

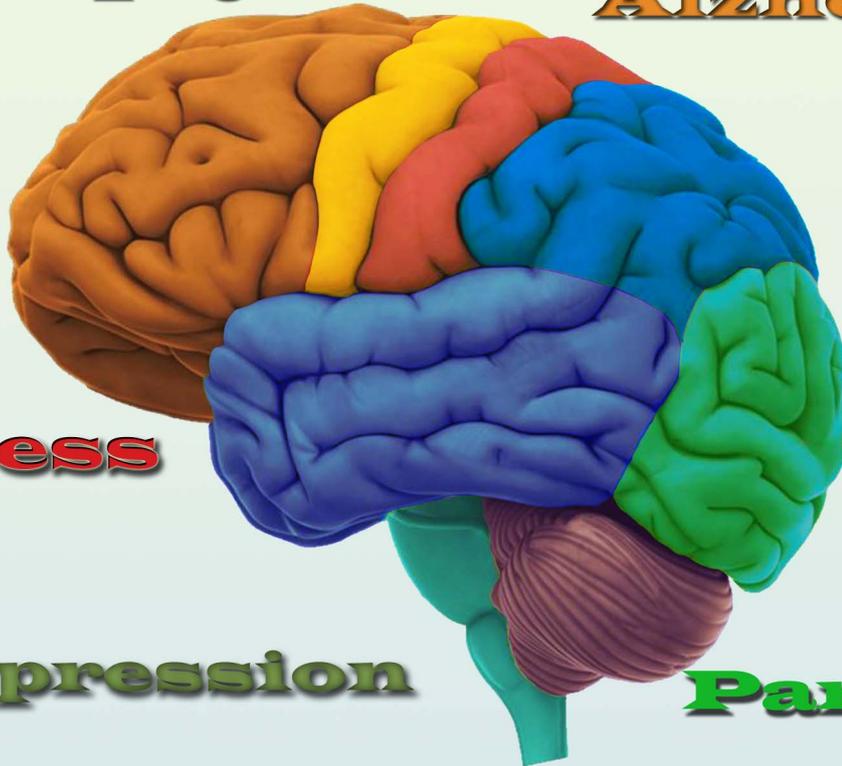
Journal Cellular Neuroscience and Oxidative Stress

<http://dergipark.gov.tr/jcnos>

Former name; Cell Membranes and Free Radical Research

Epilepsy

Alzheimer



Pain

Stress

Depression

Paralysis

Brain Research School

OPEN ACCESS and
NO PUBLICATION FEE

Editor in Chief
Prof.Dr. Mustafa NAZIROĞLU

Supp 1 Volume, 2019

4th International Brain Research School

24-30 June 2019 Isparta /TURKEY
2019.brs.org.tr

Journal of Cellular Neuroscience and Oxidative Stress

<http://dergipark.gov.tr/jcnos>

BSN Health Analyses, Innovation, Consultancy, Organization, Industry
and Trade Limited Company

<http://www.bsnsaglik.com.tr/>

info@bsnsaglik.com.tr

Formerly known as:

Cell Membranes and Free Radical Research (2008 - 2014)

Supp 1 Volume, 2019

EDITOR IN CHIEF

Prof. Dr. Mustafa Naziroğlu,
Department of Biophysics and Neurosciences,
Medical Faculty, Suleyman Demirel University,
Isparta, Turkey.
Phone: +90 246 211 36 41, Fax:+90 246 237 11 65
E-mail: mustafanaziroglu@sdu.edu.tr

Managing Editors

Kenan Yıldızhan and Yener Yazgan
Department of Biophysics, Medical Faculty,
Suleyman Demirel University, Isparta, Turkey.
E-mail: biophysics@sdu.edu.tr

Editorial Board

Neuronal Membranes, Calcium Signaling and TRP Channels

Alexei Tepikin, University of Liverpool, UK.
Jose A. Pariente, University of Extremadura,
Badajoz, Spain.
James W. Putney, Jr. NIEHS, NC, USA.
Laszlo Pecze, University of Fribourg, Switzerland.
Stephan M. Huber, Eberhard-Karls University,
Tubingen, Germany.

Neuroscience and Cell Signaling

Denis Rousseau, Joseph Fourier, University,
Grenoble, France.
Makoto Tominaga, National Institute for Physiological
Sciences (NIPS) Okazaki, Japan.
Ömer Çelik, Süleyman Demirel University, Turkey.
Ramazan Bal, Gaziantep University, Turkey.
Saeed Semnanian, Tarbiat Modares University,
Tehran, Iran.
Yasuo Mori, Kyoto University, Kyoto, Japan.

Antioxidant and Neuronal Diseases

Suresh Yenugu, Osmania University, Hyderabad, India.
Süleyman Kaplan, Ondokuz Mayıs University,
Samsun, Turkey.
Özcan Erel, Yıldırım Beyazıt University,
Ankara, Turkey.
Xingen G. Lei, Cornell University, Ithaca, NY, USA.
Valerian E. Kagan, University of Pittsburg, USA.

