



OXIDANTS AND ANTIOXIDANTS IN BIOLOGY

PROGRAM



7-10 SEPTEMBER 2005 ALBA, ITALY

OXIDANTS AND ANTIOXIDANT IN BIOLOGY

A Meeting in Honor of Angelo Azzi

7-10 September 2005

Alba, Italy

A Joint Meeting of the
Oxygen Club of California
and
the University of Turin

ORGANIZERS

Giuseppe Poli

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

Helmut Sies

INSTITUT FÜR BIOCHEMIE UND MOLEKULARBIOLOGIE I, HEINRICH-HEINE-UNIVERSITÄT DÜSSELDORF, DÜSSELDORF, GERMANY

Enrique Cadenas

DEPARTMENT OF MOLECULAR PHARMACOLOGY & TOXICOLOGY, SCHOOL OF PHARMACY, UNIVERSITY OF SOUTHERN CALIFORNIA, LOS ANGELES, CA, USA

WELCOME

17:30 Giuseppe Rossetto

MAYOR OF ALBA

Ezio Pelizzetti

PRESIDENT OF THE UNIVERSITY OF TURIN

Giuseppe Poli

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

Helmut Sies

PRESIDENT OF THE OXYGEN CLUB OF CALIFORNIA

INSTITUT FÜR BIOCHEMIE UND MOLEKULARBIOLOGIE I, HEINRICH-HEINE-UNIVERSITÄT DÜSSELDORF, DÜSSELDORF, GERMANY

INTRODUCTORY REMARKS: A MEETING IN HONOR OF ANGELO AZZI

17:50 *Lester Packer*

OCC FOUNDING PRESIDENT

DEPARTMENT OF MOLECULAR PHARMACOLOGY & TOXICOLOGY, SCHOOL OF PHARMACY, UNIVERSITY OF SOUTHERN CALIFORNIA,

LOS ANGELES, CA, USA

KEYNOTE LECTURE

CHAIRPERSON Helmut Sies

PRESIDENT OF THE OXYGEN CLUB OF CALIFORNIA

INSTITUT FÜR BIOCHEMIE UND MOLEKULARBIOLOGIE I, HEINRICH-HEINE-UNIVERSITÄT DÜSSELDORF, DÜSSELDORF, GERMANY

18:10 Vitamin E: A paradigm of the mechanisms of

scientific progress

Angelo Azzi

INSTITUTE OF BIOCHEMISTRY AND MOLECULAR BIOLOGY,

UNIVERSITY OF BERN, BERN, SWITZERLAND

19:00 Welcome reception

Garden of Teatro Sociale

SESSION I	OXIDANTS IN VASCULAR BIOLOGY
CHAIRPERSONS	Helmut Sies
	Institut für Biochemie und Molekularbiologie I, Heinrich-Heine- Universität Düsseldorf, Düsseldorf, Germany
	Anne Nègre-Salvayre Institut National de la Santé et de la Recherche Médicale, Centre Hospitalier Universitaire Rangueil, Toulouse, France
09:00-09:20	Lipid oxidation products disturb cholesterol homeostasis
	in vascular cells
	Wendy Jessup Centre for Vascular Research at School of Medical Sciences, University of New South Wales, Sydney, NSW, Australia
09:20-09:40	Oxidized cholesterol and atherosclerosis progression
	Gabriella Leonarduzzi
	DEPARTMENT OF CLINICAL AND BIOLOGICAL SCIENCES, UNIVERSITY OF
	TURIN, SAN LUIGI HOSPITAL, ORBASSANO, TURIN, ITALY
09:40–10:00	Heme oxygenase-1 mediates vasculo-protective effects
	of peroxisome proliferator-activated receptor
	Norbert Leitinger DEPARTMENT OF VASCULAR BIOLOGY AND THROMBOSIS RESEARCH, UNIVERSITY OF VIENNA, AUSTRIA
10:00–10:20	Nrf2 mediated induction of antioxidant stress proteins in
	vascular cells
	Giovanni E. Mann CARDIOVASCULAR DIVISION, GKT SCHOOLS OF BIOMEDICAL SCIENCES AND MEDICINE, KING'S COLLEGE, UNIVERSITY OF LONDON, LONDON, UK

