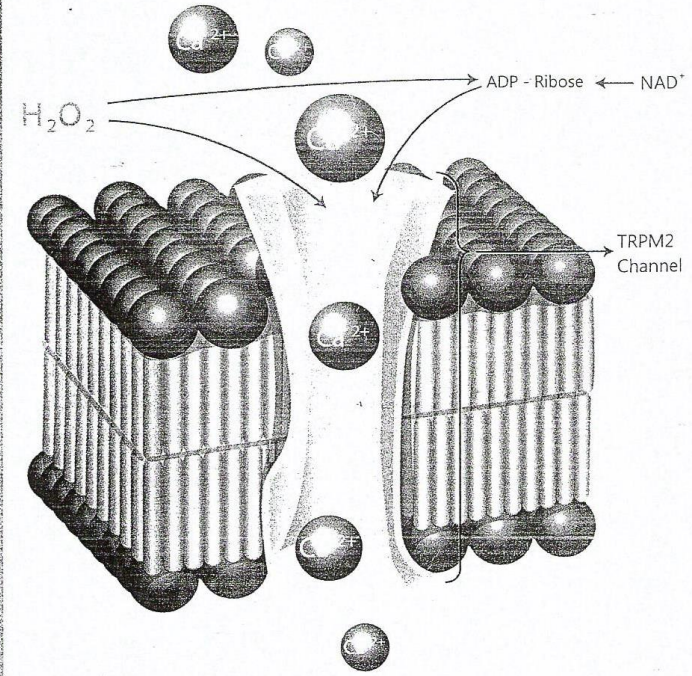
ISSN-1308-416X

Cell Membranes and Free Radical Research

Volume 2 Number 1 1 June 2010

DITOR-IN-CHIEF
ustafa Nazıroğlu, Isparta, TURKEY



SÜLEYMAN DEMİREL ÜNİVERSİTESİ
S. Demirel
1992

HSORD

Abstract Book of 3rd International Congress on Cell Membranes and Oxidative Stress: Focus on Calcium Signaling and TRP Channels 22-27 June 2010 Isparta, Turkey

by

Süleyman Demirel University Medical Faculty Department of Biophysics

Cell Membranes and Free Radical Research

Volume 2 Number 1 1 June 2010
ISSN Numbers: 1308-4178 (On-line), 1308-416X
Indexing: Google Scholar, Index Copernicus, Chemical Abstracts, Scopus (Elsevier)

EDITOR

Editor In Chief

Mustafa Nazıroğlu. Department of Biophysics, Medical Faculty, Suleyman Demirel University, Isparta, Turkey. Phone: +90 246 211 33 10. Fax:+90 246 237 11 65
E-mail: mnaziroglu@med.sdu.edu.tr

Managing Editor

A. Cihangir Uğuz. Department of Biophysics, Medical Faculty, Suleyman Demirel University, Isparta, Turkey.
E-mail: biophysics@med.sdu.edu.tr

EDITORIAL BOARD

Cell Membranes, Ion Channels and Calcium Signaling

Alexei Tepikin. The Physiological Laboratory, University of Liverpool, Liverpool, UK
Andreas Lückhoff. Institute of Physiology, Medical Faculty, RWTH-Aachen University, Germany
Giorgio Aicardi. Department of Human and General Physiology, University of Bologna, Italy.
Jose Antonio Pariente, Department of Physiology, University of Extremadura, Badajoz, Spain.
James W. Putney, Jr. Laboratory of Signal Transduction, NIEHS, NC, USA.
Martyn Mahaut Smith, Department of Cell Physiology and Pharmacology, Universtiy of Leicester, Leicester, UK.

Enzymatic Antioxidant Enzymes

Michael Davies. Deputy Director, The Heart Research Institute, Sydney, Australia.
Ömer Akyol. Department of Biochemistry, Medical Faculty, Hacettepe University, Ankara, Turkey
Xingen G. Lei. Molecular Nutrition, Department of Animal Science, Cornell University, Ithaca, NY, USA

Nonenzymatic Antioxidants, Nutrition and Melatonin

Ana B. Rodriguez Moratinos. Department of Physiology, University of Extremadura, Badajoz, Spain.
Cem Ekmekcioglu. Department of Physiology, Faculty of Medicine, University of Vienna,, Austria.
Peter J. Butterworth. Nutritional Sciences Division, King's College, London, UK.
Şükrü Öter. Department of Physiology, GATA, Ankara, Turkey.