Antioxidant Nutrition, Melatonin and Neuroscience

Ana B. Rodriguez Moratinos, University of
Extremadura, Badajoz, Spain.
Cem Ekmekcioglu, University of Vienna, Austria.
Peter J. Butterworth, King's College London, UK.
Sergio Paredes Department of Physiology, Madrid
Complutense University, Spain.

AIM AND SCOPES

Journal of Cellular Neuroscience and Oxidative Stress is an 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, Ca²⁺ channels, ADP-Ribose and metabolism of NAD⁺, Patch-Clamp applications)

B- Oxidative Stress (Antioxidant vitamins, antioxidant enzymes, metabolism of nitric oxide, oxidative stress, biophysics, biochemistry and physiology of free oxygen radicals)

C- Interaction Between Oxidative Stress and Ion Channels in Neuroscience

(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 in neurodegenerative diseases such Parkinson's and Alzheimer's diseases)

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	PhysiologyGenetics
Cardiology	Neurology
Oncology	Psychiatry
Neuroscience	Neuropharmacology

Keywords

Ion channels, cell biochemistry, biophysics, calcium signaling, cellular function, cellular physiology, metabolism, apoptosis, lipid peroxidation, nitric oxide, ageing, antioxidants, neuropathy, traumatic brain injury, pain, spinal cord injury, Alzheimer's Disease, Parkinson's Disease.

4th International Brain Research School

Abstract Book

of

4th International Brain
Research School

24-30 June 2019

Isparta, Turkey

with collaboration of
BSN Health Analyses, Innovation,
Consultancy, Organization, Industry
and Trade Limited Company
& Neuroscience Research Center,
Süleyman Demirel University

4th International Brain Research School

[Organization Committee]

Organization Chairman

Prof. Dr. Mustafa NAZIROĞLU

*Department of Biophysics, School of Medicine
Suleyman Demirel University, Isparta, Turkey*

Organization Vice Chairman

Assoc. Prof. Dr. Ömer ÇELİK

*Department of Biophysics, School of Medicine
Suleyman Demirel University, Isparta, Turkey*

Organization Secretariat

Dr. Bilal ÇİÇ

Ahmi ÖZ & Ramazan ÇINAR

*Department of Biophysics, School of Medicine
Suleyman Demirel University, Isparta, Turkey*

Accountant

Kenan YILDIZHAN &

Yener YAZĞAN (Graphic Designer & Webmaster)

*Department of Biophysics, School of Medicine
Suleyman Demirel University, Isparta, Turkey*

4th International Brain Research School

[Scientific Committee]

Prof. Dr. Ana B. Rodríguez

*Department of Physiology, Neuroimmunophysiology
and Chrononutrition Research Group,
Faculty of Science, University of Extremadura,
Badajoz, Spain*

Prof. Dr. Peter McNaughton

*Wolfson Centre for Age-Related Diseases,
King's College London, London, UK*

Prof. Dr. İlker Y. Eyüpoğlu

*Department of Neurosurgery,
University of Erlangen-Nuremberg
Erlangen, Germany*

Prof. Dr. Hülya Bayır

*Center for Free Radical and Antioxidant Health,
Department of Environmental Health, University of Pittsburgh
Pittsburg, USA*

Prof. Dr. Mustafa Nazıroğlu

*Department of Biophysics, School of Medicine
Suleyman Demirel University, Isparta, Turkey*

Prof. Dr. Peter W. Reeh

*Institute of Physiology and Pathophysiology,
Friedrich-Alexander-University Erlangen-Nuernberg,
Erlangen, Germany*

Prof. Dr. Makoto Tominaga

*Division of Cell Signaling, Okazaki Institute for Integrative Bioscience
(National Institute for Physiological Sciences),
Okazaki, Japan*

Prof. Dr. Ismail Laher

*Department of Anesthesiology, Pharmacology and Therapeutics,
The University of British Columbia,
Vancouver, Canada*

Prof. Dr. Yasuo Mori

*Department of Synthetic Chemistry and Biological Chemistry,
Graduate School of Engineering, Kyoto University
Kyoto, Japan*

4th International Brain Research School

[Scientific Committee]

Prof. Dr. Jose A. Pariente

*Department of Physiology, Neuroimmunophysiology
and Chrononutrition Research Group,
Faculty of Science, University of Extremadura,
Badajoz, Spain*

Prof. Dr. Anirban BASU

*National Brain Research Centre
Haryana, India*

Prof. Dr. Paolo Bernardi

*Padova University
Padova, Italy*

Assist. Prof. Dr. M. Cemal Kahya

*İzmir Katip Çelebi University
İzmir, Turkey*

Assist Prof. Dr. Sergio D. Paredes

*Madrid Complutense University
Madrid, Spain*

Assist Prof. Dr. Denis Rousseau

*Applied and Fundamental Bioenergetic laboratory
Joseph Fourier University
Grenoble Cedex, France*

