

# CONTENTS

## Editorial

1

## Detection of oxidants and LPO products

Y. Yoshida, M. Hayakawa and E. Niki

Total hydroxyoctadecadienoic acid as a marker for lipid peroxidation *in vivo*

7

C.M. Spickett and G. Dever

Studies of phospholipid oxidation by electrospray mass spectrometry: From analysis in cells to biological effects

17

K. Zarkovic, G. Juric, G. Waeg, D. Kolenc and N. Zarkovic

Immunohistochemical appearance of HNE-protein conjugates in human astrocytomas

33

A.J. Kettle and C.C. Winterbourn

Do neutrophils produce ozone? An appraisal of current evidence

41

## LPO products, antioxidants and detoxification

T. Schewe and H. Sies

Myeloperoxidase-induced lipid peroxidation of LDL in the presence of nitrite. Protection by cocoa flavanols

49

T. Billrski, M. Kwolek, E. Sas, M. Krynicka, S. Koziol, A. Owsiak-Teleon,

A. Krzepilko and G. Bartosz

A novel test for identifying genes involved in aldehyde detoxification in the yeast. Increased sensitivity of superoxide-deficient yeast to aldehydes and their metabolic precursors

59

H. Spalteholz, K. Wenske and J. Arnhold

Interaction of hypohalous acids and heme peroxidases with unsaturated phosphatidylcholines

67

G. Aldini, R.M. Facino, G. Beretta and M. Carini

Carnosine and related dipeptides as quenchers of reactive carbonyl species: From structural studies to therapeutic perspectives

77

G. Peiro, J. Alary, J.-P. Cravedi, E. Rathahao, J.-P. Steghens and F. Guéraud

Dihydroxynonene mercapturic acid, a urinary metabolite of 4-hydroxynonenal, as a biomarker of lipid peroxidation

89

F. Guéraud, F. Crouzet, J. Alary, D. Rao, L. Debrauwer, F. Laurent and

J.-P. Cravedi

Enantioselective metabolism of (R)- and (S)-4-hydroxy-2-nonenal in rat

97

L. Horáková, M. Štrosová and M. Škuciová

Antioxidants prevented oxidative injury of SR induced by Fe<sup>2+</sup>/H<sub>2</sub>O<sub>2</sub>/ascorbate system but failed to prevent Ca<sup>2+</sup>-ATPase activity decrease

105

M. Štrosová, M. Škuciová and L. Horáková

Oxidative damage to Ca<sup>2+</sup>-ATPase sarcoplasmic reticulum by HOCl and protective effect of some antioxidants

111

**HNE, mitochondria, metabolic regulation and apoptosis***K.S. Echtay, J.L. Pakay, T.C. Esteves and M.D. Brand*

Hydroxynonenal and uncoupling proteins: A model for protection against oxidative damage 119

*C. Crifò, W. Siems, S. Soro and C. Salerno*

Inhibition of defective adenylosuccinate lyase by HNE: A neurological disease that may be affected by oxidative stress 131

*C. Crifò, E. Capuozzo, W. Siems and C. Salerno*

Inhibition of ion transport ATPases by HNE 137

*S. Borovic Sunjic, A. Cipak, F. Rabuzin, R. Wildburger and N. Zarkovic*

The influence of 4-hydroxy-2-nonenal on proliferation, differentiation and apoptosis of human osteosarcoma cells 141

**Cell cycle, gene regulation and proteolysis***G. Barrera, S. Pizzimenti, S. Laurora, F. Briatore, C. Toaldo and M.U. Dianzani*

4-Hydroxynonenal and cell cycle 151

*A.J. Alija, N. Bresgen, O. Sommerburg, C.D. Langhans, W. Siems and P.M. Eckl*Cyto- and genotoxic potential of  $\beta$ -carotene and cleavage products under oxidative stress 159*T. Jung, M. Engels, B. Kaiser and T. Grune*