Coffee break

10:20-10:50

CHAIRPERSONS Helmut Sies

INSTITUT FÜR BIOCHEMIE UND MOLEKULARBIOLOGIE I, HEINRICH-HEINE-UNIVERSITÄT DÜSSELDORF, DÜSSELDORF, GERMANY

Nesrin Kartal-Özer

DEPARTMENT OF BIOCHEMISTRY, FACULTY OF MEDICINE, MARMARA UNIVERSITY, ISTANBUL, TURKEY

10:50–11:10 Effects of flavonoids on vascular function

Joseph Vita

SECTION OF CARDIOLOGY, BOSTON MEDICAL CENTER, BOSTON UNIVERSITY SCHOOL OF MEDICINE, BOSTON, MA, USA

11:10–11:30 Regulation of 5'AMP-activated kinase, an energy-

sensing enzyme, in endothelial cells

Regine Heller

MOLECULAR CELL BIOLOGY, FRIEDRICH-SCHILLER-UNIVERSITY OF JENA, ERFURT, GERMANY

11:30–11:50 Nitric oxide and nitric oxide-derived oxidants:

Interactions with human LDL

Rafael Radi

DEPARTAMENTO DE BIOQUÍMICA, FACULTAD DE MEDICINA, MONTEVIDEO, URUGUAY

SESSION II DIETARY AND METABOLIC OXIDATIVE STRESS

CHAIRPERSONS Ute Obermueller-Jevic

SCIENTIFIC AFFAIRS HUMAN NUTRITION, BASF AKTIENGESSELLSCHAFT, LUDWIGSHAFEN, GERMANY

Mario Comporti

DEPARTMENT OF PATHOPHYSIOLOGY, EXPERIMENTAL MEDICINE, AND PUBLIC HEALTH, UNIVERSITY OF SIENA, SIENA, ITALY

11:50–12:10 Postprandial glucose regulation and diabetes

implications

Antonio Ceriello

DEPARTMENT OF PATHOLOGY AND MEDICINE, EXPERIMENTAL AND CLINICAL, UNIVERSITY OF UDINE, UDINE, ITALY

12:10–12:30 Redox metabolomics to connect diet, oxidative stress,

and prediction of disease

Dean P. Jones

DEPARTMENT OF MEDICINE, DIVISIONS OF CARDIOLOGY AND PULMONARY, EMORY UNIVERSITY, ATLANTA, GA, USA

12:30–12:50 A new perspective on obesity: early metabolic mal-

programming

Mulchand Patel

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

12:50–13:10 Macronutrient intake induces oxidative and

inflammatory stress while insulin causes suppression of

ROS generation and inflammation

Paresh Dandona

DIVISION OF ENDOCRINOLOGY, DIABETES, AND METABOLISM, DIABETES-ENDOCRINOLOGY CENTER OF WESTERN NEW YORK, STATE UNIVERSITY OF NEW YORK AT BUFFALO, AND KALEIDA HEALTH, BUFFALO, NY, USA

13:10–13:20 *Group Photo*

13:20–14:50 Lunch and Poster Viewing

14:50-15:10 IKKβ links inflammation to obesity-induced insulin resistance

Melek C. Arkan

LABORATORY OF GENE REGULATION AND SIGNAL TRANSDUCTION,
DEPARTMENT OF PHARMACOLOGY, SCHOOL OF MEDICINE, UNIVERSITY OF
CALIFORNIA, SAN DIEGO, LA JOLLA, CA, USA

15:10–15:30 Oxidative stress acts as trigger of autoimmune reactions in alcoholic liver disease