Assist. Prof. Dr. Isabella Hininger-Favier

*Joseph Fourier University
Grenoble, France*

Dr. Simon Hebeisen

*B'SYS Analytics GmbH.
Biningen, Switzerland*

Dr. Sandra Derouiche

*National Inst for Physiol. Sci.
Okazaki, Japan*

Dr. Nady Braidy

*Centre for Healthy Brain Ageing, School of Psychiatry,
University of New South Wales, Australia*

4th International Brain Research School

Oral Presentations

- Oral Presentation 1.** Using fluorescent calcium indicators in neuronal ion channel studies
Bilal Çiğ.....9
- Oral Presentation 2.** The effects of quercetin on antioxidant and cytokine levels in rat hippocampus exposed to acute cadmium toxicity
İhsan KISADERE, Nurcan DÖNMEZ, Hasan Hüseyin DÖNMEZ.....10
- Oral Presentation 3.** Involvement of oxidative stress and TRP channels in cerebral ischemia
Hamit Hakan ARMAĞAN.....11
- Oral Presentation 4.** Interactions between chemotherapy-induced neuropathic pain and TRPV1 channel
Hacı Ömer OSMANLIOĞLU12
- Oral Presentation 5.** Experimental traumatic brain injury models in rodents
Özgür ÖCAL.....13
- Oral Presentation 6.** Ischemic stroke models in adult experimental animals
Aymer COŞAR.....14
- Oral Presentation 7.** Potential therapeutic role of melatonin in traumatic brain injury: A literature review
Kemal ERTILAV.....15
- Oral Presentation 8.** The anticonvulsant effects of salmon calcitonin on pentylenetetrazole-kindled rats
Ahmet Şevki TAŞKIRAN16
- Oral Presentation 9.** The protective role of *Hypericum perforatum* in treatment of oxidative stress-induced multiple sclerosis is affected by extraction procedure: A literature review
Tunhan DEMİRCİ.....17
- Oral Presentation 10.** Chemotherapeutic agents increase mitochondrial oxidative stress and apoptosis in optic nerve
Dilek ÖZKAYA, Mustafa NAZIROĞLU.....18
- Oral Presentation 11.** Psychological and oxidative stress induce apoptosis through TRPV1 channel activation in granulosa cells of oocyte during in vitro fertilization
Dilek ULUSOY KARATOPUK.....19

Oral Presentations

▶ Oral Presentation 6

Ischemic stroke models in adult experimental animals

Aymer COŞAR

Department of Neurosurgery, Polatlı Duatepe State Hospital, Polatlı, Ankara, Turkey

Hypoxic-ischemia is containing complex physiological, molecular and biochemical pathways and it is induced by lack of oxygen supply to the brain. Hypoxic ischemia induces severe brain injury in adults and newborns. Pathophysiology of ischemic stroke involves oxidative stress, mitochondrial energy production failure, excessive Ca²⁺ influx and apoptosis (Akpınar, et al., 2016). Investigation of the traumatic brain injuries in the subject are difficult due to ethical restrictions. Therefore, the animal models have great importance for the clarifying etiology of the ischemic stroke-induced brain injuries. However, there are differences between human rodent brains. Notable difference between the human and rodent is presence of developing brain (Gennaro et al. 2019). In experimental animals, the best model of induction of hypoxic cerebral ischemic stroke is occlusion of the middle cerebral artery for 30-60 min (Gennaro et al. 2019). In addition to the best model, there are also other models of hypoxic cerebral stroke in rodents such as hypoxia-ischemia, thrombotic ischemia, vasoconstriction. Endothelin 1 and the distal artery compression models (Gennaro et al. 2019; Hermann et al. 2019). In this presentation, I summarized the models currently used to investigate the human developmental ischemic stroke, describing their advantages and limitations.

Keywords: Brain injury; Hypoxic cerebral ischemic stroke model; Rodents; Oxidative stress.

References

- Akpınar H, Nazıroğlu M, Övey İS, Çiğ B, Akpınar O. 2016. The neuroprotective action of dexmedetomidine on apoptosis, calcium entry and oxidative stress in cerebral ischemia-induced rats: Contribution of TRPM2 and TRPV1 channels. *Sci Rep.* 6:37196.
- Gennaro M, Mattiello A, Pizzorusso T. 2019. Rodent models of developmental ischemic stroke for translational research: Strengths and weaknesses. *Neural Plast.* 2019:5089321.
- Hermann DM, Popa-Wagner A, Kleinschnitz C, Doeppner TR. 2019. Animal models of ischemic stroke and their impact on drug discovery. *Expert Opin Drug Discov.* 14(3):315-326.