Meeting of the International HNE-Club and the University of Graz

Reactive Oxygen Species and Lipid Peroxidation in Human Health and Disease

Thursday, 14 – Friday, 15 September 2017
Graz – Austria
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Dear colleagues,

Welcome to the meeting of the International HNE-Club dedicated to Hermann Esterbauer, who passed away 20 years ago, but whose ideas are still inspiring for all who study pathophysiology of oxidative stress!

Local Organizing Committee
Valery Bochkov (Chairman), Rudolf Joerg Schaur, Brigitte Winklhofer-Roob, Willibald Wonisch, Gholam Ali Khoschsorur, Rudolf Zechner

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Artwork: Roman Klug, Press + Communication, University of Graz
Distinguish Between ROS and Superoxides

ROS-ID® Total ROS/Superoxide Detection Kit

Accurately Profile Total ROS and Superoxide with Dual-readout Assay

Enzo Life Sciences is a pioneer in labeling and detection technologies with expertise in making novel fluorescent probes to visualize cellular responses. Enzo’s ROS-ID® Total ROS/Superoxide detection kit is comprised of two fluorescent probes that enable the simultaneous discrimination of total ROS and specifically superoxide in live cells.

- Distinguishes between different reactive species, such as hydrogen peroxide, peroxynitrite and hydroxyl radicals
- High sensitivity, specificity and accuracy for live cell studies
- Compatible with major components of tissue culture media (phenol red, FBS and BSA)
- Complete set of reagents, including ROS inducers and scavengers
- Suitable for flow cytometry, fluorescence microscopy, and microplate reader applications

Detect Differential Generation of Total ROS and Superoxides

Profiling of ROS formation by flow cytometry in HeLa cells. Data represents % positive following treatment with Pyocyanin (ROS/SD inducer), TBHP (ROS inducer), and AMA (superoxide inducer).
Accurately Profile Total ROS and Superoxide with Dual-readout Assay

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Programme

Wednesday, September 13

16:00  **Graz City Tour**  
Meeting point: Hotel Mercure, Lendplatz 36-37, 8020 Graz  
End point: University of Graz, Schubertstrasse 1, 8010 Graz

18:00  Registration & Get together  
University of Graz, Schubertstrasse 1, 8010 Graz

Thursday, September 14

Schubertstrasse 1, 8010 Graz

9:00  Hermann Esterbauer Memorial Session  
Chairs  
**Neven Žarković** (Zagreb), **Valery Bochkov** (Graz)

Introduction  
**Valery Bochkov** (Graz)

Welcome  
**Christa Neuper** (Rector, University of Graz)

**Sepp Kohlwein**  
(Graz)

**Hermann Esterbauer and the University of Graz**

**Giuseppe Poli**  
(Turin)

**Hermann Esterbauer – a pioneer of lipid peroxidation research**

**Koji Uchida**  
(Tokyo)

**The Hermann Esterbauer Decennial Lecture: What we know about 4-hydroxynonenal**

10:30  **Coffee break**
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11:00  Scientific session 1
Intracellular signaling mechanisms activated by lipid peroxidation products

Chairs
Peter Eckl (Salzburg), Randy Jirtle (Raleigh)

Henry Jay Forman
(Los Angeles)
4-Hydroxynonenal-mediated cell signaling

Nikolaus Bresgen
(Salzburg)
Oxidative stress and cell death: The role of iron

Huveyda Basaga
(Istanbul)
Cross-talk between Bcl-2 and IKK in 4-hydroxynonenal-induced apoptosis

Short break

Randy Jirtle
(Raleigh)
Radiation-induced oxidative stress alters disease susceptibility by modifying the epigenome

Fulvio Ursini
(Padova)
GPx4 is the controller of a specific form of programmed cell death executed by lipid peroxidation products

Shlomo Sasson
(Jerusalem)
4-Hydroxyalkenal-activated PPARδ complexes mediate glucohormetic and lipohormetic interactions in diabetes
Tools to Better Understand Oxidized Lipids