Emanuele Albano

DEPARTMENT OF MEDICAL SCIENCES, UNIVERSITY "A AVOGADRO" OF EAST PIEDMONT, NOVARA, ITALY

SESSION III ENVIRONMENTAL OXIDATIVE STRESS Carroll E. Cross CHAIRPERSONS MEDICINE AND PHYSIOLOGY, UNIVERSITY OF CALIFORNIA DAVIS, DAVIS, CA, USA Umberto Marinari DEPARTMENT OF EXPERIMENTAL MEDICINE, SECTION OF GENERAL PATHOLOGY, UNIVERSITY OF GENOVA, GENOVA, ITALY Solar ultraviolet A radiation-induced biological effects 15:30-15:50 in human skin Jean Krutmann DEPARTMENT OF DERMATOLOGY, HEINRICH-HEINE-UNIVERSITY DÜSSELDORF, DÜSSELDORF, GERMANY 15:50-16:10 Antioxidant micronutrients in skin health Wilhelm Stahl INSTITUT FÜR BIOCHEMIE UND MOLEKULARBIOLOGIE I. HEINRICH-HEINE-UNIVERSITÄT DÜSSELDORF, DÜSSELDORF, GERMANY Oxidant-mediated signaling events in asbestos-related 16:10–16:30 diseases Brooke Mossman DEPARTMENT OF PATHOLOGY, UNIVERSITY OF VERMONT COLLEGE OF MEDICINE, BURLINGTON, VT, USA Coffee break 16:30-17:00

17:00–17:20 Noninvasive laser detection of carotenoid antioxidants in human tissue

Werner Gellerman

DEPARTMENT OF PHYSICS, UNIVERSITY OF UTAH, SALT LAKE CITY, UT, USA

17:20–17:40 Carotenoid diets modify mouse lung responses to xenobiotic metabolism, oxidative stress, and inflammatory-immune processes

Lester Packer

DEPARTMENT OF MOLECULAR PHARMACOLOGY & TOXICOLOGY, SCHOOL OF PHARMACY, UNIVERSITY OF SOUTHERN CALIFORNIA, LOS ANGELES, CA, USA

17:40–18:00 Quantitative changes in TTP, SRB1 and ABCA1 gene expression in murine lung tissue upon exposure to combined environmental pollutants. Differences between old and young

Giuseppe Valacchi

DIVISION OF PULMONARY AND CRITICAL CARE MEDICINE, UNIVERSITY OF CALIFORNIA DAVIS, DAVIS, CA. USA

18:00–18:20 Oxidative stress as a common pathogenic determinant in chronic degenerative diseases

Alberto Izzotti

DEPARTMENT OF HEALTH SCIENCES, UNIVERSITY OF GENOA, GENOA, ITALY

20:30 Petit Opéra

Historic Hall of Teatro Sociale

SESSION IV INTERNATIONAL REDOX NETWORK WORKSHOP

REDOX REGULATION OF CELL SIGNALING AND

GENE EXPRESSION

CHAIRPERSONS Junji Yodoi

DEPARTMENT OF BIOLOGICAL RESPONSES, LABORATORY OF INFECTION AND PREVENTION, INSTITUTE FOR VIRUS RESEARCH, KYOTO UNIVERSITY, KYOTO, LABORATORY

Arne Holmgren

MEDICAL NOBEL INSTITUTE FOR BIOCHEMISTRY, DEPARTMENT OF MEDICAL BIOCHEMISTRY AND BIOPHYSICS, KAROLINSKA INSTITUTE, STOCKHOLM, SWEDEN

