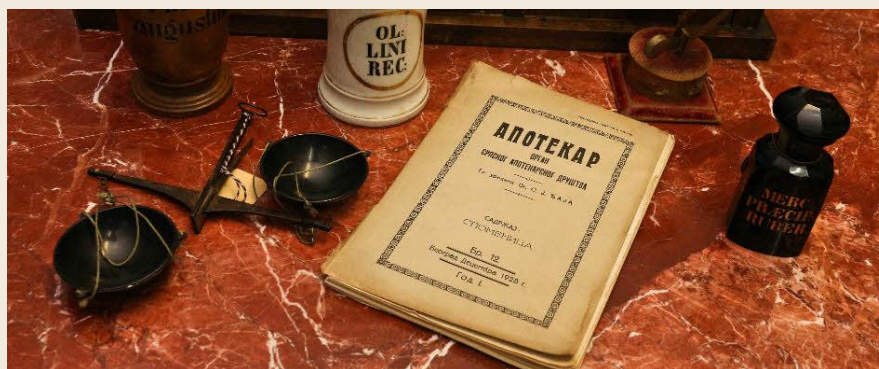




LIČNA KARTA

ISTRAŽIVAČKE GRUPE
FARMACEUTSKOG FAKULTETA



Министарство просвете,
науке и технолошког развоја



European
Commission

Co-funded by the
Erasmus+ Programme
of the European Union



REPUBLIKA SRBIJA
FOND ZA
INOVACIONU
DELATNOST



Фонд за науку
Републике Србије

UNIVERZITET U BEOGRADU
FARMACEUTSKI FAKULTET





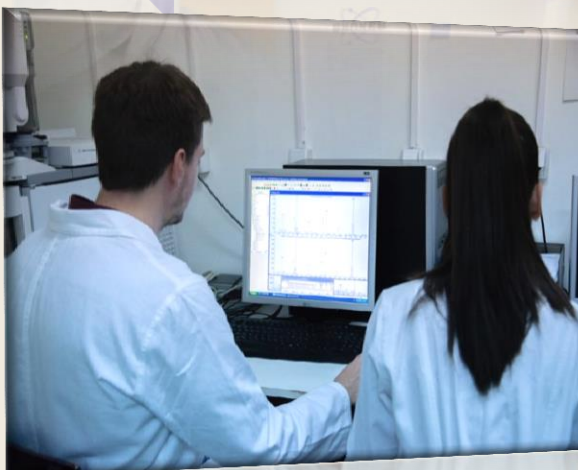
- ❖ Više od **80 godina** pružanja usluga visokog obrazovanja.
- ❖ Član Univerziteta u Beogradu, **najstarijeg univerziteta** u Republici Srbiji.
- ❖ **Duga tradicija** istraživanja u nekoliko oblasti.
- ❖ U oblasti farmacije i farmaceutskih nauka Univerzitet u Beogradu bio je rangiran **u prvih 200 univerziteta** na Šangajskoj listi 2018. god. i među **500 najboljih univerziteta** u istoj naučnoj oblasti u 2020, prema broju publikacija u 25% vodećih naučnih časopisa (Q1).

Katedra za farmaciju prvi put je osnovana na Medicinskom fakultetu Univerziteta u Beogradu 24. oktobra 1939. **Farmaceutski fakultet** je postao nezavisna visokoškolska ustanova 19. oktobra 1945. Niz godina predavanja su se izvodila u prostorijama Medicinskog fakulteta, a u septembru 1991. godine Farmaceutski fakultet se preselio u svoju zgradu.





Katalog opreme
([link](#))

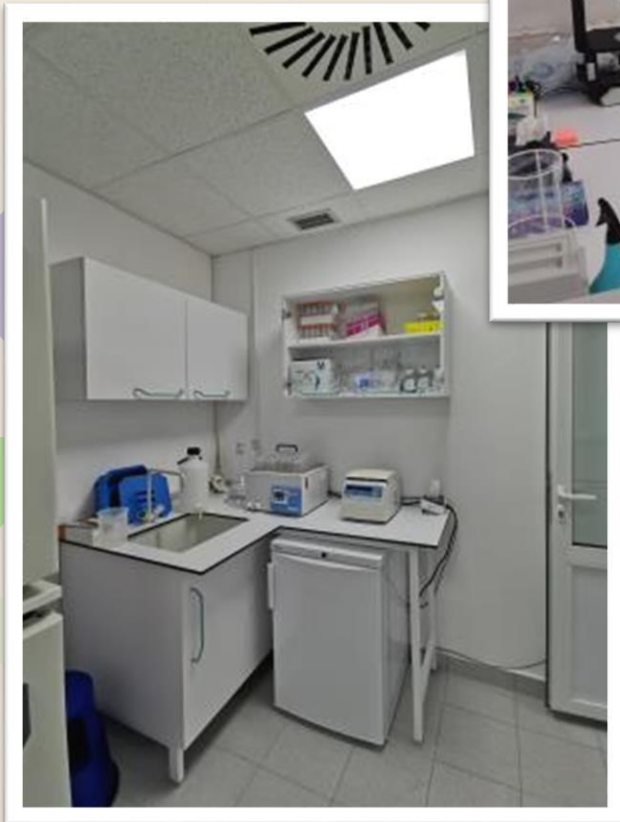
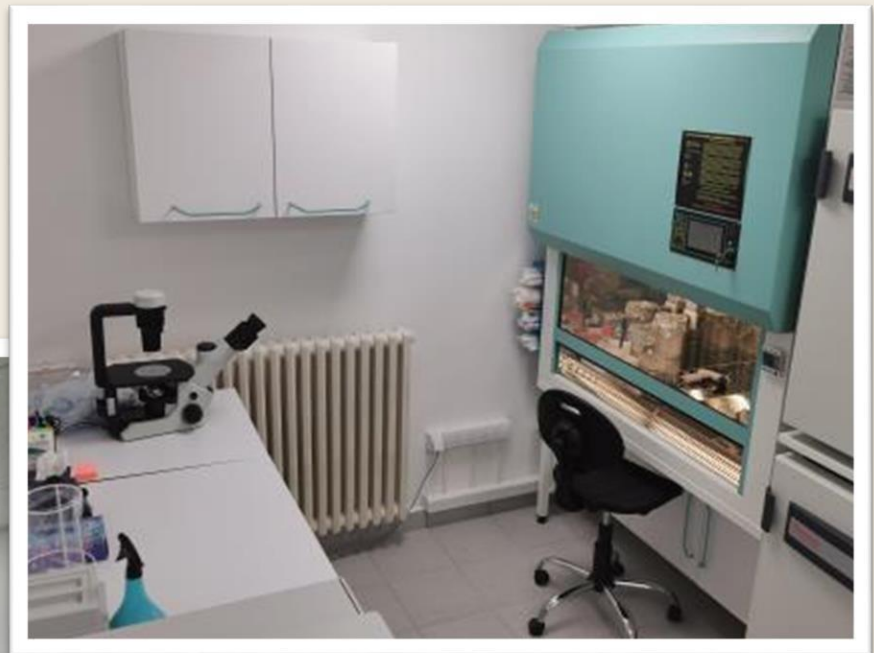








Centar za istraživanje matičnih ćelija i razvoj lekova...





Međunarodni istraživački projekti



Univerzitet u Beogradu - Farmaceutski fakultet je uključen ili je bio uključen u realizaciju:

- ❖ 2 projekta iz programa **Horizon 2020** ([prof. dr Miroslav Savić](#), [doc. dr Marin Jukić](#)),
- ❖ **27 COST** (European Cooperation in Science and Technology) akcija ([link](#)),
- ❖ **1 Istraživačko-razvojnog projekta sa Narodnom Republikom Kinom** ([dr Danijela Đukić Ćosić](#), vanr. prof./IG Prof. [Biljana Antonijević](#))
- ❖ **2 CEEPUS** (Central European Exchange Program for University Studies) projekta ([prof. dr Jelena Kotur Stevuljević](#), [prof. dr Jelena Parojčić](#)),
- ❖ **3 JRC** (Joint Research Centre) projekta ([prof. dr Snežana Savić](#)),
- ❖ **1 FDA** podržanog projekta ([dr Sandra Cvijić](#), vanr. Prof./IG [prof. dr Svetlana Ibrić](#)),
- ❖ **6 bilateralnih projekata sa Saveznom Republikom Nemačkom** ([prof. dr Snežana Savić](#), [dr Ana Protić](#), vanr. prof., [prof. dr Svetlana Ibrić](#)),
- ❖ **4 bilateralna projekta sa Republikom Slovenijom** ([doc. dr Vladimir Dobričić](#), [dr Biljana Otašević](#), vanr. prof., [dr Danijela Đukić-Ćosić](#), vanr. prof., [dr Katarina Vučićević](#), vanr. prof.),
- ❖ **3 bilateralna projekta sa Republikom Austrijom** ([prof. dr Brižita Đorđević](#) i [doc. dr Nevena Ivanović](#), [prof. dr Miroslav Savić](#)),
- ❖ **2 bilateralna projekta sa Narodnom Republikom Kinom** ([prof. dr Aleksandra Novaković](#), [dr Sandra Cvijić](#), vanr. Prof./IG [prof. dr Svetlana Ibrić](#)),
- ❖ **1 bilateralnog projekta sa Republikom Francuskom** ([dr Katarina Nikolić](#), vanr. prof.),
- ❖ **1 bilateralnog projekta sa Republikom Italijom** ([prof. dr Biljana Potparević](#)),
- ❖ **1 bilateralnog projekta sa Republikom Hrvatskom** ([prof. dr Biljana Antonijević](#)),
- ❖ **1 Deutsche Forschungsgemeinschaft (DFG)** projekta ([dr Katarina Nikolić](#), vanr. prof.),
- ❖ **ERASMUS+** ([link](#)) i **ReFEEHS** ([link](#)) projekata.





Nacionalni istraživački projekti



Univerzitet u Beogradu - Farmaceutski fakultet je bio koordinator **15 istraživačkih projekata (12 projekata iz oblasti osnovnih istraživanja i 3 projekta iz oblasti tehnološkog razvoja)** koje je finansiralo nadležno Ministarstvo Republike Srbije; pored toga, naše nastavno / istraživačko osoblje bilo je uključeno u **32 nacionalna istraživačka projekta** koja je vodila neka druga naučna institucija (osnovno istraživanje, tehnološki razvoj, interdisciplinarno istraživanje); **trenutno, istraživanja na Farmaceutskom fakultetu, kao akreditovanoj naučnoistraživačkoj organizaciji (NIO), podržana su od strane Ministarstva prosvete, nauke i tehnološkog razvoja Republike Srbije putem prelaznog institucionalnog finansiranja.**



Министарство просвете,
науке и технолошког развоја

Više od 150 istraživača iz redova nastavnog osoblja i 39 istraživača, uglavnom doktoranada, uključeno je u program institucionalnog finansiranja.



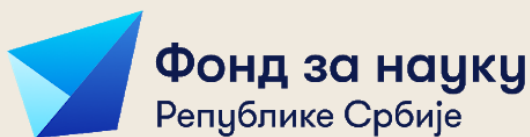


Nacionalni istraživački projekti



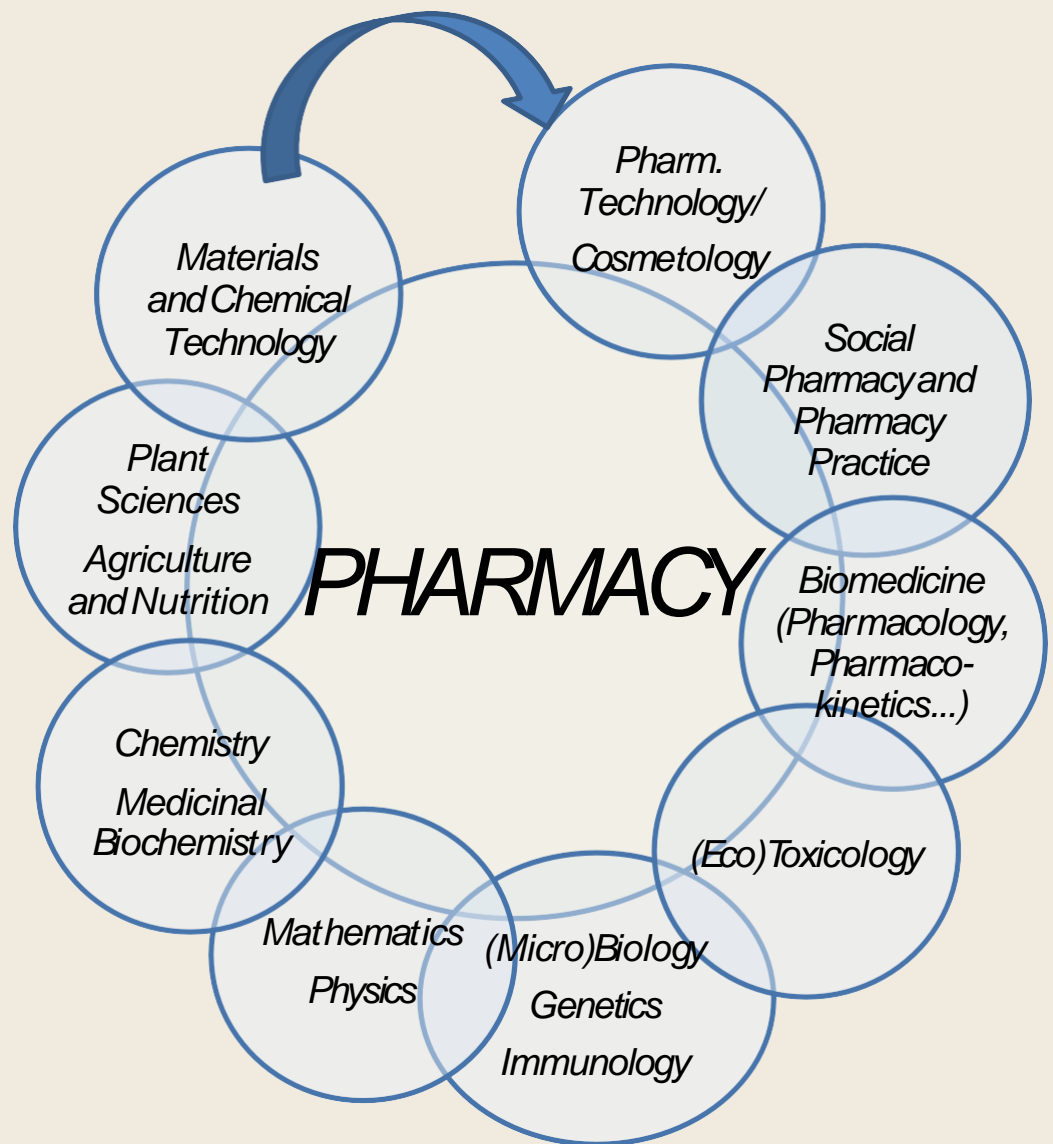
Univerzitet u Beogradu - Farmaceutski fakultet je uključen ili je bio uključen u realizaciju:

