

MIRJANA DJUKIC, PhD

Full Profesor



Mailing address

University of Belgrade
Faculty of Pharmacy, Department of Toxicology
Vojvode Stepe 450
11221 Belgrade
Serbia, Europe

Contact

Cell phone: +381 65 961 0203

Office phone: +381 11 3951 308

Fax: +381 11 3972 840

E-Mail: mirjana.djukic@pharmacy.bg.ac.rs; mirjana.djukic.cipa@gmail.com (main)

Employment Information

- 2012-present, Full professor, Department of Toxicology, Faculty of Pharmacy, University of Belgrade
- 2007-2012, Associate professor, Department of Toxicology, Faculty of Pharmacy, University of Belgrade
- 2002-2007, Assistant professor, Department of Toxicology, Faculty of Pharmacy, University of Belgrade
- 1988 -2002, Assistant, Department of Toxicology, Faculty of Pharmacy, University of Belgrade
- 2007-present, Professor, Faculty of Pharmacy, University of Tuzla, Bosnia and Herzegovina

Training and Education

Graduate and postgraduate studies:

- 1984, BSc, Faculty of Pharmacy, University of Belgrade, Serbia
- 1996, MSc (Toxicology): Defended master's thesis: Toxicological effects of disulfiram on the adrenergic system in alcoholics
- 2001, PhD (Toxicology), Faculty of Pharmacy, University of Belgrade, Serbia: Defended doctoral thesis: Free radicals and antioxidant protection in the vulnerable brain structures of Wistar rats with acute poisoning with paraquat and diquat

Postdoctoral studies:

Research:

- Oct 2002 – Oct 2003, Postdoctoral fellow at University of Pittsburgh, USA (Center for Free Radical and Antioxidant Health, lab of prof. Valerian E. Kagan, Department of Environmental and Occupational Health at the Graduate School of Public Health),
- Nov 2010 - Nov 2011, Researcher Associate at University of Pittsburgh, USA (Center for Free Radical and Antioxidant Health, lab of prof. Valerian E. Kagan, Department of Environmental and Occupational Health at the Graduate School of Public Health)

Academic specialization:

- 2015 – present, Biological drugs (an attendance), Faculty of Pharmacy, University of Belgrade, Serbia
- 2015 – present, Risk Assessment (lecturer and attendance), Faculty of Pharmacy, University of Belgrade, Serbia

Courses:

- 2004, „Introduction to Clinical Drug Research“, Vienna School of Clinical Research

- 2005, „1st Balcan school for HPLC-MS“, Krug International Ltd., Hemtek d.o.o. and Waters Co.
- 2005, „Promotion of the Three Rs (Reduction, Refinement, Replacement) Concept in Relation to Animal Experimentation“, JRC Enlargement & Integration Workshop, Alternatives, International Workshop on Croatia, Turkey and Western Balkan Countries, Ljubljana, Slovenia
- October 27, 2007, 4th Training course on “Concepts and Methods in Programmed Cell Death”, (ECDO) Portorož, Slovenia
- September 6-9, 2008, 5th Training course on 'Concepts and Methods in Programmed Cell Death' Bern, Switzerland

Teaching activity

Graduate Program:

- 2002-present, lecturer, mentoring, co-author of students' books
- Mandatory courses: Toxicology with analytics,
Clinico-toxicological analysis
- Optional courses: Free radicals and antioxidants –laboratory diagnostics (introduced and organized by myself, 2008-present)
Drug abuse (introduced and organized by myself, 2008-present)
Acute drug poisoning
Ecotoxicology
Risk assesment

Postgraduate and Professional Programs:

Doctoral studies in Toxicology

- 2002-present,: lecturer, mentoring (currently: 3PhD students). Titles of two doctoral theses:
 - *The effect of disulfiram on the reproductive mechanisms of subacute toxicity of ethanol and / or cadmium in male rats*
 - *Interference of thiol groups metabolite of disulfiram with glutathione response to oxidative stress induced by cadmium and / or alcohol in the rats liver*
- Continuing education: lecturer and organizer
2005, Oxidative stress - clinical diagnostic significance,
2005, Prooxidant effects of xenobiotics and antioxidant protection
2013, Drug abuse-Alcoholism