Distribution of oxidized and HNE-modified proteins in U87 cells 165

*S. Mueller*

Iron regulatory protein 1 as a sensor of reactive oxygen species 171

**LDL, inflammation and atherosclerosis***C. Salerno, C. Crifò, E. Capuozzo, O. Sommerburg, C.-D. Langhans and W. Siems*

Effect of carotenoid oxidation products on neutrophil viability and function 185

*N.K. Özer, S. Taha and A. Azzi*

Homocysteine induces DNA synthesis and proliferation of vascular smooth muscle cells by interfering with MAPK kinase pathway 193

*I. Wiswedel, D. Hirsch, F. Carluccio, H. Hampl and W. Siems* $F_2$ -Isoprostanes as biomarkers of lipid peroxidation in patients with chronic renal failure 201*B. Sottero, P. Gamba, M. Longhi, F. Robbesyn, P.M. Abuja, R.J. Schaur, G. Poli and G. Leonarduzzi*Expression and synthesis of TGF $\beta$ 1 is induced in macrophages by 9-oxo-nonanoyl cholesterol, a major cholesteryl ester oxidation product 209*A. Cipak, S. Borovic, M. Scukanec-Spoljar, I. Kirac and N. Zarkovic*

Possible involvement of 4-hydroxynonenal in splenocyte regulated liver regeneration 217

**Neurodegeneration and aging***E. Chiarpotto, L. Castello, G. Leonarduzzi, F. Biasi and G. Poli*

Role of 4-hydroxy-2,3-nonenal in the pathogenesis of fibrosis 229

*B. Vizio, G. Poli, E. Chiarpotto and F. Biasi*

- 4-Hydroxynonenal and TGF- $\beta$ 1 concur in inducing antiproliferative effects on the CaCo-2 human colon adenocarcinoma cell line 237

*R. Widmer and T. Grune*

- Iron uptake of the normoxic, anoxic and postanoxic microglial cell line RAW 264.7 247

*K. Merker, D. Hapke, K. Reckzeh, H. Schmidt, H. Lochs and T. Grune*

- Copper related toxic effects on cellular protein metabolism in human astrocytes 255

### Clinical applications

*M.C. Polidori, D. Praticó, T. Ingegneri, E. Mariani, L. Spazzafumo,*

*P. Del Sindaco, R. Cecchetti, Y. Yao, S. Ricci, A. Cherubini, W. Stahl,*

*H. Sies, U. Senin and P. Mecocci for the AVASAS Study Group*

- Effects of vitamin C and aspirin in ischemic stroke-related lipid peroxidation: Results of the AVASAS (Aspirin Versus Ascorbic acid plus Aspirin in Stroke) Study 265

*W. Siems, T. Grune, P. Voss and R. Brenke*

- Anti-fibrosclerotic effects of shock wave therapy in lipedema and cellulite 275

*O. Skorokhod, E. Schwarzer, T. Grune and P. Arese*

- Role of 4-hydroxynonenal in the hemozoin-mediated inhibition of differentiation of human monocytes to dendritic cells induced by GM-CSF/IL-4 283

*A.L. Furfaro, S. Menini, S. Patriarca, C. Pesce, P. Odetti, D. Cottalasso,*

*U.M. Marinari, M.A. Pronzato and N. Traverso*

- HNE-dependent molecular damage in diabetic nephropathy and its possible prevention by N-acetyl-cysteine and oxerutin 291

*W. Wonisch, K. Uhl, W. Schimetta and H. Rabl*

- Pre-operative delivery of a vitamin cocktail diminished oxidative stress after vascular surgery in PAD patients – a pilot investigation 299

*M. Zivkovic, M. Poljak-Blazi, G. Egger, S. Borovic Sunjic, R.J. Schaur and*

*N. Zarkovic*

- Oxidative burst and anticancer activities of rat neutrophils 305

Keyword Index Volume 24 (2005) 313

Author Index Volume 24 (2005) 315