- ❖ **4 projekta** iz programa **Dokaz koncepta** Fonda za inovacionu delatnost ([dr Marina Odalović, vanr. prof.](#), [prof. dr Zorica Vujić](#), [prof. dr Snežana Savić](#), prof. dr Vesna Spasojević Kalimanovska),
- ❖ **4 projekta** iz programa **saradnje srpske nauke sa dijasporom** Fonda za nauku ([prof. dr Gordana Leposavić](#), [dr Brankica Filipić, vanr. prof.](#), asist. dr. Tamara Gojković, [prof. dr Vladimir Savić](#)),
- ❖ **2 projekta** iz programa **PROMIS** (Program za izvrsne projekte mladih istraživača) Fonda za nauku ([doc. dr Marin Jukić](#), [doc. dr Aleksandra Buha Đorđević](#)),
- ❖ **1 projekta** iz programa **saradnje nauke i privrede** Fonda za inovacionu delatnost ([prof. dr Vladimir Savić](#)),
- ❖ **1 projekta Centra za promociju nauke** ([dr Brankica Filipić, vanr. prof.](#), [doc. dr Aleksandra Buha Đorđević](#) i doc. dr Ivan Jančić),
- ❖ **projekta** u okviru **pokreni se za nauku inicijative** ([doc. dr Marin Jukić](#)),
- ❖ **2 inovaciona vaučera** (prof. dr Marina Milenković, assist dr sc. Tamara Gojković).





Istraživačke grupe





ISTRAŽIVAČKA GRUPA PROF. DR ANĐELIJA MALENOVIĆ



ANALITIKA LEKOVA

Naslov
istraživačke
teme:

Modelovanje analitičkih i bioanalitičkih sistema za karakterizaciju farmakološki aktivnih jedinjenja

Članovi tima:

Dr Anđelija Malenović, redovni profesor
Dr Mira Zečević, redovni profesor
Dr Biljana Otašević, vanredni profesor
Dr Ana Protić, vanredni profesor
Dr Aleksandra Janošević Ležajić, docent
Mag. farm. Nevena Đajić
Mag. farm. Jovana Krmar
Mag. farm. Marija Rašević
Mag. farm. Milena Rmandić
Mag. farm. Bojana Svrkota

Oprema i
metode:

1. HPLC system Finnigan Surveyor Thermo Scientific
2. Waters Acquity; H-Class core systems, Waters Xevo™ TQD
3. Dionex Ultimate 3000 (U)HPLC system equipped with Corona Charged Aerosol Detector (ThermoFisher Scientific, USA)
4. Thermo Scientific Accela UPLC system (Thermo Fisher Scientific USA)
5. Thermo Scientific TSQQuantum Access Max (Thermo Fisher Scientific, Inc, CA, USA) equipped with triple quadrupole

Projekti/
finansiranje:

Hemometrijski pristup ispitivanju odgovora Corona Charged Aerosol detektora u farmaceutskoj analizi (Bilateralni projekat sa Nemačkom, Univerzitet u Vircburgu)

Saradnje:

- Intensive and fruitful collaboration with assoc. prof. Yannis Dotsikas, Laboratory of Pharmaceutical Analysis, Department of Pharmacy, National and Kapodistrian University of Athens, Athens, Greece.
- Collaboration with prof. dr Ulrike Holzgrabe, University of Wurzburg, Institute of Pharmacy and Food Chemistry, Germany.
- Collaboration with prof. dr Borut Štrukelj, Chair for pharmaceutical biology, University of Ljubljana, Slovenia



ISTRAŽIVAČKA GRUPA PROF. DR ANĐELIJA MALENOVIĆ

Odabrane publikacije:

- Rmandić M, Malenović A. Chaotropic chromatography method development for the determination of aripiprazole and its impurities following analytical quality by design principles. *J. Sep. Sci.* 2020; 43:3242–3250. Chemistry – Analytical category (32/86), M22, IF 2.878
- Rmandić M, Dotsikas Y, Malenović A. Identification of the factors affecting the consistency of DBS formation via experimental design and image processing methodology. *Microchemical J.* 2019; 145: 1003-1010. Chemistry – Analytical category (19/86), M21, IF 3.594
- Čolović, J., Rmandić, M., Malenović, A.: Characterization of bonded stationary phase performance as a function of qualitative and quantitative chromatographic factors in chaotropic chromatography. *Anal. Bioanal. Chem.* 2018; 410: 4855-4866. Chemistry – Analytical category (18/84), M21, IF 3.286
- Ilioua, K., Malenović, A., Loukas, Y., Dotsikasa, Y.: Analysis of potential genotoxic impurities in rabeprazole active pharmaceutical ingredient via Liquid Chromatography-tandem Mass Spectrometry, following quality-by-design principles for method development. *J. Pharm. Biomed. Anal.* 2018; 149: 410-418. Chemistry – Analytical category (24/84), M21, IF 2.983
- Čolović, J., Kalinić, M., Vemić, A., Erić, S., Malenović, A.: Influence of the mobile phase and molecular structure parameters on the retention behavior of protonated basic solutes in chaotropic chromatography. *J Chromatogr A.* 2017; 1511: 68-76. Chemistry – Analytical category (13/81), M21, IF 3.716
- Šljivić J, Protić A, Malenović A, Otašević B, Zečević M. Simple and efficient solution for robustness testing in gradient elution liquid chromatographic methods. *Chromatographia* 2018 August; (81): 1135-1145. (Chemistry, Analytical, IF 1.552, M23)
- Otašević B, Šljivić J, Protić A, Maljurić N, Malenović A, Zečević M. Comparison of AQbD and grid point search methodology in the development of micellar HPLC method for the analysis of cilazapril and hydrochlorothiazide dosage form stability. *Microchemical J* 2019; 145: 655-663 (Chemistry, Analytical, IF 3,594, M21)
- Mitrović M, Protić A, Malenović A, Otašević B, Zečević M. Analytical Quality by Design development of an ecologically acceptable enantioselective HPLC method for timolol maleate enantiomeric purity testing on ovomucoid chiral stationary phase. *J Pharm Biomed Anal* 2020; 180: 113034. (Chemistry, Analytical, IF 3,209, M22)
- Golubović Jelena B, Birkemeyer Claudia, Protic Ana D, Otasevic Biljana M, Zecevic Mira L. Structure-response relationship in electrospray ionization-mass spectrometry of sartans by artificial neural networks. *Journal of Chromatography A*, 2016, vol. 1438, 123.132 (Chemistry, Analytical, IF 3,981, M21)
- Golubović Jelena B, Protic Ana D, Zecevic Mira L, Otasevic Biljana M. Quantitative structure retention relationship modeling in liquid chromatography method for separation of candesartan cilexetil and its degradation products, *Chemometrics and Intelligent Laboratory Systems*, 2015, vol. 140 br. , str. 92-101, (Chemistry, Analytical, IF 2,217, M22)
- Jovana Krmar, Milan Vukićević, Ana Kovačević, Ana Protić, Mira Zečević, Biljana Otašević. Performance comparison of nonlinear and linear regression algorithms coupled with different attribute selection methods for quantitative structure-retention relationships modeling in micellar liquid chromatography. *Journal of Chromatography A* 2020; 1623: 461146. DOI: 10.1016/j.chroma.2020.461146. (journal rankings M21, IF=4.049 for year 2019; field Chemistry, Analytical 14/86)
- Jelena Golubović, Ana Protić, Biljana Otašević, Mira Zečević. Quantitative structure-retention relationships applied to development of liquid chromatography gradient-elution method for the separation of sartans. *Talanta* 2016; 150: 190-197. DOI: 10.1016/j.talanta.2015.12.035. (journal rankings M21, IF=4.162 for year 2016; field Chemistry, Analytical 9/76)
- Jelena Golubović, Biljana Otašević, Ana Protić, Aleksandra Stanković, Mira Zečević. Liquid chromatography-tandem mass spectrometry for simultaneous determination of undeclared corticosteroids in cosmetic creams. *Rapid communications in mass spectrometry* 2015; 29 (24): 2319-2327. DOI: 10.1002/rcm.7403. (journal rankings M22, IF=2.226; field Spectroscopy 17/43)
- Jelena Golubović, Ana Protić, Mira Zečević, Biljana Otašević, Marija Mikić. Artificial neural networks modelling in UPLC method optimization of mycophenolate mofetil and its degradation products. *Journal of chemometrics* 2014; 28(7): 567-574. DOI: 10.1002/cem.2616 (journal rankings M21, IF=1.500; field Mathematics, Interdisciplinary Applications 26/99)
- Nevena Maljurić; Jelena Golubović, Matjaž Ravnkar, Dušan Žigon, Borut Štrukelj, Biljana Otašević. Isolation and determination of fomentariol – novel potential antidiabetic drug from fungal material. *Journal of analytical methods in chemistry* 2018; Volume 2018, Article ID 2434691, 9 pages. DOI 10.1155/2018/2434691. (journal rankings M23, IF=1.589; field Chemistry, Analytical 59/84)
- Nevena Maljurić, Biljana Otašević, Anđelija Malenović, Mira Zečević, Ana Protić, Quantitative structure retention relationship modeling as potential tool in chromatographic determination of stability constants and thermodynamic parameters of β -cyclodextrin complexation process, *Journal of Chromatography A*, 1619 (2020) 460971, doi: 10.1016/j.chroma.2020.460971. Chemistry – Analytical category (14/86), M21, IF4.049
- Nevena Maljurić, Biljana Otašević, Jelena Golubović, Jovana Krmar, Mira Zečević, Ana Protić, A new strategy for development of eco-friendly RP-HPLC method using Corona Charged Aerosol Detector and its application for simultaneous analysis of risperidone and its related impurities, *Microchemical Journal*, 153 (2020) 104394. Chemistry – Analytical category (19/86), M21, IF3.594
- Klaus Schilling, Jovana Krmar, Nevena Maljurić, Ruben Pawellek, Ana Protić, Ulrike Holzgrabe, Quantitative Structure – Property Relationship modeling of polar analytes lacking UV chromophores to Charged Aerosol Detector Response, *Analytical and Bioanalytical Chemistry*, 2019, 411: 2945-2959. Chemistry – Analytical category (18/86) M21, IF3.637
- Nevena Maljurić, Jelena Golubović, Biljana Otašević, Mira Zečević, Ana Protić, Quantitative structure – retention relationship modeling of selected antipsychotics and their impurities in green liquid chromatography using cyclodextrin mobile phases, *Analytical and Bioanalytical Chemistry*, 2018, 410: 2533–2550. Chemistry – Analytical category (18/84) M21, IF3.286
- Ana Protić, Marina Radišić, Jelena Golubović, Biljana Otašević, Mira Zečević, Mila Laušević, Structural elucidation of unknown oxidative degradation products of Mycophenolate mofetil using LC-MSn, *Chromatographia*, 2016, 79: 919-926 (Short communication). Chemistry – Analytical category (52/76) M23, IF1.402

Ostali radovi:

Repozitorijum Farmaceutskog fakulteta - FarFaR ([link](#))



ISTRAŽIVAČKA GRUPA DR KATARINA NIKOLIĆ, VANR. PROF.