Technical Editor

Ercan Sözbir. Department of Biophysics, Medical Faculty, Suleyman Demirel University, Isparta, Turkey.
E-mail: biophysics@med.sdu.edu.tr
İbrahim Kuş. Department of Graphic Design, Research Hospital, Suleyman Demirel University, Isparta, Turkey.
E-mail: ibrahim@sdu.edu.tr

AIM AND SCOPES

Cell Membranes and Free Radical Research is a print and online journal that publishes original research articles, reviews and short reviews on the molecular basis of biophysical, physiological and pharmacological processes that regulate cellular function, and the control or alteration of these processes by the action of receptors, neurotransmitters, second messengers, cation, anions, drugs or disease.

Areas of particular interest are four topics. They are;

A- Ion Channels (Na^+ - K^+ Channels, Cl^- channels, Ca^{2+} channels, ADP-Ribose and metabolism of NAD^+, Patch-Clamp applications),

B- Oxidative Stress (Antioxidant vitamins, antioxidant enzymes, metabolism of nitric oxide, oxidative stress, the biophysics of the radicals which springed up from oxygen),

C- Interaction Between Oxidative Stress and Ion Channels (Effects of the oxidative stress on the activation of the voltage sensitive cation channels, effect of ADP-Ribose and NAD on activation of the cation channels which are sensitive to voltage, effect of the oxidative stress on activation of the TRP channels)

D- Gene and Oxidative Stress (Gene abnormalities. Interaction between gene and free radicals. Gene anomalies and iron. Role of radiation and cancer on gene polymorphism)

READERSHIP

Biophysics
Biochemistry
Biology
Biomedical Engineering
Pharmacology
Physiology
Genetics
Cardiology
Neurology
Oncology
Psychiatry
Neuroscience

KEYWORDS

Ion channels, cell biochemistry, biophysics, calcium signaling, cellular function, cellular physiology, metabolism, apoptosis, lipid peroxidation, nitric oxide synthase, ageing, antioxidants, neuropathy.

Organization Committee

Congress Honor Committee

Prof. Dr. Metin Lütfi BAYDAR,
Rector of Süleyman Demirel University

Prof. Dr. Yıldıran SONGÜR, Dean of Faculty Medicine, Süleyman Demirel University

Prof. Dr. Süleyman KUTLUHAN,
Chief Physician, Süleyman Demirel University Research Hospital

Prof. Dr. M. Salih ÇELİK,
President of Turkish Biophysical Society

Aziz BAYRAK
General Secretary of Suleyman Demirel University

Congress Organization Committee

Prof. Dr. Mustafa NAZIROĞLU,
Chairman
Department of Biophysics, Faculty of Medicine, Süleyman Demirel University

Prof. Dr. James W. PUTNEY, Jr.
Vice Chairman
NIEHS Calcium Regulation Group Leader

Prof. Dr. Fatih GÜLTEKİN
Department of Biochemistry, Faculty of Medicine
Süleyman Demirel University

Assoc. Prof. Dr. Osman GÖKALP
Department of Pharmacology, Faculty of Medicine
Dicle University

Congress Secretariat

A. Cihangir UĞUZ & İ. Suat ÖVEY & Bilal CİĞ
Department of Biophysics, Faculty of Medicine
Süleyman Demirel University

Accountants

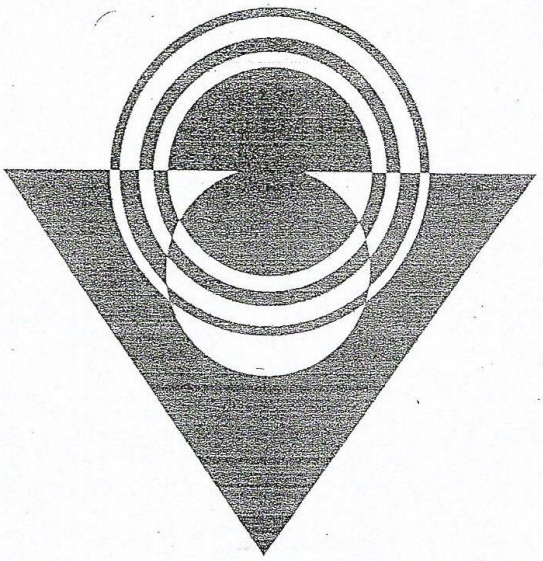
Ömer ÇELİK & Mustafa KÜÇÜKAYAZ & Cemil ÖZGÜL
Department of Biophysics, Faculty of Medicine
Süleyman Demirel University

Information Manager & Webmaster

Ercan SÖZBİR
Department of Biophysics, Faculty of Medicine
Süleyman Demirel University

Technical Supports

Ins. Serdar Duran, Ins. Hakan Mahmut Neğiş
Department of Media & Public Relations
Süleyman Demirel University



TÜBİTAK

3rd International Congress on Cell Membranes and Oxidative Stress: Focus on Calcium Signaling and TRP Channels was supported by The Scientific and Technological Research Council of Turkey.