08:30–08:40 Introduction

Junji Yodoi - Arne Holmgren

08:40–09:00 Electrophile-sensitive proteins

Koji Uchida

GRADUATE SCHOOL OF BIOAGRICULTURAL SCIENCES, NAGOYA UNIVERSITY, NAGOYA, JAPAN

09:00–09:20 Redox control in the endoplasmic reticulum

Roberto Sitia

UNIVERSITÀ VITA-SALUTE SAN RAFFAELE, MILANO, ITALY

09:20–09:40 Molecular mechanism of sulfiredoxin

Sue Goo Rhee

LABORATORY OF CELL SIGNALING, NATIONAL HEART, LUNG, AND BLOOD INSTITUTE, NATIONAL INSTITUTES OF HEALTH, BETHESDA, MD, USA

09:40–10:00 Redox controls of ASK1-MAP kinase signaling pathway

in apoptosis and immunity

Hidenori Ichijo

LABORATORY OF CELL SIGNALING, GRADUATE SCHOOL OF

PHARMACEUTICAL SCIENCES, THE UNIVERSITY OF TOKYO, TOKYO, JAPAN

10:00–10:20 An ASJ neuron-specific thioredoxin in *Caenorhabditis* elegans

Antonio Miranda-Vizuete

CENTRO ANDALUZ DE BIOLOGÍA DEL DESARROLLO, DEPARTAMENTO DE CIENCIAS AMBIENTALES, UNIVERSIDAD PABLO DE OLAVIDE, SEVILLA, SPAIN

10:20–10:50 *Coffee break*

10:50–11:10 Signaling of apoptosis by SecTRAPs. Linking the integrity of selenocysteine in thioredoxin reductase with cellular effects triggered by electrophilic anticancer agents

Elias Arnér

MEDICAL NOBEL INSTITUTE FOR BIOCHEMISTRY, DEPARTMENT OF MEDICAL BIOCHEMISTRY AND BIOPHYSICS, KAROLINSKA INSTITUTE, STOCKHOLM, SWEDEN

11:10–11:30 Specific anti-STAT1 action of some natural polyphenols: Protective effect in inflammatory diseases

Hisanori Suzuki

BIOCHEMISTRY DIVISION, DEPARTMENT OF NEUROSCIENCE AND VISION, UNIVERSITY OF VERONA, VERONA, ITALY

11:30–11:50 Redox-sensitive transport of human thioredoxin-1

Norihiko Kondo

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

11:50–12:10 Thioredoxin-binding proteins: Role for cancer protection

Hiroshi Masutani

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

12:10–12:30	Glutathione peroxidases: Unexpected functions and expression control
	Regina Brigelius-Flohé Department of Vitamins and Atherosclerosis, German Institute of Human Nutrition, University of Potsdam, Potsdam-Rehbrücke, Germany
12:30–12:50	Cu(II)-induced PI3 kinase signaling: Modulation of
	FoxO transcription factor activity
	Lars Oliver Klotz
	INSTITUT FÜR BIOCHEMIE UND MOLEKULARBIOLOGIE I, HEINRICH-HEINE- UNIVERSITÄT DÜSSELDORF, DÜSSELDORF, GERMANY
12:50–14:20	Lunch and Poster Viewing
14:20–14:40	The cytoskeleton in the modulation of cell signaling by zinc
	Patricia Oteiza Department of Nutrition, University of California, Davis, CA, USA
14:40–15:00	Molecular mechanisms involved in the adaptive
	response to oxidative stress
	Franca Esposito
	DEPARTMENT OF BIOCHEMISTRY AND MEDICAL BIOTECHNOLOGY, UNIVERSITY OF NAPLES FEDERICO II, NAPLES, ITALY

SESSION V BIOLOGICAL AND PHYSIOLOGICAL EFFECTS OF FLAVONOIDS AND POLYPHENOLS

Chairpersons Junji Terao

DEPARTMENT OF FOOD SCIENCE, GRADUATE SCHOOL OF NUTRITION AND BIOSCIENCES, THE UNIVERSITY OF TOKUSHIMA, TOKUSHIMA, JAPAN

Josiane Cillard

LABORATOIRE DE BIOLOGIE CELLULAIRE ET VÉGÉTALE, FACULTÉ DE

PHARMACIE, UNIVERSITÉ DE RENNES I, RENNES, FRANCE

15:00–15:20 Bioavailability of flavonoids and polyphenols

Gary Williamson

NESTLÉ RESEARCH CENTER VERS-CHEZ-LES-BLANC

CH-1000 LAUSANNE, SWITZERLAND

15:20–15:40 Chocolate and wine flavanols in hypertension:

The search for reliable biochemical mechanisms

César Fraga

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

15:40–16:00 Health effect of polyphenols: Is it a matter of single

nutraceuticals or a diet as a whole?