F A R M A C E U T S K A H E M I J A

Naslov istraživačke teme: Kvantitativni odnos strukture i dejstva, sinteza, fizičko-hemijska karakterizacija i analiza farmakološki aktivnih jedinjenja

Članovi tima:

Dr Katarina Nikolić, vanredni profesor	Mag. farm. Dušan Ružić, asistent
Dr Gordana Popović, redovni profesor	Mag. farm. Nemanja Đoković, asistent
Dr Mara Aleksić, redovni profesor	Mag. farm. Milica Radan, asistent
Dr Slavica Oljačić, docent	Mag. farm. Darija Obradović, asistent
Dr Marija Popović Nikolić, profesor	
Dr Teodora Đikić, istraživač saradnik	
Dr Valentina Radulović, asistent	

Oprema i metode: Računari sa Linux i Windows operativnim sistemima i različitim programa za dizajn lekova - VMD, NAMD, Gromacs, AutoDock, AD Vina, GOLD, Pentacle, FLAP, ADMET predictor, Dragon6, SIMCA, MODDE.

HPLC-UV (Thermo scientific, USA, Dionex Ultimate 3000), UHPLC/MS/MS (ThermoScientific, USA, Accela 6000 TSQ Quantum Access Max), FT-IR (Thermo Scientific, USA, Nicolet iS10), NMR (Bruker, USA, Ascend 400), Automatski titrator 798 MPT Titrino (Metrohm, Switzerland) sa elektrodom LL unitrode Pt 1000 (Metrohm, Switzerland), Potenciostat / galvanostat, μ Autolab analyser EcoChemie, The Netherlands, 663 VA Stand, Metrohm, Switzerland.

Kompjuterske metode u dizajnu lekova

- Maestro, FLAP, BIOVIA D.S., Shrodinger Suite
- Biofizička simulacija kompleksnih sistema – Gromacs program, Python programiranje
- Virtuelni doking - with Autodock Vina, GOLD and Glide program
- Modelovanje proteina – Modeller, Chimera, Schrodinger
- *in silico* ADMET skrining: ADMET predictor i ACD/Labs Percepta program
- *Ligand-based virtual screening, structure-based virtual screening, pharmacophore-based virtual screening* – FLAP/GRID program
- 3D-QSAR i modelovanje farmakofore: Pentacle program (Molecular Discovery), Phase (Shrodinger)
- *Artificial Neural Networks* i *Support Vector Machine* modelovanje - Statistica program
- PLS/PCA modelovanje - SIMCA P+ version 12.0, 2008, Umetrics AB; MODDE, Umetrics AB.

Eksperimentalne metode i tehnike: HPLC, LC-GC, UV/VIS spektrometrija, IR-spektroskopija, NMR spektroskopija, LC-MS/MS, *in vitro* ADMET analiza (PAMPA, *biomolecular chromatography, hydrophilic interaction liquid chromatography* (HILIC)), *in vitro* ispitivanja, organska sinteza, fizičko-hemijska karakterizacija. Elektrohemijske tehnike: ciklična voltametrij (CV), diferencijalno pulsna voltametrij (DPV) i voltametrij pravougaonih talasa (SWV).



ISTRAŽIVAČKA GRUPA DR. KATARINA NIKOLIĆ, VANR. PROF.

- Projekti/
finansiranje:
1. Ministarstvo nauke i tehnološkog razvoja RS, Ugovor broj 451-03-9/2021-14/200161
 2. Bilateralni projekat, Hubert Curien Partnership Project for collaboration France-Serbia 2020-2022 (Program Pavle Savic 2020): Identification of novel DOT1L and DNMT1/3A inhibitors, with Epigenetic Chemical Biology, Institut Pasteur, CNRS UMR3523, Paris 75015 France (Prof. Paola Arimondo research group).
 3. Deutsche Forschungsgemeinschaft (DFG) project named: Control of epigenetic states through light-triggered protein-protein interaction mediators, 2020-2023 PI Asst. Prof. Olalla Vázquez, Fachbereich Chemie Philipps-Universität Marburg, Germany.
 4. COST action CA18240 (2019-2023): "Adher 'n Rise' on adhesion GPCRs for non-tenured scientists"
 5. COST action CA18133 (2019-2023): "European Research Network on Signal Transduction"

- Saradnje:
1. Center for Multidisciplinary Research Institute of Nuclear Sciences VINCA, Serbia (national project 172033, 173001),
 2. Institute of Oncology and Radiology of Serbia (national project 173001), University of East Anglia, UK (COST CM1406),
 3. Université de Poitiers, France (COST CM1406, COST CA17104),
 4. University of St Andrews, UK (COST CM1103, COST CA15135),
 5. Consejo Superior de Investigaciones Científicas, Madrid, Spain (COST CM1103, COST CA15135),
 6. Heinrich Heine University, Dusseldorf, Germany (COST CM1103, COST CA1207, COST CA15135, COST CA18133),
 7. Institut Pasteur, CNRS, Paris, France (COST CM1406, Bilateral project Serbia-France),
 8. Fachbereich Chemie Philipps-Universität Marburg, Germany (COST CM1406, Deutsche Forschungsgemeinschaft project), Fraunhofer IME-SP, Hamburg, Germany (COST CM1406, COST CA15135), University of Eastern Finland, Kuopio, Finland (COST CM1406).

Odabrane
publikacije

- Bouchet S, Linot C, Ruzic D, Agbaba D, Foucaq B, Roche J, Nikolic K, Blanquart C, Bertrand P. Extending Cross Metathesis To Identify Selective HDAC Inhibitors: Synthesis, Biological Activities, and Modeling. *ACS Med. Chem. Lett.* 2019, 10, 863–868. doi:10.1021/acsmmedchemlett.8b00440. (M21)
- Ruzic D, Petkovic M, Agbaba D, Ganesan A, Nikolic K. Combined Ligand and Fragment-based Drug Design of Selective Histone Deacetylase-6 Inhibitors. *Molecular Informatics* 2019 May; 38 (5): e1800083. doi: 10.1002/minf.201800083. (M21)
- Albert L, Peñalver A, Djokovic N, Werel L, Hoffarth M, Ruzic D, Xu J, Essen LO, Nikolic K, Dou Y, Vázquez O. Modulating Protein-Protein Interactions with Visible-Light Responsive Peptide Backbone Photoswitches. *ChemBioChem* 2019 Jun 3; 20(11): 1417-1429. doi: 10.1002/cbic.201800737. (M22)
- Djivic T, Vucicevic J, Laurila J, Radi M, Veljkovic N, Xhaard H, Nikolic K. Deciphering Imidazoline Off-Targets by Fishing in the Class A of GPCR field. *Molecular Informatics* 2020 July, 39 (7): 1900165. doi: 10.1002/minf.201900165. (M21)
- S. Abás, S. Rodríguez-Arévalo, A. Bagán, C. Griñán-Ferré, F. Vasilopoulou, I. Brocos-Mosquera, C. Muguruza, B. Pérez, E. Molins, F. Javier Luque, P. Pérez-Lozano, S. de Jonghe, D. Daelemans, L. Naesens, J. Brea, M. Isabel Loza, E. Hernández-Hernández, J. A. García-Sevilla, M. Julia García-Fuster, M. Radan, T. Djikic, K. Nikolic, M. Pallàs, L. F. Callado, C. Escolano. Bicyclic α -lminophosphonates as High Affinity Imidazoline I2 Receptor Ligands for Alzheimer's Disease. *Journal of Medicinal Chemistry* 2020 63 (7): 3610-3633, DOI: 10.1021/acs.jmedchem.9b02080 (M21a)
- M. Radan, D. Ruzic, M. Antonijevic, T. Djikic, K. Nikolic. In silico Identification of Novel 5-HT2A Antagonists Supported with Ligand- and Target- Based Drug Design Methodologies, *Journal of Biomolecular Structure and Dynamics* 2020 March: 1819-1837 DOI: 10.1080/07391102.2020.1738961 (M22)
- M. Elek, N. Djokovic, A. Frank, S. Oljacic, A. Zivkovic, K. Nikolic, H. Stark. Synthesis, in silico, and in vitro studies of novel dopamine D2 and D3 receptor ligands, *Arch Pharm.* 2021; 354: e2000486. DOI: 10.1002/ardp.202000486. (M22)
- N. Djokovic, D. Ruzic, T. Djikic, S. Cvijic, J. Ignjatovic, S. Ibric, K. Baralic, A. Buha Djordjevic, M. Curcic, D. Djukic-Cosic, K. Nikolic. An Integrative in Silico Drug Repurposing Approach for Identification of Potential Inhibitors of SARS-CoV-2 Main Protease. *Mol. Inf.* 2021, 40, 2000187. DOI: 10.1002/minf.202000187 (M21)
- I. Asanovic, E. Strandback, A. Kroupova, Dj. Pasajlic, A. Meinhardt, P. Tsung-Pin, N. Djokovic, D. Anrather, T. Schuetz, M.J. Suskiewicz, S. Sillamaa, T. Kocher, R. Beveridge, K. Nikolic, A. Schleiffer, M. Jinek, M. Hartl, T. Clausen, J. Penninger, P. Macheroux, S. Weitzer, J. Martinez. The oxidoreductase PYROXD1 uses NAD(P)+ as an antioxidant to sustain tRNA ligase activity in pre-tRNA splicing and unfolded protein response. *Molecular Cell* 81 (12), P2520-2532.E16, June 17, 2021. DOI: <https://doi.org/10.1016/j.molcel.2021.04.007> (M21a)
- S. Rodriguez-Arévalo, A. Bagán, Christian G. Ferré, F. Vasilopoulou, M. Pallàs, I. Brocos-Mosquera, L.F. Callado, M. Isabel Loza, A.L. Martínez, J. Brea, B. Pérez, E. Molins, S. De Jonghe, D. Daelemans, M. Radan, T. Djikic, K. Nikolic, E.H. Hernández, M.J. García-Fuster, J.A. García-Sevilla, C. Escolano, Benzofuran-2-imidazoles as imidazoline I2 receptor ligands for Alzheimer's disease, *European Journal of Medicinal Chemistry* 2021, 222, 113540, <https://doi.org/10.1016/j.ejmech.2021.113540>. (M21a)
- D. Ruzic, N. Djokovic, and K. Nikolic (2021) Fragment-Based Drug Design of Selective HDAC6 Inhibitors. In: Ballante F. (Editor(s)) *Protein-Ligand Interactions and Drug Design. Methods in Molecular Biology*, vol 2266. Humana, New York, NY. https://doi.org/10.1007/978-1-0716-1209-5_9
- T. Djikic, Z. Gagic, K. Nikolic, Chapter 16 - Design and Discovery of Kinase Inhibitors Using Docking Studies, Editor(s): Mohane S. Coumar, *Molecular Docking for Computer-Aided Drug Design*, Academic Press, 2021, Pages 337-365, ISBN 9780128223123, <https://doi.org/10.1016/B978-0-12-822312-3.00009-6>. J. Rupar, M. Aleksić, K. Nikolić, M. Popović Nikolić. Comparative electrochemical studies of kinetic and thermodynamic parameters of Quinoxaline and Brimonidine redox process, *Electrochimica acta.* 2018; May 278: 220-231. (M21, IF 5,116) <https://doi.org/10.1016/j.electacta.2018.03.114>
- V. Radulović, M. Aleksić, V. Kapetanović, K. Karljiković Rajić, M. Jovanović, I. Marjanović, M. Stojković, D. Agbaba. The evaluation of short- and long-term stability studies for brimonidine in aqueous humor by DPV/BDDE method - possible application for direct assay in native samples. *Anal Bioanal Chem.* 2019; Sept 411(22):5755–63. (M21; IF 3,286) <https://doi.org/10.1007/s00216-019-01955-3>
- J. Rupar, M. Aleksić, V. Dobričić, J. Brborić, O. Čudina. An electrochemical study of 9-chloroacridine redox behavior and its interaction with double-stranded DNA, *Bioelectrochemistry*, 2020 October; 135: 107579 (M21, IF 4,722) <https://doi.org/10.1016/j.bioelechem.2020.107579>

Ostali radovi:

Repozitorijum Farmaceutskog fakulteta - FarFaR ([link](#))



