTINA

09:00 – 09:30 Dietary flavanols and cognition in older adults

Scott A. Small

COLUMBIA UNIVERSITY, NEW YORK, NY, USA

09:30 – 10:00 Potential mechanisms by which polyphenols influence memory and cognition

Jeremy P.E. Spencer

FOOD AND NUTRITIONAL SCIENCES, UNIVERSITY OF READING, READING, UK

10:00 – 10:30 A potential role for nitrite and ascorbate in neurovascular coupling during aging

João Laranjinha

CENTER FOR NEUROSCIENCES AND CELL BIOLOGY, FACULTY OF PHARMACY, UNIVERSITY OF COIMBRA, COIMBRA, PORTUGAL

10:30 – 11:00 *Coffee break*

CHAIRPERSONS *Alan Crozier*

DEPARTMENT OF NUTRITION, UNIVERSITY OF CALIFORNIA, DAVIS, CA, USA

Andrew L. Waterhouse

DEPARTMENT OF VITICULTURE AND ENOLOGY, UNIVERSITY OF CALIFORNIA,
DAVIS, CA, USA

11:00 – 11:30 Nutrient biomarker patterns, cognition, and Alzheimer's
pathology in older adults

Gene L. Bowman

NESTLÉ INSTITUTE OF HEALTH SCIENCES, EPFL CAMPUS, LAUSANNE,
SWITZERLAND

11:30 – 12:00 Carotenoids in cognitive function throughout the lifespan

Elizabeth J. Johnson

ANTIOXIDANTS RESEARCH LABORATORY, TUFTS UNIVERSITY, BOSTON, MA, USA

12:00 – 12:15 Zinc and lipoic acid in the modulation of the STAT3
pathway in the developing brain

Suangsuda Supasai

DEPARTMENTS OF NUTRITION AND ENVIRONMENTAL TOXICOLOGY, UNIVERSITY OF
CALIFORNIA, DAVIS, CA, USA

12:15 – 12:30 Nrf2-mediated antioxidant protection in the retinal pigment
epithelium

Jiyang Cai

DEPARTMENT OF OPHTHALMOLOGY, UNIVERSITY OF TEXAS MEDICAL BRANCH,
GALVESTON, TX, USA
USANA HEALTH SCIENCES INC., SALT LAKE CITY, UT, USA

12:30 – 12:45 Fast food decreases the anti-inflammatory capacity of HDL
particles in stimulated peripheral blood mononuclear cells

Angela M. Zivkovic

DEPARTMENT OF NUTRITION, UNIVERSITY OF CALIFORNIA, DAVIS, CA, USA

12:45 – 02:00 *Lunch and Poster Viewing*

SESSION V MICROBIOME AND GUT INFLAMMATION

CHAIRPERSONS *Mulchand S. Patel*

DEPARTMENT OF BIOCHEMISTRY, SCHOOL OF MEDICINE AND BIOMEDICAL SCIENCES, UNIVERSITY AT BUFFALO, STATE UNIVERSITY OF NEW YORK, BUFFALO, NY, USA

Carl L. Keen

DEPARTMENT OF NUTRITION, UNIVERSITY OF CALIFORNIA, DAVIS, CA, USA

02:00 – 02:30 Redox signaling mediates symbiosis between the gut microbiota and the intestine

Andrew S. Neish

PATHOLOGY, EMORY UNIVERSITY SCHOOL OF MEDICINE, ATLANTA, GA, USA

02:30 – 03:00 The gut microbiome and chronic inflammatory disease

Susan V. Lynch

DIVISION OF GASTROENTEROLOGY, DEPARTMENT OF MEDICINE, UNIVERSITY OF CALIFORNIA, SAN FRANCISCO, CA, USA

03:00 – 03:30 Gut microbiota and the metabolism of plant bioactives

André Marette

SCHOOL OF MEDICINE, LAVAL UNIVERSITY, QUEBEC, CANADA

03:30 – 04:00 *Coffee break*

04:00 – 04:30 Nutritional impact of pomegranate polyphenol antioxidants on microbiome metabolism and proliferation in vitro and in vivo

David Heber

UCLA CENTER FOR HUMAN NUTRITION, UNIVERSITY OF CALIFORNIA, LOS ANGELES, CA, USA

04:30 – 05:00 The role of the milk glycome in the development of the infant gut microbiota: Why babies cry over spilled milk

David A. Mills

FOODS FOR HEALTH INSTITUTE, DEPARTMENT OF FOOD SCIENCE AND TECHNOLOGY AND DEPARTMENT OF VITICULTURE AND ENOLOGY, UNIVERSITY OF CALIFORNIA, DAVIS, CA, USA

ROUND TABLE DISCUSSION

05:00 – 05:45 THE MICROBIOME: CAUSES AND SOLUTIONS FOR STRESS

J. Bruce German, discussion leader

FOODS FOR HEALTH INSTITUTE, DEPARTMENT OF FOOD SCIENCE AND
TECHNOLOGY, UNIVERSITY OF CALIFORNIA, DAVIS, CA, USA

Bethany Henrick

FOODS FOR HEALTH INSTITUTE, DEPARTMENT OF FOOD SCIENCE AND
TECHNOLOGY, UNIVERSITY OF CALIFORNIA, DAVIS, CA, USA

Steven A. Frese

FOODS FOR HEALTH INSTITUTE, DEPARTMENT OF FOOD SCIENCE AND
TECHNOLOGY, UNIVERSITY OF CALIFORNIA, DAVIS, CA, USA

David A. Mills

FOODS FOR HEALTH INSTITUTE, DEPARTMENT OF FOOD SCIENCE AND
TECHNOLOGY AND DEPARTMENT OF VITICULTURE AND ENOLOGY, UNIVERSITY OF
CALIFORNIA, DAVIS, CA, USA

David Heber

UCLA CENTER FOR HUMAN NUTRITION, UNIVERSITY OF CALIFORNIA,
LOS ANGELES, CA, USA

07:00 – 08:00 *Piano concert*

STUDIO THEATER, MONDAVI CENTER, UNIVERSITY OF CALIFORNIA, DAVIS, CA, USA

Yoshihiro Ota & Moeko Ota

Pianists

08:00 *Gala Dinner — Prizes and Awards*

ALUMNI CENTER, UNIVERSITY OF CALIFORNIA, DAVIS

Health Sciences Prize

Selection Committee

Lester Packer, Jarrow Rogovin, Enrique Cadenas

Science and Humanity Award

Selection Committee

Helmut Sies, Maret G. Traber, Yuki Hayashi

Young Investigator Awards

Oxygen Club of California

Linus Pauling Institute

Archives of Biochemistry & Biophysics – Elsevier

Selection Committee

John Maguire, Muchald Patel, Sashwati Roy

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