Fulvio Ursini

DEPARTMENT OF BIOCHEMISTRY, UNIVERSITY OF PADOVA, PADOVA, ITALY

16:00–16:20 Green tea and oatmeal for breakfast

Mohsen Meydani

VASCULAR BIOLOGY LABORATORY, JEAN MAYER USDA-HUMAN NUTRITION RESEARCH CENTER ON AGING AT TUFTS UNIVERSITY, BOSTON, MA, USA

16:20–16:50 *Coffee break*

16:50–17:10 Cocoa flavanols modulate the prooxidant-antioxidant balance in human plasma by lowering F_2 -isoprostane

concentrations

Ingrid Wiswedel

INSTITUT FUR KLINISCHE CHEMIE UND PATHOBIOCHEMIE, OTTO-VON-GUERICKE-ÜNIVERSITÄT MAGDEBURG, GERMANY

17:10–17:30 Transcriptome and proteome analysis of human endothelial cells supplemented with the soy isoflavone

genistein

Gerald Rimbach

INSTITUTE OF HUMAN NUTRITION AND FOOD SCIENCE, CHRISTIAN-ALBRECHTS-UNIVERSITY OF KIEL, KIEL, GERMANY

17:30–17:50 Polyphenols from wine and the diet: eNOS and metabolic syndrome

Federico Leighton

DEPARTAMENTO DE BIOLOGIA CELULAR Y MOLECULAR, FACULTAD DE CIENCIAS BIOLOGICAS, PONTIFICIA UNIVERSIDAD CATÓLICA DE CHILE, SANTIAGO. CHILE