ISTRAŽIVAČKA GRUPA PROF. DR SLAVICA ERIĆ



F A R M A C E U T S K A H E M I J A

Naslov istraživačke teme:	Dizajniranje novih lekova iz prirodnih izvora
Članovi tima:	Dr Slavica Erić, redovni profesor Dr Mire Zloh Mr Aleksandar Vukadinović Dr Zoran Bijelović
Oprema i metode:	Kompjuterski operativni sistemi za dizajniranje lekova, kompjuterski programi za razjašnjavanje mehanizama dejstva konstituenata prirodnih izvora i dizajniranje novih lekova iz prirodnih izvora, upotreba opreme za ekstrakciju i identifikaciju konstituenata prirodnih izvora, upotreba opreme za testiranje aktivnosti konstituenata prirodnih izvora na određenim targetima.
Projekti/finansiranje:	Institucionalno finansiranje putem Ugovora sa MPNTR-om, evidencioni br. 451-03-9/2021-14/200161
Saradnje:	Katedre za Botaniku, Analitičku hemiju i Farmakokinetiku Farmaceutskog fakulteta Univerziteta u Beogradu (UB), Institut za molekularnu genetiku i genetičko inženjerstvo (UB), Institut za hemiju, tehnologiju i metalurgiju (UB), Institut za nuklearne nauke "Vinča", Medicinski fakultet (UB), Hemijski fakultet (UB).
Odabrane publikacije	3D-QSAR study of adenosine 5'-phosphosulfate (APS) analogs as ligands for APS reductase. Slavica Erić, Ilija Cvijetić and Mire Zloh. J. Serb. Chem. Soc. 86 (0) 1–10 (2021) Insights into mechanism of anticancer activity of pentacyclic oxindole alkaloids of <i>Uncaria tomentosa</i> by means of a computational reverse virtual screening and molecular docking approach. Kozielowicz Pawel, Paradowska Katarzyna, Eric Slavica, Wawer Iwona, Zloh Mire. Monatshefte fur Chemie (2014), 145 (7), 1201-1211 Structural insight into binding of small molecule inhibitors to Enhancer of Zeste Homolog 2. Kalinic Marko, Zloh Mire, Eric Slavica. Journal of Computer-Aided Molecular Design (2014), 28 (11), 1109-1128 Computational classification models for predicting the interaction of drugs with P-glycoprotein and breast cancer resistance protein. Eric Slavica, Kalinic Marko, Ilic Katarina, Zloh Mire. SAR and QSAR in Environmental Research (2014), 25 (12), 955-982 Application of Counter-propagation Artificial Neural Networks in Prediction of Topiramate Concentration in Patients with Epilepsy. Jovanovic Marija, Sokic Dragoslav, Grabnar Iztok, Vovk Tomaz, Prostran Milica, Eric Slavica, Kuzmanovski Igor, Vucicevic Katarina, Miljkovic Branislava. Journal of Pharmacy and Pharmaceutical Sciences (2015), 18 (5), 856-862

Ostali radovi:

Repozitorijum Farmaceutskog fakulteta - FarFaR ([link](#))



ISTRAŽIVAČKA GRUPA DOC. DR VLADIMIR DOBRIČIĆ



F A R M A C E U T S K A H E M I J A

Naslovi istraživačkih
tema:

1. Dizajniranje, sinteza, ispitivanje fizičko-hemijskih i biofarmaceutskih osobina farmakološki aktivnih jedinjenja
2. Razvoj i validacija analitičkih metoda za određivanje sadržaja farmaceutskih supstanci u doziranim oblicima i biološkim uzorcima

Članovi tima:

Dr Zorica Vujić, redovni profesor
Dr Olivera Čudina, redovni profesor
Dr Katarina Karljiković Rajić, redovni profesor
Dr Jasmina Brborić, vanredni profesor
Dr Bojan Marković, vanredni profesor
Dr Branka Ivković, vanredni profesor
Dr Milkica Crevar Sakač, docent
Dr Jelena Savić, docent
Mag. farm. Jelena Rupar, asistent
Mag. farm. Jelena Bošković, istraživač saradnik

Oprema i metode:

1. **Računari sa Windows operativnim sistemima i različitim programa za dizajn lekova** - VMD, NAMD, AutoDock, AutoDock Vina, OpenEye softverski paket, Statistica
2. **HPLC-PDA-CAD** (Dionex Ultimate 3000);
3. **HPLC-PDA** (Agilent 1200);
4. **HPLC-UV** (HP 1100);
5. **UHPLC-MS/MS** (Accela 6000 TSQ Quantum Access Max),
6. **FT-IR spektrofotometar** (Nicolet iS10);
7. **UV-Vis spektrofotometar** (Evolution 300);
8. **UV-Vis spektrofotometar** (GBC Scientific Equipment Cintra 20);
9. **Automatski titrator 798 MPT Titrino** sa elektrodom LL unitrode Pt 1000.
10. **Vakuurni sušnica** (Thermo Heraeus)

Projekti/
finansiranje:

1. **Institucionalno finansiranje putem Ugovora sa MPNTR-om**, evidencioni br. 451-03-9/2021-14/200161;
2. **Dokaz koncepta** (PoC – Fond za inovacionu delatnost Republike Srbije: "Razvoj novog antiseptika/dezinficijensa koji se zasniva na antimikrobnom efektu novosintetisanih halkona");
3. **Program za izvrsne projekte mladih istraživača – PROMIS; Fond za nauku R.Srbije** („Korisnost CYP2C19 i CYP2D6 genotipizacije i kvantifikacije koncentracije leka u plazmi u personalizaciji doziranja antidepresiva i antipsihotika“);
4. **COST action CA17104 (2018-2022)**: "New diagnostic and therapeutic tools against multidrug resistant tumours".



ISTRAŽIVAČKA GRUPA DOC. DR VLADIMIR DOBRIČIĆ

- Saradnje:
1. Univerzitet u Beogradu – Farmaceutski fakultet (istraživačke grupe prof. dr Miroslava Savića, prof. dr Snežane Savić, prof. dr Svetlane Ibrić, prof. dr Vesne Spasojević Kalimanovske, prof. dr Marine Milenković);
 2. Institut za onkologiju i radiologiju Srbije;
 3. Centar za kontrolu trovanja, Katedra za eksperimentalnu farmakologiju i toksikologiju, Vojnomedicinska akademija;
 4. Institut za molekularnu genetiku i genetičko inženjerstvo, Univerzitet u Beogradu;
 5. Fakultet medicinskih nauka Univerziteta u Kragujevcu;
 6. Katedra za farmaceutsku hemiju, Farmaceutski fakultet, Univerzitet u Ljubljani, Slovenija

Odabrane publikacije

- Dallavalle, S., **Dobričić, V.**, Lazzarato, L., Gazzano, E., Machuqueiro, M., Pajeva, I., Tsakovska, I., Zidar, N., & Fruttero, R. (2020). Improvement of conventional anti-cancer drugs as new tools against multidrug resistant tumors. *Drug Resistance Updates*, 50, 100682.
- Hendrickx, L. A., **Dobričić, V.**, Toplak, Ž., Peigneur, S., Mašič, L. P., Tomašič, T., & Tytgat, J. (2020). Design and characterization of a novel structural class of Kv1. 3 inhibitors. *Bioorganic chemistry*, 98, 103746.
- Rupar, J., Dobričić, V.**, Grahovac, J., Radulović, S., Skok, Ž., Ilaš, J., Aleksić, M., **Brborić, J.**, & **Čudina, O.** (2020). Synthesis and evaluation of anticancer activity of new 9-acridinyl amino acid derivatives. *RSC medicinal chemistry*, 11(3), 378-386.
- Turkovic, N., **Ivković, B.**, Kotur-Stevuljević, J., Tasic, M., **Marković, B.**, & **Vujic, Z.** (2020). Molecular docking, synthesis and anti-HIV-1 protease activity of novel chalcones. *Current pharmaceutical design*, 26(8), 802-814.
- Krkobabić, M., Medarević, D., Pešić, N., Vasiljević, D., **Ivković, B.**, & Ibrić, S. (2020). Digital light processing (DLP) 3D printing of atomoxetine hydrochloride tablets using photoreactive suspensions. *Pharmaceutics*, 12(9), 833.
- Homšek, A., **Marković, B.**, Bogavac-Stanojević, N., Vladimirov, S., & **Karljiković-Rajić, K.** (2020). Method Transfer Evaluation for Digital Derivative Spectrophotometry Through its Resolution Parameter Comparison of Different Computer Programs. *Applied spectroscopy*, 74(5), 525-535.
- Janković, T., Turković, N., Kotur-Stevuljević, J., **Vujić, Z.**, & **Ivković, B.** (2020). Differences in antioxidant potential of chalcones in human serum: In vitro study. *Chemico-biological interactions*, 324, 109084.
- Knutson, D. E., Kodali, R., Divović, B., Treven, M., Stephen, M. R., Zahn, N. M., **Dobričić, V.**, Huber, A. T., Meirelles, M. A., Verma, R. S., Wimmer, L., Witzigmann, C., Arnold, L. A., Chiou, L-C., Ernst, M., Mihovilovic, M. D., Savić, M. M., Sieghart, W., & Cook, J. M. (2018). Design and synthesis of novel deuterated ligands functionally selective for the γ -aminobutyric acid type A receptor (GABAAR) $\alpha 6$ subtype with improved metabolic stability and enhanced bioavailability. *Journal of medicinal chemistry*, 61(6), 2422-2446.
- Dobričić, V.**, **Savić, J.**, Nikolic, K., Vladimirov, S., **Vujić, Z.**, & **Brborić, J.** (2017). Application of biopartitioning micellar chromatography and QSRR modeling for prediction of gastrointestinal absorption and design of novel β -hydroxy- β -arylalkanoic acids. *European Journal of Pharmaceutical Sciences*, 100, 280-284.
- Dobričić, V.**, **Marković, B.**, Nikolic, K., Savić, V., Vladimirov, S., & **Čudina, O.** (2014). 17 β -carboxamide steroids—in vitro prediction of human skin permeability and retention using PAMPA technique. *European Journal of Pharmaceutical Sciences*, 52, 95-108.
- Ivković, B. M.**, Nikolic, K., Ilić, B. B., Žižak, Ž. S., Novaković, R. B., **Čudina, O. A.**, & Vladimirov, S. M. (2013). Phenylpropiofenone derivatives as potential anticancer agents: Synthesis, biological evaluation and quantitative structure–activity relationship study. *European journal of medicinal chemistry*, 63, 239-255.
- Crevar-Sakač, M.**, **Vujić, Z.**, **Brborić, J.**, Kuntić, V., & Uskoković-Marković, S. (2013). An improved HPLC method with the aid of a chemometric protocol: Simultaneous determination of atorvastatin and its metabolites in plasma. *Molecules*, 18(3), 2469-2482.

Ostali radovi:

Repozitorijum Farmaceutskog fakulteta - FarFaR ([link](#))



ISTRAŽIVAČKA GRUPA PROF. DR SNEŽANA SAVIĆ



FARMACEUTSKA TEHNOLOGIJA I KOZMETOLOGIJA

Naslovi
istraživačkih
tema

Nano-platforme za isporuku lekova u mozak i kožu (Nanoplatforms for brain/skin delivery)

Dermalna raspoloživost lekova-in vitro/in vivo korelacije

Mikrofluidne tehnike u prekliničkom razvoju mikro- i nanososača

Nanomaterijali za kozmetičku primenu i in vivo biofizičke metode za procenu efikasnosti

Članovi tima:

Stalni članovi grupe

Dr Snežana Savić, redovni profesor

Dr Ivana Pantelić, docent

Dr Tanja Ilić, asistent

Mag. farm. Ines Nikolić, asistent

Jelena Đoković

Jelena Mitrović

Ana Gledović

Saradnici kroz institucionalno finansiranje

Dr Danina Krajišnik, vanredni profesor

Dr Bojan Čalija, vanredni profesor

Dr Milica Lukić, docent

Mag. farm. Nevena Pajić

Eksterni članovi/doktoranti

Olivera Drulović (stipendista MPNTR-a)

Milica Todorović

Milica Arandjelović

Miroslav Jevtić

Mirjana Timotijević

Oprema:

Homogenizer po visokim pritiskom

Mikrofluidizer sa SPG membranom

Disruptor Genie (Scientific Industries, SAD) za dobijanje nanokristala

Zetasizer ZS90 (Malvern Instruments Ltd., Worcestershire, UK)

Olympus BX53-P polarizacioni mikroskop (Olympus, Japan)

Rheometer, Paar Physica, Nemačka

DSC 1 (Mettler-Toledo AG, Analytical, Švajcarska)

Franz-ove difuzione ćelije i set za *in vitro* oslobađanje i peremaciju kroz kožu

Courage + Khazaka uređaji za biofizička merenja na koži (pH, vlažnost kože, TEWL,

sadržaj lipida na koži, frikciometar, melanin indeks, eritem indeks, viskoelastičnost kože)

Texture analyser EZ-LX-HS, Shimadzu, Japan

Sitna oprema koja se koristi za pripremu uzoraka

Metode:

Izrada nanopartikularnih nosača različitog tipa primenom tehnika sa/bez utroška energije (postupci koji štede energiju), pristupom dizajniranja kvaliteta (QbD)

In vitro oslobađanje, penetracija/permecija lekovitih supstanci iz različitih nosača za primenu na kožu

Tape-stripping i diferencijalni *tape-stripping*, *in vivo skin blanching assay* za procenu biološke ekvivalentnosti dermatoloških lekova

In vitro tehnika sa dijaliznim vrećicama za parenteralne farmaceutske oblike

Biofizička i senzorna merenja na koži uz organizaciju *in vivo* studija i statističku obradu podataka

Fizičko-hemijske karakterizacije koloidnih nosača lekova i kozmetički aktivnih supstanci (veličina kapi, polidisperzni indeks, reološka i teksturna analiza, optička/polarizaciona mikroskopija, termalno ponašanje)

In vivo farmakodinamske i farmakokinetičke studije na animalnim modelima



ISTRAŽIVAČKA GRUPA PROF. DR SNEŽANA SAVIĆ

Projekti/ finansiranje

Dokaz koncepta (PoC – Fond za inovacionu delatnost Republike Srbije: "Natural cosmetic nano-serum with Red Raspberry Seed Oil of Serbian origin for antioxidant treatment of skin photoaging"), 2.400.000 RSD.

Institucionalno finansiranje putem Ugovora sa MPNTR-om, evidencioni br. 451-03-9/2021-14/200161.