- LPO, TBARS, and 8-isoprostane assays available in flexible kit formats
- 8-Isoprostane affinity columns and immunosorbents
- Click chemistry probes, inhibitors, and standards with stable isotope labeled pairs
- Assays to detect ROS and evaluate antioxidant activity
- Contract bioanalysis services are available

Measure LPOs in tissues, cultured cells, plant materials, foods, and biological fluids
13:45  Group photo and lunch break

15:00  Scientific session 2

**Analytical approaches for structural and functional analysis of lipid peroxidation products**

Chairs

**Giuseppe Poli** (Turin), **Giulia Coliva** (Leipzig)

**Corinne Spickett** (Birmingham)

**Analysis of phospholipid peroxidation and protein lipoxidation products by LC-MS**

**Maria Fedorova** (Leipzig)

**Analytical strategies to uncover the diversity of lipid peroxidation products and their biological effects**

**Willibald Wonisch** (Graz)

**High-throughput screening of oxidative stress biomarkers: Significance, precision and cost-effectiveness**

16:15  Coffee break

16:45  Poster session

19:30  Reception by the Lord Mayor of the City of Graz and Conference Dinner

Hotel Wiesler, Salon Frühling, Grieskai 4-8, 8010 Graz
For over 20 years Hycult Biotech has dedicated its experience and knowledge in the development and production of research reagents in the field of innate immunity. This has resulted in a focused portfolio of more than 100 products in the field of oxidative stress and cell damage. Visit www.hycultbiotech.com for more information.

- OxPAPC suitable for functional applications
- Assays for Nitrotyrosine, MPO, CML (carboxymethyl-lysine) and MGO (methylglyoxal)
- Functional antibody for LOX-1
- Antibodies for Nitrotyrosine, Chlorotyrosine, Halotyrosine, MG-H1, MPO, BPDE-DNA, Ethenoadenosine and many more!
Friday, September 15

9:00  Scientific session 3

**Lipid oxidation products in disease pathogenesis (1)**

Chairs

**Giovanni Mann** (London)
**Anne Negre-Salvayre** (Toulouse)

**Anne Negre-Salvayre** (Toulouse)
**Pro-atherogenic effects of 4-hydroxynonenal**

**Gabriella Marisa Leonarduzzi** (Turin)
**Oxidized lipids in age-related diseases**

**Norbert Leitinger** (Charlottesville)
**Oxidized phospholipids and phenotypic polarization of macrophages**

**Giovanni E. Mann** (London)
**Enhanced sensitivity to 4-hydroxynonenal and impaired redox signaling in human endothelial cells in gestational diabetes**

10:40  *Coffee break*
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  - 4-hydroxy Nonenal-d3 Cat No: 332101
  - 4-hydroxy Nonenal Mercapturic Acid Cat No: 32110
  - 4-hydroperoxy 2-Nonenal3 Cat No: 10004413

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- Catalase Assay Kit (without Hydrogen Peroxide)
- Antioxidant Assay Kit

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11:10   Scientific session 4
Lipid oxidation products in disease pathogenesis (2)

Chairs
Etsuo Niki (Kyoto), Françoise Guéraud (Toulouse)

Françoise Guéraud (Toulouse)
Dietary 4-hydroxynonenal and other lipid oxidation products in the development of colorectal carcinogenesis

Ana Čipak Gašparović (Zagreb)
Role of 4-hydroxynonenal in communication between cancer stem cells and microenvironment

Huiyong Yin (Shanghai)
The role of lipid peroxidation during the progression of human hepatocellular carcinoma

Tilman Grune (Nuthetal)
Redox regulation in aging: Role of protein aggregates

12:50   Lunch break
Oxidative stress, antioxidants and pharmacological interventions

Chairs
Tilman Grune (Nuthetal), Franz Tatzber (Graz)

Etsuo Niki (Kyoto)
Oxidative stress and antioxidants: Distress or eustress?