Scientific projects

- 1996-2000, Biopharmaceutical and chemical technological investigations of drugs (Funded by The Ministry of Science, Serbia)
- 2002-2005, Endogenous exposure parameters xenobiotics; analytics, monitoring, prophylaxis and treatment (Funded by The Ministry of Science, Serbia)
- 2002-2003, NIH-HD64145-01A1, Copper/albumin redox-cucling in preeclampsia (Funded by National Health Institute, USA)
- 2002-2003, NIH-HL-70755, Pulmonary phosphatidylserine oxidation in apoptosis (Funded by National Health Institute, USA)
- 2006-2010, Biochemical indicators of damage and dysfunction of organs (Funded by The Ministry of Science, Serbia)
- 2008-2010, Women's health protection (Funded by The Ministry of Health, Serbia)
- 2008-present, Clinical, pathophysiological and molecular aspects of trauma and inflammation (Funded by The Institute for Medical Research, Medical Military Academia, Serbia)
- 2009-2011, novel nitroxide resuscitation strategies in experimental traumatic brain injury (Funded by National Health Institute, USA, Co-Investigator, Valerian Kagan)

- 2010-2011, Activation of cytochrome c into a peroxidase by esterified forms of vitamin E (Valerian Kagan, University of Pittsburgh, USA)
- 2010-2011, Structure-based virtual screening to identify activators and inhibitors of peroxidase activity of cytochrome c (Valerian Kagan, University of Pittsburgh, USA)
- 2010-present, Preventive, therapeutic and ethical approach in pre-clinical and clinical studies of genes and modulator redox cell signaling in the immune, inflammatory and proliferative response of cells (Ministry of Education and Science of the Republic of Serbia, III 41018)
- 2012-present, The molecular mechanisms and potential modulation of oxidative cell state under physiological and pathophysiological conditions (Military Medical Academy, 3/12-14)

Research Interests:

Free radical toxicology, oxidative stress-related diseases and poisonings, bio-markers of diseases red-ox cycling compounds, the underlying mechanisms of drug/toxic agents toxicity and/or treatments, vitamin E analogues with antiproliferative effects, anticancer drugs, immune responses associated to oxidative/nitrosative stress, organ target toxicities.

My team deals with

1. Revealing the orchestration of glutathione cycle in hepatotoxicity induced by Cd and/or alcohol, as well as, optimization of analytical HPLC-UV procedure for simultaneous determination of GSH and GSSG
2. Understanding the Cd and alcohol reproductive and hepatotoxicity in rats and the effect of disulfiram (DSF) by assessing red-ox status and status of metals and relevant biochemical parameters. Therapy with DSF, has been intriguing to us, since the nucleophile character of its metabolite, DDTC.
3. The effect of dietary prolonged zeolite intake in rats on the status of lipid peroxidation in the brain (binding metal properties indirectly changed homeostasis of essential metals in the body and decreases MDA levels in the brain of the treated rats, probably by partial hindering the Fenton reaction)
4. Understanding the paraquat and diquat neurotoxicity (model substances to induce overproduction of free radicals through red-ox cycling metabolism) through the use of various inhibitors: APV for NMDA receptors, naloxone for opiate receptors and L-NAME for NO-synthase.
5. Examination of oxidative stress parameters and immune response in gingival crevicular fluid (GSF) of the dental patients with a proximal caries treated with different dental restorative materials.
6. Association of immune responses and oxidative stress (ROS, RNS, GSH, activities of arginase and NOS, antioxidant enzymes activities) in the serum of melanoma and dental patients, in different stages of disease.

Activities within wider Academic Community

Membership

- 1999-present, Member of the Association of European Toxicologists and European Societies of Toxicology (EUROTOX)
- 2010-present, Member of the Serbian Society of Toxicology (SST)
- 2006, Member of Editorial Board for National Encyclopedia *Big home medical guide*
- 2007-2010, Member of Council of Faculty of Pharmacy, University of Belgrade
- 2008-2011, Editor in Chief and Founder of official website for Faculty of Pharmacy, University of Belgrade

Reviewer

- 2006-present, *Acta Chromatographica*
- 2007-present, *Food and Chemical Toxicology*
- 2007-present, *Basic of Clinical Pharmacology and Toxicology*
- 2007-present, *Environmental Toxicology and Pharmacology*

- 2008-present, Free Radical Research
- 2013-present, Bosnian Journal of Basic Medical Sciences
- 2014-present, Vojno sanintetski pregled
- 2014-present, Neurochemistry International
- 2015-present Biological trace elements

Language: Serbian. English

Bibliography

Monographs (top national):

- **Oxidative stress - clinical and diagnostic significance.** Publisher: Mono and manjana. Editor/Author: **Mirjana Djukić.** ISBN 978-86-7804-155-6. Belgrade 2008.
- **Oxidative stress - free radicals, pro-oxidants and antioxidants.** Publisher: Mono and manjana. Editor/Author: **Mirjana Djukić.** ISBN 978-86-7804-156-3. Belgrade 2008.