Projekat bilateralne saradnje sa Nemačkom (Eberhard-Karls Universität in Tübingen), 2020-2021: Innovative nanoformulations for brain/skin delivery of patented vs. reference active substances: novel formulation approaches and tailored in vitro/in vivo methods for delivery assessment.

Advanced In Chemico/In Vitro Training and Capacity Building for Safe Cosmetic Nanomaterials and Nanostructured Products (NanoCosMetrics), Training and Capacity Building Project, organizovan od Joint Research Center of European Commission (Ispra, Italija).

Saradnici na H2020-IMI projektu: IMI2-2017-13-10 - Improving the preclinical prediction of adverse effects of pharmaceuticals on the nervous system (NeuroDeRisk, Grant agreement ID: 821528).

Saradnje

Univerzitet u Beogradu - Farmaceutski fakultet

Grupa Prof. Miroslava Savića (Katedra za farmakologiju)

Grupa Prof. Jelene Antić Stanković (Katedra za mikrobiologiju i imunologiju)

Katedra za Farmaceutsku hemiju (UPLC i HPLC aparat/metode)

Katedra za fizičku hemiju i instrumentalne metode

Univerzitet u Beogradu – Rudarsko-geološki fakultet Grupa Prof. Aleksandra Kremenovića

Univerzitet u Beogradu – Institut za hemiju, tehnologiju i metalurgiju Naučni savetnik dr sc. Danijela Randelović

Univerzitet u Novom Sadu

Fakultet tehničkih nauka – Prof. Goran Stojanović

Medicinski fakultet/Odsek Farmacija – Prof. Veljko Krstonošić

Univerzitet u Nišu – Medicinski fakultet //Odsek Farmacija – Prof. Ivana Nešić, Doc. dr Marija Tasić Kostov

Tehnološki fakultet Leskovac – Prof. Nebojša Cekić

Institut za proučavanje lekovitog bilja "Josif Pančić"

Inostrane kolaboracije

Institut za farmaceutsku tehnologiju, Univerzitet u Tübingenu, Nemačka

Institut za farmaceutsku tehnologiju, Univerzitet u Braunšvajgu, Nemačka

Institut za hemijsku biologiju, Nacionalna Helenska Istraživačka Fondacija, Grčka

Katedra za farmaceutsku tehnologiju, Farmaceutski fakultet Ljubljana, Univerzitet u Ljubljani, Slovenija

Institut za farmaceutsku tehnologiju, Medicinski Univerzitet Gdanjsk, Poljska

Universite Le Havre, Francuska

London College of Fashion, Univerzitet umetnosti, London, Velika Britanija

School of Pharmacy, University College Cork, Cork, Ireland, dr sc. Sonja Vučen

Loughborough University, Department of Chemical Engineering, prof. dr Goran Vladislavljević

Odabrane publikacije

Gledovic A, Janosevic Lezaic A, Nikolic I, Tasic-Kostov M, Antic-Stankovic J, Krstonosic V, Randjelovic D, Bozic D, Ilic D, Tamburic S, Savic S. Polyglycerol Ester-Based Low Energy Nanoemulsions with Red Raspberry Seed Oil and Fruit Extracts: Formulation Development toward Effective In Vitro/In Vivo Bioperformance. *Nanomaterials* (Basel). 2021 Jan 15;11(1):217. doi: 10.3390/nano11010217 (IF 4,324/2019)

Mitrović JR, Divović B, Knutson DE, Đoković JB, Vulić PJ, Randjelović DV, Dobričić VD, Čalića BR, Cook JM, Savić MM, Savić SD. Nanocrystal dispersion of DK-I-56-1, a poorly soluble pyrazoloquinolinone positive modulator of $\alpha 6$ GABAA receptors: Formulation approach toward improved in vivo performance. *Eur J Pharm Sci*. 2020, doi: 10.1016/j.ejps.2020.105432 (IF 3,616/2019).

Nikolić I, Mitsou E, Damjanović A, Papadimitriou V, Antić-Stanković J, Stanojević B, Xenakis A, Savic S. Curcumin-loaded low-energy nanoemulsions: Linking EPR spectroscopy-analysed microstructure and antioxidant potential with in vitro evaluated biological activity. *J Mol Liq*. 2020, doi.org/10.1016/j.molliq.2020.112479 (IF 5,065/2019).

Savić V, Ilić T, Nikolić I, Marković B, Čalića B, Cekić N, Savić S. Tacrolimus-loaded lecithin-based nanostructured lipid carrier and nanoemulsion with propylene glycol monocaprylate as a liquid lipid: Formulation characterization and assessment of dermal delivery compared to referent ointment. *Int J Pharm*. 2019, doi: 10.1016/j.ijpharm.2019.118624 (IF 4,845/2019).

Ilić T, Savić S, Batinić B, Marković B, Schmidberger M, Lunter D, Savić M, Savić S. Combined use of biocompatible nanoemulsions and solid microneedles to improve transport of a model NSAID across the skin: In vitro and in vivo studies. *Eur J Pharm Sci*. 2018, doi: 10.1016/j.ejps.2018.09.023. (IF 3,616/2019).

Đorđević SM, Santrač A, Cekić ND, Marković BD, Divović B, Ilić TM, Savić MM, Savić SD. Parenteral nanoemulsions of risperidone for enhanced brain delivery in acute psychosis: Physicochemical and in vivo performances. *Int J Pharm*. 2017 doi: 10.1016/j.ijpharm.2017.05.051. (IF 4,213/2018).

Ostali radovi:

Repozitorijum Farmaceutskog fakulteta - FarFaR ([link](#))



ISTRAŽIVAČKA GRUPA PROF. DR SVETLANA IBRIĆ



FARMACEUTSKA TEHNOLOGIJA I KOZMETOLOGIJA

Naslovi istraživačkih tema:

Formulacioni pristupi za poboljšanje rastvorljivosti i biološke raspoloživosti teško rastvorljivih lekovitih supstanci
Primena tehnika 3D i 2D štampe u razvoju farmaceutskih oblika lekova
Primena optimizacionih tehnika, metoda multivarijante analize i mašinskog učenja u razvoju formulacije i procesa
Primena fiziološki-zasnovanog modelovanja u biofarmaceutskoj karakterizaciji i predviđanju bioperformansi lekovitih supstanci/farmaceutskih preparata
Razvoj savremenih terapijskih sistema zasnovanih na mikro- i nanoinkapsulaciji lekovite supstance za različite puteve primene
Preformulaciona i formulaciona istraživanja lekovitih i pomoćnih supstanci u razvoju čvrstih farmaceutskih oblika lekova za različite puteve primene

Članovi tima:

Dr Svetlana Ibrić, redovni profesor
Dr Jelena Parojčić, redovni profesor
Dr Dragana Vasiljević, vanredni profesor
Dr Sandra Cvijić, vanredni profesor
Dr Ljiljana Đekić, vanredni profesor
Dr Jelena Đuriš, vanredni profesor
Dr Đorđe Medarević, viši naučni saradnik
Dr Ivana Aleksić, docent

Dr Milica Drašković, asistent sa doktoratom
Mag. farm. Marijana Madžarević, istraživač-saradnik
Mag. farm. Ivana Vasiljević, istraživač-saradnik
Mag. farm. Jelisaveta Ignjatović, istraživač-saradnik
Mag. farm. Ivana Kurćubić, istraživač-saradnik
Mag. farm. Ana Čirić, istraživač-pripravnik
Mag. farm. Erna Turković, istraživač-pripravnik
Mag. farm. Nikola Pešić, istraživač-pripravnik

Oprema i metode:

OYSTAR Hüttlin Mycrolab fluid-bed uređaj
Gamlen D-series uređaj za dinamičku kompakciju praškova
Sintratec SLS 3D štampač
Ultimaker 2 3D štampač
Wanhao Duplicator 8 3D štampač
Korsch EK0 ekscenter tablet mašina
Erweka DT 600 i DT 126 light uređaji za ispitivanje brzine rastvaranja sa rotirajućom lopaticom i korpicom
Sotax CE7 uređaj za ispitivanje brzine rastvaranja sa protočnom ćelijom
Bio Dis VK 750 D uređaj za ispitivanje brzine rastvaranja sa cilindrom sa povratnim kretanjem
Erweka ZT 52 uređaj za ispitivanje raspadljivosti čvrstih farmaceutskih oblika
Paar Physica RHEOLAB MC-120 rotacioni reometar
Olympus BX53-P polarizacioni mikroskop
DSC 1 diferencijalni skenirajući kalorimetar
Erweka TBH 125 uređaj za ispitivanje otpornosti tableta na lomljenje
Shimadzu EZ-LX analizator teksture
Licence za softvere
GastroPlus™ programski paket (v. 9.8.0002, Simulations Plus Inc., Lancaster, CA, USA)

Projekti:

Institucionalno finansiranje putem Ugovora sa MPNTR-om, evidencioni br. 451-03-9/2021-14/200161
Projekat podržan od strane FDA: "Robust In Vitro/In Silico Model to Accelerate Generic Drug Product Development for the Oral Cavity Route of Administration" (2020-2023)
Projekat naučne i tehnološke saradnje Republike Srbije i Narodne Republike Kine: "Razvoj inhalacionih nanolekova za ciljanu terapiju bolesti pluća primenom inovativnog eksperimentalno-računarskog pristupa" (2021-2022)
CEEPUS projekat: "Central European Knowledge Alliance for Teaching, Learning & Research in Pharmaceutical Technology" CIII-RS-1113-00-1718 (od 2017)
COST akcija: "European Network on Understanding Gastrointestinal Absorption-related Processes (UNGAP)" br. CA16205 (2017-2021)
COST akcija: "European Network of Bioadhesion Expertise: Fundamental Knowledge to Inspire Advanced Bonding" br. CA15216 (2016-2020)
COST akcija: "Simulation and Pharmaceutical Technologies for Advanced Patient-tailored Inhaled Medicines (SimInhale)" br. MP1404 (2016-2019)
Projekat bilateralne naučno-tehnološke saradnje između Republike Srbije i SR Nemačke: „Primena mašinskog učenja u razvoju prostora za dizajn u razvoju čvrstih farmaceutskih oblika“ (2013-2014)
Projekat: „Razvoj proizvoda i tehnologija koje obezbeđuju željeno oslobađanje lekovitih supstanci iz čvrstih farmaceutskih oblika“, finansiran od strane Ministarstva prosvete, nauke i tehnološkog razvoja Republike Srbije (2011-2019)
Projekat: „Razvoj novih inkapsulacionih i enzimskih tehnologija za proizvodnju biokatalizatora i biološki aktivnih komponenata hrane u cilju povećanja njene konkurentnosti, kvaliteta i bezbednosti“, finansiran od strane Ministarstva prosvete, nauke i tehnološkog razvoja Republike Srbije (2011-2019)



ISTRAŽIVAČKA GRUPA PROF. DR SVETLANA IBRIĆ

Saradnje:

Katedra za farmaceutsku tehnologiju, Farmaceutski fakultet Aristotelovog Univerziteta u Solunu, Grčka
Katedra za farmaceutsku tehnologiju, Institut za farmaceutske nauke, Univerzitet u Gracu, Austrija
Institut za farmaciju i biofarmaciju, Farmaceutski fakultet, Hajnrih Hajne Univerziteta u Dizeldorfu, Nemačka
Katedra za biofarmaciju i farmaceutsku tehnologiju Instituta za farmaciju i biohemiju Johannes Gutenberg Univerziteta u Majncu, Nemačka
Katedra za farmaceutsku tehnologiju Farmaceutskog fakulteta u Granadi, Španija
Katedra za farmaceutsku tehnologiju Farmaceutskog fakulteta Univerziteta u Ljubljani, Slovenija
Fakultet za farmaciju i farmaceutske nauke, Trinita Koledž Univerziteta u Dublinu, Irska
Katedra za farmaceutsku tehnologiju Farmaceutskog fakulteta u Sarajevu, Bosna i Hercegovina
Wuya koledž za inovacije, Šenjang Farmaceutski univerzitet, NR Kina
Departman za farmaciju, Fakultet zdravstvenih i medicinskih nauka, Univerzitet u Kopenhagenu, Danska
Departman za lekove i hranu, Univerzitet u Parmi, Italija
Departman za kliničku farmakologiju, Odsek za farmaciju Fakulteta zdravstvenih nauka, Ben-Gurion Univerzitet Negeva, Beer-Sheva, Izrael