Elżbieta Skrzydlewska (Bialystok)
Antioxidants and 4-hydroxynonenal in regulation of redox homeostasis

Giancarlo Aldini (Milan)
Novel molecular approaches for improving enzymatic and nonenzymatic detoxification of 4-hydroxynonenal: Toward the discovery of a novel class of bioactive compounds

Short break
Luigi Iuliano  
(Rome)  
Translational implications of cholesterol autoxidation

Werner Siems  
(Bad Harzburg)  
Lipid peroxidation and pharmaceutical drugs

Giuseppe Poli  
(FRBM Associate Editor)  
Presentation of a special issue of Free Radical Biology & Medicine entitled „4-Hydroxynonenal and Related Lipid Peroxidation Products“

16:50   Coffee break
17:15 Public panel discussion

**The Janus face of oxidative stress**

Moderation:
**Sonja Saurugger** (Kleine Zeitung)
**Anthony Newman** (Elsevier)

**Etsuo Niki**
(Kyoto)
**Oxidative stress: what does it mean?**

**Randy Jirtle**
(Raleigh)
**Oxidative stress induced by ionizing radiation**

**Neven Žarković**
(Zagreb)
**Pro- and anti-proliferative effects of lipid peroxidation products on cancer cells**

18:15 Closing remarks

**Neven Žarković**
(Zagreb)

Saturday, September 16

All participants are invited to attend the 6th International Symposium of the Human Nutrition & Metabolism Research and Training Center Graz. For free participation, the HNE Club participants need to show their badge of the HNE Club meeting. Students and employees of the universities of Graz have to show the student or employee ID card.

Professional Educational Workshop

**How to publish in a scientific journal**

University of Graz, Schubertstrasse 1, 8010 Graz

07:45 Registration

08:15 Welcome: **Brigitte Winklhofer-Roob** (Graz)
Chairs:
Josiane Cillard (President of SFRR-Europe, Rennes, France)
and Fritz Spener (Past-Executive Editor of Biochimica
Biophysica Acta – Molecular and Cell Biology of Lipids, Graz, Austria)

THE PUBLISHER’S VIEW

08:20 Anthony Newman
(Publisher Elsevier, Amsterdam, The Netherlands)

How to write a great research paper, and get
it accepted by a good journal

THE EDITOR’S VIEW

09:20 Giovanni E. Mann (Review Editor, Free Radical Biology and
Medicine, London, UK), Henry J. Forman (Editor-in-Chief,
Archives of Biochemistry and Biophysics, Merced, USA), Michael
J. Davies (Editor-in-Chief, Free Radical Research, Copenhagen,
Denmark), Tilman Grune (Editor-in-Chief, Redox Biology,
Potsdam, Germany), Torsten Bohn (Editor-in-Chief, Inter-
national Journal of Vitamin and Nutrition Research, Luxembourg,
Luxembourg), Jan Frank (Editor-in-Chief, NFS Journal and Co-
Editor Europe, Nutrition, Hohenheim, Germany)

09:50 Discussion
10:00 Coffee break
10:20 Scientific sessions
19:10 End of symposium
Social Programme

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Thursday, September 14

19:30  **Reception by the Lord Mayor of the City of Graz and Conference Dinner**
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Saturday, September 16

**Excursion to the Fortress of Deutschlandsberg and the Western Styrian Wine Road**

10:00  Departure from the University Main Building
12:00  Lunch at the Castle Deutschlandsberg
14:00  Archeological Museum Deutschlandsberg
15:00  Ride along the Schilcher Weinstrasse
16:00  „Brettjause“ at Restaurant „Jagawirt“
19:00  Arrival to Graz

Contact and Information

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- Support for young scientists to attend international meetings
- Meeting the experts on free radicals, oxidative stress, and redox signaling

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