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Cell Membranes and Free Radical Research

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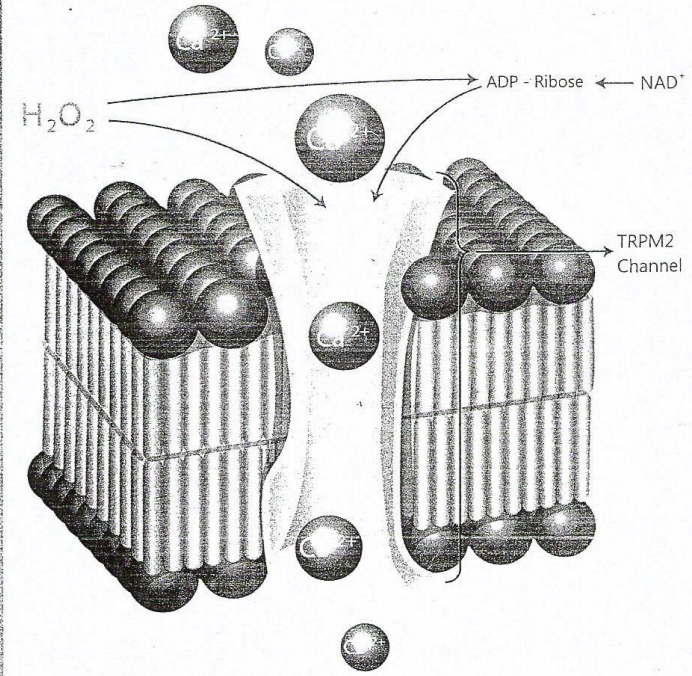

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Abstract Book of 3rd International Congress on Cell Membranes and Oxidative Stress: Focus on Calcium Signaling and TRP Channels 22-27 June 2010 Isparta, Turkey

by

Süleyman Demirel University Medical Faculty Department of Biophysics

Cell Membranes and Free Radical Research

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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.

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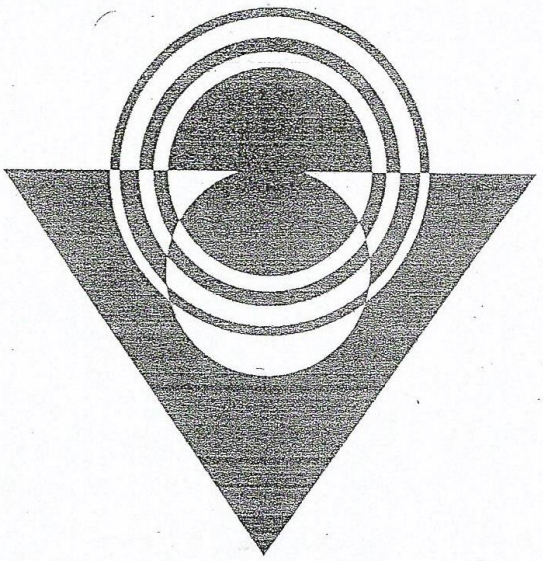

TÜBİTAK

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.

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The aim of this study was to determine the effects of curcumin and dithioerythritol added into bull semen extender on sperm parameters, LPO (lipid peroxidation), total glutathione (total GSH) and antioxidant potential (AOP) levels of bull sperm following the freeze-thawing process. Nine ejaculates obtained from three bulls were included in this study. Each ejaculate which was splitted into seven equal groups and diluted in a Tris-based extender containing Curcumin (0,5 and 2 mM), dithioerythritol (0,5 and 2 mM) and no additive (control) was cooled to 5°C, and frozen in 0.25 ml French straws. Frozen straws were thawed individually at 37°C for 20 s in a water bath for evaluation.

The extender supplemented with 0,5 mM dose of curcumin led to lower percentage of total abnormality (20.40±2.36%), when compared to the control (30.60±1.47%, $p<0.05$). Curcumin and dithioerythritol at 0,5 mM provided a greater protective effect in the membrane functional integrity (54.40±2.09% and 50.00±2.68%), in comparison to control (37.20±1.77%, $p<0.001$). While curcumin and dithioerythritol at 0,5 mM led to higher percentages of post-thaw motilities, when compared to the control groups, these increases seemed to be insignificant. No significant differences were observed in sperm acrosome abnormalities among the groups ($p>0.05$). Supplementation with antioxidants did not significantly affect the LPO and AOP levels, compared to the control groups. The maintenance of total GSH level in curcumin 0.5 mM was demonstrated to be higher than that

Effects of Curcumin and Dithioerythritol on Post-thawed Bull Sperm

N. Başpınar[1], Pınar Peker Akalın[2], M. N. Bucak[3], P. B. Tuncer[3], S. Sarıözkan[4], K. Coyan[5]

characteristics (VAP, VSL, VCL, LIN and ALH), compared to the control groups ($p>0.05$). However, cysteine at 10 mM dose gave rise to a slight higher percentage of membrane integrity assessed by HOST than those of the other groups. With respect to fertility results based on 59-day non-returns, the supplementation of GSH at 2 mM gave a lower