Odabrane publikacije

- Djuris J, Cirin-Varadjan S, Aleksic I, Djuris M, Cvijic S, Ibric S. Application of Machine-Learning Algorithms for Better Understanding of Tableting Properties of Lactose Co-Processed with Lipid Excipients. *Pharmaceutics*. 2021; 13(5):663. <https://doi.org/10.3390/pharmaceutics13050663>
- Madžarević M, Ibrić S. Evaluation of exposure time and visible light irradiation in LCD 3D printing of ibuprofen extended release tablets. *Eur J Pharm Sci*. 2021; 158:105688.
- Vasiljević I, Turković E, Piller M, Zimmer A, Parojčić J. An investigation into applicability of different compression behaviour assessment approaches for multiparticulate units characterization. *Powder Technol*. 2021;379:526-36.
- Ignjatovic J, Đuriš J, Cvijic S, Dobričić V, Montepietra A, Lombardi C, Ibric S, Rossi A. Development of solid lipid microparticles by melt-emulsification/spray-drying processes as carriers for pulmonary drug delivery. *Eur J Pharm Sci*. 2021; 156: 105588.
- Medarević D, Ibrić S, Vardaka E, Mitrić M, Nikolakakis I, Kachrimanis K. Insight into the Formation of Glimepiride Nanocrystals by Wet Media Milling. *Pharmaceutics*. 2020; 12(1). pii: E53. doi: 10.3390/pharmaceutics12010053.
- Čirić A, Medarević Đ, Čalija B, Dobričić V, Mitrić M, Djekic L. Study of chitosan/xanthan gum polyelectrolyte complexes formation, solid state and influence on ibuprofen release kinetics. *Int J Biol Macromol*. 2020; 148:942-955.
- Djekic L, Čalija B, Medarević Đ. Gelation behavior, drug solubilization capacity and release kinetics of poloxamer 407 aqueous solutions: The combined effect of copolymer, cosolvent and hydrophobic drug. *J Mol Liq*. 2020; 303: 112639.
- Markovic M, Zur M, Ragatsky I, Cvijic S, Dahan A. BCS Class IV Oral Drugs and Absorption Windows: Regional-Dependent Intestinal Permeability of Furosemide. *Pharmaceutics* 2020, 12, 1175; doi:10.3390/pharmaceutics12121175.
- Kurcubic I, Cvijic S, Filipcev B, Ignjatovic J, Ibric S, Djuris J. Development of propranolol hydrochloride bilayer mucoadhesive buccal tablets supported by in silico physiologically-based modeling. *React Funct Polym*. 2020;151
- Djuris J, Milovanovic S, Medarevic D, Dobricic V, Dapčević A, Ibric S. Selection of the suitable polymer for supercritical fluid assisted preparation of carvedilol solid dispersions. *Int J Pharm*. 2019; 554:190-200.
- Krkobabić M, Medarević D, Cvijic S, Grujić B, Ibric S. Hydrophilic excipients in digital light processing (DLP) printing of sustained release tablets: Impact on internal structure and drug dissolution rate. *Int J Pharm*. 2019; 572:118790.
- Medarević D, Djuriš J, Barmpalexis P, Kachrimanis K, Ibrić S. Analytical and Computational Methods for the Estimation of Drug-Polymer Solubility and Miscibility in Solid Dispersions Development. *Pharmaceutics*. 2019; 11(8).
- Krstić M, Medarević Đ, Đuriš J, Ibrić S. Self-nanoemulsifying drug delivery systems (SNEDDS) and self-microemulsifying drug delivery systems (SMEDDS) as lipid nanocarriers for improving dissolution rate and bioavailability of poorly soluble drugs. In Grumezescu AM, editor. *Lipid Nanocarriers for Drug Targeting*, Elsevier, 2018; 473-508. ISBN: 978-0-12-813687-4
- Djuris J, ed. *Computer aided applications in pharmaceutical technology*, Woodhead Publishing Series in Biomedicine, Woodhead Publishing Ltd., Cambridge, UK. ISBN 978-1-907568-27-5, 2013
- Vasiljević I, Turković E, Nenadović S, Mirković M, Zimmer A, Parojčić J, Aleksić I. Investigation into liquisolid system processability based on the SeDeM Expert System approach. *Int. J. Pharm*. 2021; 605, 120847
- Turković E, Vasiljević I, Drašković M, Obradović N, Vasiljević D, Parojčić J. An Investigation into Mechanical Properties and Printability of Potential Substrates for Inkjet Printing of Orodispersible Films. *Pharmaceutics*. 2021; 13(4):468.
- Aleksić, I., German Ilić, I., Cvijic, S. et al. An Investigation into the Influence of Process Parameters and Formulation Variables on Compaction Properties of Liquisolid Systems. *AAPS PharmSciTech* 2020. 21, 242.
- Drašković M, Djuriš J, Ibrić S, Parojčić J. Functionality and performance evaluation of directly compressible co-processed excipients based on dynamic compaction analysis and percolation theory. *Powder Technol*. 2019. 326, 292-301.

Ostali radovi:

Repozitorijum Farmaceutskog fakulteta - FarFaR ([link](#))



ISTRAŽIVAČKA GRUPA PROF. DR NADA KOVAČEVIĆ



F A R M A K O G N O Z I J A

Naslov
istraživačke
teme:

Ispitivanje prirodnih lekovitih proizvoda

Članovi
tima:

Dr Nada Kovačević, redovni profesor
Dr Branislava Lakušić, redovni profesor *
Dr Silvana Petrović, redovni profesor
Dr Marina Milenković, redovni profesor **
Dr Zoran Maksimović, redovni profesor
Dr Tatjana Kundaković-Vasović, redovni profesor
Dr Violeta Slavkowska, vanredni profesor *
Dr Milica Drobac, vanredni profesor

* Katedra za botaniku

** Katedra za mikrobiologiju i imunologiju

Univerzitet u Beogradu - Farmaceutski fakultet

Dr Mirjana Marčetić, docent
Dr Danilo Stojanović, docent *
Dr Jelena Kukić-Marković, asistent
Dr Jelena Arsenijević, naučni saradnik
Dr Stevan Samardžić, naučni saradnik
Dr Ljuboš Ušjak, naučni saradnik
Dr Violeta Milutinović, istraživač saradnik
Mast. biol. Miloš Zbiljić, asistent *
Mag. farm. Jelena Radović, istraživač pripravnik
Mag. farm. Aleksandra Leković, istraživač pripravnik

Oprema i
metode:

Gasni hromatograf sa plameno-jonizacionim i masenim detektorom Agilent GC/MSD System 6890N / 5975C

Tečni hromatograf Agilent 1100 HPLC System

Tečni hromatograf sa masenim detektorom (LC/MS) Agilent 1260/6130 LC Systems

UV-Vis spektrofotometar Thermo Scientific Evolution 300

Liofilizator, vakuum uparivači

Inkubator sa CO₂ MMM Medcenter Einrichtungen GmbH

Optimizacija ekstrakcije biljnog materijala

Kvalitativna i kvantitativna analiza ekstrakata i etarskih ulja

Izolacija sekundarnih metabolita biljaka

Ispitivanje antioksidantne aktivnosti biljnih izolata

In vitro i *in silico* ispitivanje sposobnosti inhibicije različitih enzima od strane biljnih izolata

Ispitivanje antimikrobne aktivnosti biljnih izolata

In vivo ispitivanje gastroprotektivne, hepatoprotektivne i antidijabetske aktivnosti biljnih izolata

Projekti/
finansiranje:

Institucionalno finansiranje putem Ugovora sa MPNTR-om, evidencioni br. 451-03-9/2021-14/200161.

Saradnje:

Institut za biološka istraživanja „Siniša Stanković“; Institut za onkologiju i radiologiju Srbije; Prirodnjački muzej; Institut za proučavanje lekovitog bilja „Dr Josif Pančić“, Beograd;

Department of Pharmacognosy and Natural product Chemistry, School of Pharmacy, University of Athens, Greece;

Department of Medicinal Chemistry and Pharmacognosy, College of Pharmacy, University of Illinois, Chicago, USA;

Equipe de Chimie Analytique des Molécules BioActives Institut Pluridisciplinaire Hubert CURIE (French National Centre for Scientific Research), Université de Strasbourg.



ISTRAŽIVAČKA GRUPA PROF. DR NADA KOVAČEVIĆ

Odabrane publikacije

- Marčetić M, Kovačević N, Lakušić D, Lakušić B. Habitat-related variation in composition of the essential oil of *Seseli rigidum* Waldst. & Kit. (Apiaceae). **Phytochemistry** 2017; 13580-92. doi:10.1016/j.phytochem.2016.12.004
- Omar E, Pavlović I, Drobac M, Branković S, Stojanović M, Kovačević N. Chemical composition and spasmolytic activity of *Cymbopogon nervatus* (Hochst.) Chiov. (Poaceae) essential oil. **Industrial Crops and Products** 2017; 91: 249-254. doi: 10.1016/j.indcrop.2016.07.013
- Suručić R, Kundaković T, Drakul D, Lakušić B, Milovanović S, Kovačević N. Variations in chemical composition, vasorelaxant and angiotensin I-converting enzyme inhibitory activities of essential oil from aerial parts of *Seseli pallasii* Besser (Apiaceae). **Chemistry & Biodiversity** 2017; 14(5): e1600407. doi: 10.1002/cbdv.201600407
- Milutinović V, Niketić M, Krunić A, Nikolić D, Petković M, Ušjak Lj, Petrović S. Sesquiterpene lactones from the methanol extracts of twenty-eight *Hieracium* species from the Balkan Peninsula and their chemosystematic significance. **Phytochemistry** 2018; 154: 19–30. doi: 10.1016/j.phytochem.2018.06.008
- Petrović S, Ušjak Lj, Milenković M, Arsenijević J, Drobac M, Drndarević A, Niketić M. *Thymus dacicus* as a new source of antioxidant and antimicrobial metabolites. **Journal of Functional Foods** 2017; 28: 114-121. doi: 10.1016/j.jff.2016.11.007
- Petrović S, Drobac M, Ušjak Lj, Filipović V, Milenković M, Niketić M. Volatiles of roots of wild-growing and cultivated *Armoracia macrocarpa* and their antimicrobial activity, in comparison to horseradish, *A. rusticana*. **Industrial Crops and Products** 2017; 109, 398-403. doi: 10.1016/j.indcrop.2017.08.056
- Samardžić S, Arsenijević J, Božić D, Milenković M, Tešević V, Maksimović Z. Antioxidant, anti-inflammatory and gastroprotective activity of *Filipendula ulmaria* (L.) Maxim. and *Filipendula vulgaris* Moench. **Journal of Ethnopharmacology** 2018; 213: 132-137. doi: 10.1016/j.jep.2017.11.013
- Popović V, Heyerick A, Petrović S, Van Calenbergh S, Karalic I, Niketic M, Deforce D. Sesquiterpene lactones from the extracts of two Balkan endemic *Laserpitium* species and their cytotoxic activity. **Phytochemistry** 2013; 87, 102-111. doi: 10.1016/j.phytochem.2012.11.011
- Škobić S, Marčetić MD, Kundaković-Vasović T, Crnobarac J. Nitrogen fertilization and the essential oils profile of the rhizomes of different sweet flag populations (*Acorus calamus* L.). **Industrial Crops and Products** 2019; 142: art. no. 111871. doi: 10.1016/j.indcrop.2019.111871
- Kolundžić M, Grozdanić NĐ, Dodevska M, Milenković M, Sisto F, Miani A, Farronato G, Kundaković T. Antibacterial and cytotoxic activities of wild mushroom *Fomes fomentarius* (L.) Fr., Polyporaceae. **Industrial Crops and Products** 2016; 79: 110-115. doi: 10.1016/j.indcrop.2015.10.030
- Tošić S, Stojičić D, Slavkowska V, Mihailov-Krstev T, Zlatković B, Budimir S, Uzelac B. Phytochemical composition and biological activities of native and in vitro-propagated *Micromeria croatica* (Pers.) Schott (Lamiaceae). **Planta** 2019; 249:1365-1377. doi: 10.1007/s00425-018-03071-5
- Milenković M, Stošović J, Slavkowska V: Synergy between essential oils of *Calamintha* species (Lamiaceae) and antibiotics. **Natural Product Communications** 2018; 13 (3):371-374.
- Slavkowska V, Lakušić B, Lakušić D, Jančić R. Leaf and stem anatomy of *Micromeria* Benth. species from the Central part of the Balkan Peninsula. **Biologia** 2017; 72(3): 277-291. doi: 10.1515/biolog-2017-0029
- Arsenijević J, Drobac M, Šoštarić I, Ražić S, Milenković M, Couladis M, Maksimović Z. Bioactivity of herbal tea of Hungarian thyme based on the composition of volatiles and polyphenolics. **Industrial crops and products** 2016; 89: 14-20. doi: 10.1016/j.indcrop.2016.04.046





ISTRAŽIVAČKA GRUPA PROF. DR BRANISLAVA MILJKOVIĆ



FARMAKOKINETIKA I KLINIČKA FARMACIJA

Naslov istraživačke teme: Identifikacija i kvantifikacija izvora farmakokinetičke i varijabilnosti u odgovoru na lek – aspekt efikasnosti i bezbednosti terapije

Članovi tima:

Dr Branislava Miljković, redovni profesor	Dr Milica Čulafić, asistent
Dr Sandra Vezmar Kovačević, redovni profesor	Dr Milena Kovačević, asistent
Dr Katarina Vučićević, vanredni profesor	Mag. farm. Maša Roganović, asistent
Dr Marija Jovanović, docent	Mag. farm. Ana Homšek, asistent

Oprema i metode: *NONMEM* i *Monolix* softveri za farmakinetičko i farmakokinetičko-farmakodinamičko modelovanje i simulacije kliničkih podataka. Cilj analize je dobijanje matematičko-statističkih modela za opisivanje ponašanja leka tokom terapije i optimizacija režima doziranja lekova prema individualnim potrebama pacijenta. Farmakokinetika lekova u animalnom studijama. *PASW Statistics*
Alati za identifikaciju klinički značajnih lek-lek interakcija (*LexiInteract*, *Epocrates*, *Medscape*)

Projekti/finansiranje: Institucionalno finansiranje putem ugovora sa MPNTR-om evidencioni br. 451-03-9/2021-14/200161
COST European Network on Understanding Gastrointestinal Absorption-related Processes (UNGAP), No.16205. (24.10.2017- 23.04.2022) Prof. Katarina Vučićević je rukovodilac radnog paketa 1 (WG1).