The Abstract book of the congress is published in this issue.

Asn346, Thr272, Tyr280 and Tyr37 in *Cco*N subunit of cbb_3-type oxidase in *R. capsulatus* were substituted to Val346, Ala272, Phe280 and Phe374 by site-directed mutagenesis technique in order to investigate their roles on the activity of cbb_3–type oxidase. The effects of these mutations on the catalytic activity were determined by using NADI staining. The results indicate that Asn346 and Tyr374 mutations led to a complete loss of enzyme activity while Thr272 and Tyr280 mutations cause a partial loss of catalytic activity of the enzyme. These results suggested that these conserved amino acid residues may play important role in the enzyme activity or assembly.

Oral Presentation 7

Effect of antioxidants on microscopic semen parameters, lipid peroxidation and antioxidant activities in Angora goat semen following cryopreservation

Purhan Barbaros Tuncer [1], M. N. Bucak [1], S. Sarıözkan [4], P. A. Ulutaş [2], O. Büyükleblebici [3], H. İ. Akçadağ [1]

[1] Ministry of Agriculture and Rural Affairs, Lalahan Livestock Central Research Institute, Lalahan, Ankara, Turkey

[2] Department of Biochemistry, Faculty of Veterinary Medicine, Adnan Menderes University, Aydın, Turkey

[3] Department of Biochemistry, Faculty of Veterinary Medicine, Ankara University, Ankara, Turkey

[4]Erciyes University, Faculty of Medicine, Hakan Çetinsaya Experimental and Clinical Research Center, Kayseri, Turkey

The aim of this study was to determine the effects of the antioxidants glutamine and hyaluronan and the inclusion of different levels on microscopic semen parameters, lipid peroxidation and the antioxidant activities following the freeze–thawing of Angora goat semen. Ejaculates collected from three Angora goat bucks, were evaluated and pooled at 37 °C. The semen samples which were diluted with a Tris-based extender containing additives including glutamine (2.5; 5mM) and hyaluronan (500; 1000 µl/ml), and an extender containing no antioxidants (control) were cooled to 5 °C and frozen in 0.25 ml French straws and stored in liquid nitrogen. Frozen straws were thawed individually (37 °C) for 20 s in a water bath for microscopic evaluation. Freezing extenders supplemented with 2.5 and 5mM glutamine led to higher sperm motility and hypo-osmotic swelling test (HOST) values compared to the control ($p<0.05$) following the freeze–thawing process. The addition of 500 µl l/ml hyaluronan resulted in a higher HOST percentage, compared to the addition of 1000 µl/ml hyaluronan and the control ($p< 0.001$). No significant difference was recorded in the percentage acrosome and total sperm abnormalities, following supplementation with antioxidants. The addition of antioxidants did not prevent malondialdehyde (MDA) formation. Antioxidant treatment however decreased ($p< 0.01$) the superoxide dismutase activity. The maintenance of catalase activity was demonstrated to be insignificant following addition of antioxidants. Further studies are required to obtain more repeatable results regarding the characterization of the enzymatic and non-enzymatic antioxidant systems in cryopreserved goat sperm.

Oral Presentation 8

Comparison of the effects of glutamine and an amino acid solution on post-thawed ram sperm parameters, lipid peroxidation and anti-oxidant activities

Mustafa Numan Bucak [1], P. B. Tuncer [1], S. Sarıözkan [1], P. A.Ulutaş [2], O. Büyükleblebici [3]

[1]Ministry of Agriculture and Rural Affairs, Lalahan Livestock Central Research Institute, Lalahan, Ankara, Turkey

[2]Adnan Menderes University, Faculty of Veterinary Medicine, Department of Biochemistry, Aydın, Turkey

[3]Ankara University, Faculty of Veterinary Medicine, Department of Biochemistry, Ankara, Turkey