ALEX SEVANIAN MEMORIAL LECTURE

CHAIRPERSON Mario U. Dianzani

DEPARTMENT OF EXPERIMENTAL MEDICINE AND ONCOLOGY, SECTION OF

GENERAL PATHOLOGY, UNIVERSITY OF TURIN, TURIN, ITALY

17:50–18:30 Dietary polyphenols to limit oxidative stress and

improve human health: A future open but still paved

with much uncertainty

Augustin Scalbert

UNITÉ DES MALADIES MÉTABOLIQUES ET MICRONUTRIENTS, INRA, SAINT-

GENÈS-CHAMPANELLE, FRANCE

20:30 Gala Dinner

Ristorante La Cascata, Pollenzo

SESSION VI OXIDANTS AND ANTIOXIDANTS IN NEURODEGENERATION AND AGING

CHAIRPERSONS Ana Navarro

DEPARTMENT OF BIOCHEMISTRY AND MOLECULAR BIOLOGY, SCHOOL OF MEDICINE, UNIVERSITY OF CÁDIZ, CÁDIZ, SPAIN

Huveyda Basaga

BIOLOGICAL SCIENCES AND BIOENGINEERING PROGRAM, SABANCI

UNIVERSITY, TUZLA, ISTANBUL, TURKEY

09:00–09:20 Redox regulation of heat shock protein expression in

aging and neurodegenerative disorders: Role of vitagens

and modulation by acetylcarnitine

Vittorio Calabrese

DEPARTMENT OF BIOCHEMISTRY, UNIVERSITY OF CATANIA, ITALY

09:20–09:40 Intracellular toxicity of β-amyloid peptide: Role of

mitochondrial oxidant generation

José Viña

DEPARTMENT OF PHYSIOLOGY, SCHOOL OF MEDICINE, UNIVERSITY OF

VALENCIA, VALENCIA, SPAIN

09:40–10:00 Nitric oxide dynamics in hippocampus following

activation of NMDA and AMPA receptors

João Laranjinha

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

PORTUGAL

10:00–10:20 A two-hit hypothesis for the pathogenesis of Alzheimer's

disease

Mark A. Smith

INSTITUTE OF PATHOLOGY, CASE WESTERN RESERVE UNIVERSITY,

CLEVELAND, OH, USA

10:20–10:40 Oxidants and antioxidants in neurodegeneration and aging

Francisco J. Romero

DEPARTMENT OF PHYSIOLOGY, PHARMACOLOGY, AND TOXICOLOGY, UNIVERSITY CARDENAL HERRERA, VALENCIA, SPAIN

10:40–11:10 *Coffee break*

11:10–11:30 Mitochondrial reactive oxygen species: Topology and cytotoxicity

Derick Han

RESEARCH CENTER FOR LIVER DISEASES, KECK SCHOOL OF MEDICINE, UNIVERSITY OF SOUTHERN CALIFORNIA, LOS ANGELES, CA, USA

11:30–11:50 Mitochondrial dysfunction in the hippocampus and in the striatum body

Alberto Boveris

LABORATORY OF FREE RADICAL BIOLOGY, SCHOOL OF PHARMACY AND BIOCHEMISTRY, UNIVERSITY OF BUENOS AIRES, BUENOS AIRES, ARGENTINA

SESSION VII CLINICAL STUDIES ON ANTIOXIDANTS

CHAIRPERSONS Bruce Ames

CHILDREN'S HOSPITAL OAKLAND RESEARCH INSTITUTE, OAKLAND, CA, USA

Virginia Junqueira

DISCIPLINA DE GERIATRIA, DEPARTAMENTO DE MEDICINA, CENTRO DE ESTUDOS DO ENVELHECIMENTO, UNIVERSIDADE FEDERAL DE SÃO PAULO, SÃO PAULO, BRAZIL

11:50–12:10 Protection of DNA damage by antioxidants.

Relationship with two French epidemiological studies:

EVA and SUVIMAX

Alain Favier

LABORATOIRE LÉSIONS DES ACIDES NUCLÉIQUES, DÉPARTEMENT DE RECHERCHE FONDAMENTALE SUR LA MATIÈRE CONDENSÉE, CEA-GRENOBLE, GRENOBLE, FRANCE

12:10–12:30 Vitamin E and respiratory infections in the elderly

Simin Meydani

NUTRITIONAL IMMUNOLOGY LABORATORY, JEAN MAYER USDA HUMAN NUTRITION RESEARCH CENTER ON AGING AT TUFTS UNIVERSITY, BOSTON, MA, USA

12:30–12:50 Oxidative stress and mild cognitive impairment

Cristina Polidori

INSTITUT FÜR BIOCHEMIE UND MOLEKULARBIOLOGIE I, HEINRICH-HEINE-UNIVERSITÄT DÜSSELDORF, DÜSSELDORF, GERMANY

12:50–13:10 Antioxidants for the treatment of cardiovascular disease:

Is there a future?

Francesco Violi

DEPARTMENT OF EXPERIMENTAL MEDICINE AND PATHOLOGY, UNIVERSITY OF ROME LA SAPIENZA, DIVISIONE IV CLINICA MEDICA, POLICLINICO UMBERTO I, ROME, ITALY

Concluding remarks

Giuseppe Poli

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

OCC 2006

Helmut Sies

PRESIDENT OF THE OXYGEN CLUB OF CALIFORNIA
INSTITUT FÜR BIOCHEMIE UND MOLEKULARBIOLOGIE I,
HEINRICH-HEINE-UNIVERSITÄT DÜSSELDORF, DÜSSELDORF, GERMANY

13:30 Farewell Lunch

Garden of the Teatro Sociale

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