Saradnje: Farmaceutski fakultet-Univerzitet u Ljubljani, Slovenija
Klinika za gastroenterohepatologiju, Klinički centar Srbije
Vojnomedicinska akademija
Kliničko-bolnički centar "Zvezdara"
Farmaceutski fakultet-Univerzitet u Lisabonu, Portugalija
Farmaceutski fakultet-Univerzitet u Marseju, Francuska
Institut za onkologiju i radiologiju Srbije
Klinika za nefrologiju Klinički centar Srbije
Klinika za psihijatriju Klinički centar Srbije
Univerzitetska dečja klinika, Beograd
Institut za zdravstvenu zaštitu majke i deteta "Dr Vukan Čupić"
Medicinski fakultet-Univerzitet u Beogradu
Medicinski fakultet-odsek Farmacija, Univerzitet u Banjoj Luci, Republika Srpska





ISTRAŽIVAČKA GRUPA PROF. DR BRANISLAVA MILJKOVIĆ

Odabrane publikacije

- Milenković B, Šuljagić V, Perić A, Dragojević-Simić V, Tarabar O, Milanović M, Putić V, Tomić D, Miljković B, Vezmar Kovačević S. Outcomes of *Clostridioides difficile* infection in adult cancer and non-cancer patients hospitalised in a tertiary hospital: a prospective cohort study. *Eur J Hosp Pharm*. 2021;ejhpharm-2020-002574.
- Jayachandran P, Garcia-Cremades M, Vučićević K, Bumpus NN, Anton P, Hendrix C, Savić R. A Mechanistic *In Vivo/Ex Vivo* Pharmacokinetic/Pharmacodynamic Model of Tenofovir for HIV Prevention. *CPT Pharmacometrics Syst Pharmacol*. 2021; 10(3): 179-87.
- Kovacevic T, Kovacevic SV, Stanetic M, Kovacevic P, Miljkovic B. Impact of pharmacist's intervention on decreasing erlotinib interactions in the treatment of lung cancer patients in low resource settings. *J Oncol Pharm Pract*. 2021;27(2):350-358.
- Ćulafić M, Vezmar-Kovačević S, Dopsaj V, Oluić B, Bidžić N, Miljković B, Ćulafić Đ. Pentoxifylline with metformin treatment improves biochemical parameters in patients with nonalcoholic steatohepatitis. *J Med Biochem*. 2020;39(3):290-298.
- Kovacevic T, Miljkovic B, Kovacevic P, Dragic S, Momcicevic D, Avram S, Jovanovic M, Vucicevic K. Population pharmacokinetic model of Vancomycin based on therapeutic drug monitoring data in critically ill septic patients. *J Crit Care*. 2020;55:116-121.
- Jovanović M, Vučićević K, Miljković B. Understanding variability in the pharmacokinetics of atypical antipsychotics - focus on clozapine, olanzapine and aripiprazole population models. *Drug Metab Rev*. 2020;52(1):1-18.
- Kovačević M, Vezmar Kovačević S, Radovanović S, Stevanović P, Miljković B. Potential drug-drug interactions associated with clinical and laboratory findings at hospital admission. *Int J Clin Pharm*. 2020;42(1):150-157.
- Kovačević M, Vezmar Kovačević S, Radovanović S, Stevanović P, Miljković B. Adverse drug reactions caused by drug-drug interactions in cardiovascular disease patients: introduction of a simple prediction tool using electronic screening database items. *Curr Med Res Opin*. 2019;35(11):1873-1883.
- Ćulafic M, Vezmar Kovacevic S, Dopsaj V, Stulic M, Vlaisavljevic Z, Miljkovic B, Ćulafic D. A Simple Index for Nonalcoholic Steatohepatitis-HUFA-Based on Routinely Performed Blood Tests. *Medicina (Kaunas)*. 2019;55(6):243.
- Golubović B, Vučićević K, Radivojević D, Kovačević SV, Prostran M, Miljković B. Exploring Sirolimus Pharmacokinetic Variability Using Data Available from the Routine Clinical Care of Renal Transplant Patients - Population Pharmacokinetic Approach. *J Med Biochem*. 2019;38(3):323-331.
- Pejčić Z, Vučićević K, García-Arieta A, Miljković B. Adjusted indirect comparisons to assess bioequivalence between generic clopidogrel products in Serbia. *Br J Clin Pharmacol*. 2019;85(9):2059-2065.
- Erika Wallender, Katarina Vucicevic, Prasanna Jagannathan, Liusheng Huang, Paul Natureeba, Abel Kakura, Mary Muhindo, Mirium Nakalembe, Diane Havlir, Moses Kamya, Francesca Aweeka, Grant Dorsey, Philip J. Rosenthal, Radojka M. Savic. Predicting optimal dihydroartemisinin-piperaquine regimens to prevent malaria during pregnancy for HIV-infected women receiving efavirenz. *J Infect Dis* 2018; 217(6): 964-72.
- Topić Vučenović V, Rajkovača Z, Jelić D, Stanimirović D, Vuleta G, Miljković B, Vučićević K. Investigation of factors influencing radioiodine (¹³¹I) biokinetics in patients with benign thyroid disease using nonlinear mixed effects approach. *Eur J Clin Pharmacol*. 2018;74(8):1037-1045.
- Vučičević KM, Miljković BR, Golubović BC, Jovanović MN, Vezmar Kovačević SD, Ćulafić MD, Kovačević MM, de Gier JJ. Expectations, concerns, and needs of patients who start drugs for chronic conditions. A prospective observational study among community pharmacies in Serbia. *Eur J Gen Pract*. 2018;24(1):19-25.
- Kovačević SV, Miljković B, Ćulafić M, Kovačević M, Golubović B, Jovanović M, Vučićević K, de Gier JJ. Evaluation of drug-related problems in older polypharmacy primary care patients. *J Eval Clin Pract*. 2017;23(4):860-865.
- Ilić V, Bogičević D, Miljković B, Ješić M, Kovačević M, Prostran M, Kovačević SV. Duration of valproic acid monotherapy correlates with subclinical thyroid dysfunction in children with epilepsy. *Epileptic Disord*. 2016;18(2):181-186.
- Golubovic B, Prostran M, Miljkovic B, Vucicevic K, Radivojevic D, Grabnar I. Population Pharmacokinetic Approach of Immunosuppressive Therapy in Kidney Transplant Patients. *Curr Med Chem*. 2016;23(19):1998-2011.
- Jovanović M, Sokić D, Grabnar I, Vovk T, Prostran M, Erić S, Kuzmanovski I, Vučićević K, Miljković B. Application of Counter-propagation Artificial Neural Networks in Prediction of Topiramate Concentration in Patients with Epilepsy. *J Pharm Pharm Sci*. 2015;18(5):856-862.

Ostali radovi:

Repozitorijum Farmaceutskog fakulteta - FarFaR ([link](#))



ISTRAŽIVAČKA GRUPA PROF. DR MIROSLAV SAVIĆ



F A R M A K O L O G I J A

Naslovi istraživačkih tema: Bihevioralna i farmakokinetička karakterizacija novosintetisanih liganada selektivnih za benzodiazepinsko mesto vezivanja na pojedinim podtipovima GABA_A receptora
Stvaranje novih integrisanih alata za predikciju neželjenih efekata lekova na nervni sistem

Članovi tima:

Dr Miroslav Savić, redovni profesor	Eksterni saradnici:
Dr Tamara Major	Dr Siniša Karasek
Dr Ivan Jančić, docent	Dr Aleksandar Obradović
Dr Bojan Batinić, docent	Dr Vanja Todorović
Mag. farm. Branka Divović Matović, asistent	Anja Santrač
Mag. farm. Aleksandra Kovačević, asistent	Milica Gajić Bojić
Jovana Arandjelović	
Vladimir Stevanović	

Oprema i metode: Rotarod za pacove (*Ugo Basile*, Italija; model: 47700)
Aparat za merenje jačine stiska pacova (*Ugo Basile*, Italija; model: 47105)
Digitalni stereotaksični instrument za pacove (*Stoelting*, Irska; model: 51900)
Bussey-Saksida komora za testiranje pacova sa ekranom osetljivim na dodir (*Lafayette Instrument*, Lafboro, Engleska, Velika Britanija; model: 80604-20)
Luminex 200 sistem sa PONENT 4.2. softverom (*Luminex Corporation*, Ostin, Teksas, SAD; model: *Luminex 200*)

Bihevioralno testiranje glodara (u Morisovom vodenom lavirintu, uzdignutom plus lavirintu, rotarodu, testu otvorenog polja, testu jačine stiska, testu preferencije saharoze, testu forsiranog plivanja, testu tri komore, testu impulsivnosti, testu afektivne pristrasnosti...)

Merenje koncentracije liganada u krvi, mozgu i drugim organima i telesnim tečnostima glodara i farmakokinetička karakterizacija liganada

Projekti/finansiranje:

1. Projekat u okviru *Horizon 2020 Research and Innovation action – Innovative Medicines Initiative (IMI2 – Poziv 13)* i Evropske federacije farmaceutske industrije i Udruženja inovativnih proizvođača lekova (EFPIA) pod nazivom: "De-eskalacija rizika neurotoksičnosti u prekliničkom otkriću lekova" (NeuroDeRisk), br. 821528, 2019-2022, 696 150 €
2. Projekat Ministarstva prosvete, nauke i tehnološkog razvoja Republike Srbije br. 175076: „Bihevioralni efekti ponavljane primene novosintetisanih supstanci selektivnih za pojedine podtipove benzodiazepinskog mesta vezivanja GABA_A receptora: poređenje sa standardnim psihofarmakološkim lekovima" iz osnovnih istraživanja – Medicina (trenutno je aktuelno institucionalno finansiranje grupe putem Ugovora o realizaciji i finansiranju naučnoistraživačkog rada Univerziteta u Beogradu – Farmaceutskog fakulteta u 2021. godini, evidencioni br. 451-03-9/2021-14/200161)
3. Projekat bilateralne saradnje sa Republikom Austrijom (Medicinski Univerzitet u Beču): "Modulacija neuropatskog bola preko GABAA receptora u animalnim modelima", br. 451-03-02141/2017-09/05, 2018-2021.



ISTRAŽIVAČKA GRUPA PROF. DR MIROSLAV SAVIĆ

Saradnje: Univerzitet u Beogradu – Farmaceutski fakultet – dr Bojan Marković, dr Vladimir Dobričić, istraživačke grupe dr Snežane Savić, dr Marina Jukića
Institut za nuklearne nauke “Vinča”, Srbija
Medicinski Univerzitet u Beču, Austrija
Univerzitet u Torontu i Campbell Family istraživački institut za mentalno zdravlje, Kanada
Univerzitet Vinskonsin-Milvoki, SAD

Odabrane publikacije

- Andronis C, Silva JP, Lekka E, Virvilis V, Carmo H, Bampali K, Ernst M, Hu Y, Loryan I, Richard J, Carvalho F, **Savić MM**. Molecular basis of mood and cognitive adverse events elucidated via a combination of pharmacovigilance data mining and functional enrichment analysis. *Arch Toxicol.* 2020;94:2829-2845.
- Sieghart W, **Savić MM**. International Union of Basic and Clinical Pharmacology. CVI: GABA_A Receptor Subtype- and Function-selective Ligands: Key Issues in Translation to Humans. *Pharmacol Rev.* 2018;70:836-878.
- Mitrović JR, **Divović B**, Knutson DE, Đoković JB, Vulić PJ, Randjelović DV, Dobričić VD, Čalija BR, Cook JM, **Savić MM**, Savić SD. Nanocrystal dispersion of DK-I-56-1, a poorly soluble pyrazoloquinolinone positive modulator of $\alpha 6$ GABA_A receptors: Formulation approach toward improved in vivo performance. *Eur J Pharm Sci.* 2020;152:105432.
- Knutson DE, Kodali R, **Divović B**, Treven M, Stephen MR, Zahn NM, Dobričić V, Huber AT, Meirelles MA, Verma RS, Wimmer L, Witzigmann C, Arnold LA, Chiou LC, Ernst M, Mihovilovic MD, **Savić MM**, Sieghart W, Cook JM. Design and Synthesis of Novel Deuterated Ligands Functionally Selective for the γ -Aminobutyric Acid Type A Receptor (GABA_A R) $\alpha 6$ Subtype with Improved Metabolic Stability and Enhanced Bioavailability. *J Med Chem.* 2018;61:2422-2446.
- Vasović D, **Divović B**, Treven M, Knutson DE, Steudle F, Scholze P, **Obradović A**, Fabjan J, Brković B, Sieghart W, Ernst M, Cook JM, **Savić MM**. Trigeminal neuropathic pain development and maintenance in rats are suppressed by a positive modulator of $\alpha 6$ GABA_A receptors. *Eur J Pain.* 2019;23:973-984.
- Prevot TD, Li G, **Vidojević A**, Misquitta KA, Fee C, **Santrač A**, Knutson DE, Stephen MR, Kodali R, Zahn NM, Arnold LA, Scholze P, Fisher JL, Marković BD, Banasr M, Cook JM, **Savić M**, Sibille E. Novel Benzodiazepine-Like Ligands with Various Anxiolytic, Antidepressant, or Pro-Cognitive Profiles. *Mol Neuropsychiatry.* 2019;5:84-97.
- Batinić B**, **Santrač A**, **Jančić I**, Li G, **Vidojević A**, Marković B, Cook JM, **Savić MM**. Positive modulation of $\alpha 5$ GABA_A receptors in preadolescence prevents reduced locomotor response to amphetamine in adult female but not male rats prenatally exposed to lipopolysaccharide. *Int J Dev Neurosci.* 2017;61:31-39.
- Bojić MG**, Todorović L, **Santrač A**, Mian MY, Sharmin D, Cook JM, **Savić MM**. Vasodilatory effects of a variety of positive allosteric modulators of GABA_A receptors on rat thoracic aorta. *Eur J Pharmacol.* 2021;899:174023.
- Savić MM**, Huang S, Furtmüller R, Clayton T, Huck S, Obradović DI, Ugrešić ND, Sieghart W, Bokonjić DR, Cook JM. Are GABA_A receptors containing alpha5 subunits contributing to the sedative properties of benzodiazepine site agonists? *Neuropsychopharmacology.* 2008;33:332-9.
- Savić MM**, Clayton T, Furtmüller R, Gavrilović I, Samardzić J, Savić S, Huck S, Sieghart W, Cook JM. PWZ-029, a compound with moderate inverse agonist, functional selectivity at GABA_A receptors containing alpha5 subunits, improves passive, but not active, avoidance learning in rats. *Brain Res.* 2008;1208:150-9.