Student's Textbooks:

- **Student's Guidelines for Toxicology.** Vesna Matović, **Mirjana Đukić,** Biljana Antonijević, Dragana Vujanović, Zorica Plamenac. Faculty of Pharmacy, Belgrade ISBN: 86-80263-37-0. 2005
- **Student's Guidelines for Clinico-toxicological analysis.** Vesna Matović, **Mirjana Đukić,** Biljana Antonijević. Faculty of Pharmacy, Belgrade ISBN: 86-80263-38-9. 2005
- **Student's Guidelines for Psychoactive substances of abuse.** **Mirjana Đukić,** Danijela Đukić-Ćosić. Faculty of Pharmacy, Belgrade. ISBN 978-86-80263-65-6. 2009.

Recent publications:

- Djuric, A. Begic, B. Gobeljic, M. Ninkovic, I. Stanojevic, D. Vojvodic, A. Pantelic, G. Zebic, V. Prokic, B. Dejanovic, I. Stojanovic, M. Pavlica, D. Djukic, L. Saso, D. Djurdjevic, M. Pavlovic, A. Topic, D. Vujanovic, I. Stevnovic, **M. Djukic.** **Oxidative stress, bioelements and androgen status in testes of rats subacutely exposed to cadmium,** *Food and Chemical Toxicology*, 2015; 86: 25-33.
- Stanojevic, K. Miller, L. Kandolf-Sekulovic, Z. Mijuskovic, L. Zolotarevski, M. Jovic, M. Gacevic, **M. Djukic,** N. Arsenijevic, D. Vojvodic **A subpopulation that may correspond to granulocytic myeloid-derived suppressor cells reflects the clinical stage and progression of cutaneous melanoma.** *Int.Immunol.* (2015) doi: 10.1093/intimm/dxv053.
- Milena Jović, Snežana Cerović, Lidija Zolotarevska, Milomir Gačević, Ivan Stanojević, Karolina Miller, **Mirjana Djukić,** Luciano Saso, Ljiljana Jauković, Danilo Vojvodić. **Correlation of local and systemic expression of survivin with histopathological parameters of cutaneous melanoma.** (2015) UDC: 616-006.81-037:616.5-006.81-091.8-092 DOI: 10.2298/VSP150519119J.
- Naveena Yanamala, Alexander A. Kapralov, **Mirjana Djukic,** Jim Peterson, Gaowei Mao, Judith Klein-Seetharaman, Detcho A. Stoyanovsky, Jan Stursa, Jiri Neuzil and Valerian E. Kagan. **Structural re-arrangement and peroxidase activation of cytochrome c by anionic analogues of vitamin tocopherol-succinate and tocopherol-phosphate.** *J. Biol. Chem.* 2014 Nov 21;289(47):32488-98
- Aleksandra Topic and **Mirjana Djukic:** Diagnostic **Characteristics and Application of Alcohol Biomarkers.** *Clin Lab.* 2013; 59: 233-45.
- Djurdjevic D, **Djukic M,** Ninkovic M, Stevanovic I, Jovanovic M, Vasic U. **Glutathione cycle in diquat neurotoxicity: assessed by intrastriatal pre-treatment with glutathione reductase,** *Acta Veterinaria.* 2013; 63(2-3): 159-175.
- **Djukic M,** Jovanovic M, Ninkovic M, Stevanovic I, Ilic K, Curcic M, Vekic J. **Protective role of glutathione reductase in paraquat induced neurotoxicity,** *Chem Bio Inter* 2012; 199: 74-86.
- **Djukic M,** Jovanovic M, Ninkovic M, Stevanovic I, Curcic M, Topic A, Vujanovic D, Djurdjevic D. **Intrastriatal pretreatment with L-NAME protects rats against from diquat neurotoxicity,** *Ann Agric Environ Med* 2012;19(4):666-672.

- Djukic M, Jovanovic M, Ninkovic M, Stevanovic I, Djurdjevic D, Vasic U. **Influence of glutathione reductase on diquat neurotoxicity assessed by oxidative/nitrosative stress in the cortex of intrastrially treated rats.** *Acta Vet* 2012; 62 (5-6): 553-568.

The list of publications and presentations (187) -dated Dec 2015

The list is attached and arranged in chronological order within the different categories: Articles: international (23) and domestic (14), Invited lecturer on international meetings (8); Presentations: international meetings (126) and domestic meetings (9).