Ostali radovi:

Repozitorijum Farmaceutskog fakulteta - FarFaR ([link](#))



ISTRAŽIVAČKA GRUPA PROF. DR RADICA STEPANOVIĆ-PETROVIĆ



F A R M A K O L O G I J A

Naslov istraživačke teme: Ispitivanje mehanizma dejstva, interakcija i neželjenih efekata alternativnih analgetika u animalnim modelima bola.

Članovi tima: Dr Radica Stepanović-Petrović, redovni profesor
Dr Maja Tomić, redovni profesor
Dr Ana Micov, docent
Dr Uroš Pecikoza, asistent
Mag. farm. Katarina Nastić

Oprema i metode: Hugo Sachs Elektronik 7360 Aparat za izvođenje testa izmicanja repa miševa/pacova pod uticajem toplote
Hugo Sachs Elektronik D-79232 Aparat za izvođenje testa pritiska na šapu pacova
IITC Life Science Inc. 2390 Aparat za merenje bolne preosetljivosti šape miševa/pacova pri mehaničkoj stimulaciji
Ugo Basile S.R.L. 7141 Aparat za merenje volumena šape miševa/pacova (Pletizmometar)
Ugo Basile 47700 Rotarod
Ugo Basile 47105 Aparat za merenje jačine stiska pacova

Projekti/finansiranje: Institucionalno finansiranje putem Ugovora sa MPNTR-om, evidencioni br. 451-03-9/2021-14/200161

Saradnje: **Univerzitet u Beogradu - Farmaceutski fakultet**
Istraživačka grupa Djekić Lj, Krajišnik D Istraživačka grupa Leposavić G,
Istraživačka grupa Petrović S, Maksimović Z
Institut za molekularnu genetiku i genetičko inženjerstvo (IMGGI)
Istraživačka grupa Golić N i Dinić M
Univerzitet u Beogradu - Biološki fakultet
Istraživačka grupa Jasnić N i Djordjević J





ISTRAŽIVAČKA GRUPA

PROF. DR RADICA STEPANOVIĆ-PETROVIĆ

Odabrane publikacije

- Micov AM, Tomić MA, Todorović MB, Vuković MJ, Pecikoza UB, Jasnic NI, Djordjevic JD, Stepanović-Petrović RM.** Vortioxetine reduces pain hypersensitivity and associated depression-like behavior in mice with oxaliplatin-induced neuropathy. *Prog Neuropsychopharmacol Biol Psychiatry.* 2020;103:109975. (IF=5,067/2020)
- Tomić M, Pecikoza U, Micov A, Vučković S, Stepanović-Petrović R.** Antiepileptic drugs as analgesics/adjuvants in inflammatory pain: current preclinical evidence. *Pharmacol Ther.* 2018;192:42-64. (IF= 12,310/2020)
- Pecikoza UB, Tomić MA, Micov AM, Stepanović-Petrović RM.** Metformin Synergizes With Conventional and Adjuvant Analgesic Drugs to Reduce Inflammatory Hyperalgesia in Rats. *Anesth Analg.* 2017;124:1317-1329. (IF= 5,108/2020)
- Tomić MA, Pecikoza UB, Micov AM, Stepanović-Petrović RM.** The Efficacy of Eslicarbazepine Acetate in Models of Trigeminal, Neuropathic, and Visceral Pain: The Involvement of 5-HT_{1B/1D} Serotonergic and CB₁/CB₂ Cannabinoid Receptors. *Anesth Analg.* 2015;121:1632-9. (IF= 5,108/2020)
- Stepanović-Petrović RM, Micov AM, Tomić MA, Kovačević JM, Bošković BD.** Antihyperalgesic/antinociceptive effects of ceftriaxone and its synergistic interactions with different analgesics in inflammatory pain in rodents. *Anesthesiology.* 2014;120:737-750. (IF= 7,892/2020)
- Stepanović-Petrović RM, Micov AM, Tomić MA, Ugrešić ND.** The local peripheral antihyperalgesic effect of levetiracetam and its mechanism of action in an inflammatory pain model. *Anesth Analg.* 2012;115:1457-66. (IF= 5,108/2020)
- Micov A, Tomić M, Popović B, Stepanović-Petrović R.** The antihyperalgesic effect of levetiracetam in an inflammatory model of pain in rats: mechanism of action. *Br J Pharmacol.* 2010;161:384-392. (IF=8,379/2020)
- Stepanović-Petrović RM, Tomić MA, Vuckovic SM, Paranos S, Ugresic ND, Prostran MS, Milovanovic S, Boskovic B.** The antinociceptive effects of anticonvulsants in a mouse visceral pain model. *Anesth Analg.* 2008;106:1897-903. (IF= 5,108/2020)
- Vucković SM, Tomić MA, Stepanović-Petrović RM, Ugresić N, Prostran MS, Bosković B.** The effects of alpha₂-adrenoceptor agents on anti-hyperalgesic effects of carbamazepine and oxcarbazepine in a rat model of inflammatory pain. *Pain.* 2006;125:10-9. (IF= 6,961/2020)
- Tomić MA, Vučković SM, Stepanović-Petrović RM, Ugrešić N, Prostran MS, Bošković B.** The anti-hyperalgesic effects of carbamazepine and oxcarbazepine are attenuated by treatment with adenosine receptor antagonists. *Pain.* 2004;111:253-260. (IF= 6,961/2020)





ISTRAŽIVAČKA GRUPA DR ALEKSANDRA JANOŠEVIĆ-LEŽAIĆ, VANR. PROF.



F I Z I Č K A H E M I J A

Naslov istraživačke teme:	Sinteza i karakterizacija polimernih materijala i kompozita na bazi heteropoli jedinjenja sa ciljem njihove primene u elektrokonverziji, farmaciji i reakcijama od značaja za zaštitu životne sredine
Članovi tima:	Dr Snežana Uskoković-Marković, vanredni profesor Dr Aleksandra Janošević-Ležaić, docent
Oprema i metode:	Amel Instruments, Italy, A MEL 433-A Polarographic Analyser; UV/Vis spectrophotometer, GBC Scientific Equipment, Australia, Cintra 20; Raman spectrometer, Ahura Scientific, Waltham, USA, PortableTruScan.
Projekti/finansiranje:	Institucionalno finansiranje putem Ugovora sa MPNTR-om, evidencioni br. 451-03-9/2021-14/200161.
Saradnje:	Univerzitet u Beogradu - Fakultet za fizičku hemiju; Department of Inorganic Chemistry, Institute of Chemistry of Romanian Academy, Timisoara, Romania; Advanced Materials Department, Institut Jožef Stefan, Ljubljana, Slovenija; Institute of Macromolecular Chemistry, Czech Academy of Sciences, Prague, Czech Republic





ISTRAŽIVAČKA GRUPA

DR ALEKSANDRA JANOŠEVIĆ-LEŽAIĆ, VANR. PROF.

Odabrane publikacije

- D Janićijević, **S Uskoković-Marković**, D Ranković, M Milenković, A Jevremović, B Nedić Vasiljević, M Milojević-Rakić, D Bajuk-Bogdanović, Double active BEA zeolite/silver tungstophosphates – Antimicrobial effects and pesticide removal. *Science of the Total Environment*, 2020, 735, 139630.
- Z Jovanović, Ž Mravik, D Bajuk-Bogdanović, S Jovanović, S Marković, M Vujković, J Kovač, D Vengust, **S Uskoković-Marković**, I Holclajtner-Antunović. Self-limiting interactions in 2D–0D system: A case study of graphene oxide and 12-tungstophosphoric acid nanocomposite. *Carbon*, 156, 2020, 166-178.
- I Holclajtner-Antunović, **S Uskoković-Marković**, A Popa, A Jevremović, B Nedić Vasiljević, M Milojević-Rakić, D Bajuk-Bogdanović. Ethanol dehydration over Keggin type tungstophosphoric acid and its potassium salts supported on carbon. *Reaction Kinetics, Mechanisms and Catalysis* 2019, 128(1), 121-137.
- Kashima K., Fujisaki T., Serrano-Luginbühl S., Kissner R., **Janošević Ležaić A.**, Bajuk-Bogdanović D., Ćirić-Marjanović G., Busato S., Ishikawa T., Walde P.: Effect of Template Type on the *Trametes versicolor* Laccase-Catalyzed Oligomerization of the Aniline D
- Pašti I, **Janošević Ležaić A.**, Gavrilov N., Ćirić-Marjanović G., Mentus S.: Nanocarbons derived from polymers for electrochemical energy conversion and storage. *Synthetic Metals* (2018) 246:267-281
- Janošević Ležaić A.**, Bajuk-Bogdanović D., Radoičić M., M. Mirsky V., Ćirić-Marjanović G.: Influence of synthetic conditions on the structure and electrical properties of nanofibrous polyanilines and their nanofibrous carbonized forms, *Synthetic Metals* 214, (2016)
- Pašti I., **Janošević Ležaić A.**, Ćirić-Marjanović G., Mirsky V.: Resistive gas sensors based on the composites of nanostructured carbonized polyaniline and Nafion. *Journal of Solid State Electrochemistry*, 20(11), (2016) 3061-3069





ISTRAŽIVAČKA GRUPA PROF. DR NELI KRISTINA TODOROVIĆ VASOVIĆ

F I Z I K A I M A T E M A T I K A

Naslov istraživačke teme: Modeliranje i numeričke simulacije složenih višečestičnih sistema

Članovi tima: Dr Neli Kristina Todorović Vasović, redovni profesor
Dr Dragana Ranković, docent
Mast. mat. Danijela Milenković, asistent
Mast. mat. Marija Minić, asistent

Oprema i metode: Matlab
R
Python
Origin

Projekti/finansiranje: Institucionalno finansiranje putem Ugovora sa MPNTR-om, evidencioni br. 451-03-9/2021-14/200161

Saradnje: Institut za Fiziku u Beogradu
Matematički fakultet Univerziteta u Beogradu
Prirodno-matematički fakultet Univerziteta u Novom Sadu

Odabrane publikacije
Prekrat D., Todorović-Vasović K.N., Ranković D., Detecting scaling in phase transitions on the truncated Heisenberg algebra, *Journal of High Energy Physics*, 2021, 2021(3), 197
Kostić S., Vasović N., Todorović K., Franović I., EFFECT of colored noise on the generation of seismic fault MOVEMENT: Analogy with spring-block model DYNAMICS, *Chaos, Solitons and Fractals*, 2020, 135, 109726
Kostić S., Vasović N., Todorović K., Franović I., Nonlinear dynamics behind the seismic cycle: One-dimensional phenomenological modeling, *Chaos, Solitons and Fractals*, 2018, 106, pp. 310–316
Kostić S., Vasović N., Franović I., Klinshov V., Nekorkin V., Dynamics of fault motion in a stochastic spring-slider model with varying neighboring interactions and time-delayed coupling, *Nonlinear Dynamics*, 2017, 87(4), pp. 2563–2575
Vasović N., Kostić S., Franović I., Todorović K., Earthquake nucleation in a stochastic fault model of globally coupled units with interaction delays, *Communications in Nonlinear Science and Numerical Simulation*, 2016, 38, pp. 117–129



ISTRAŽIVAČKA GRUPA DOC. DR MARIN JUKIĆ



FIZIOLOGIJA

Naslovi
istraživačkih
tema

Neurobiologija emocija (NEMO)

Značaj razvoja mozga u emocionalnosti
Precizno doziranje antidepresiva i antipsihotika

Članovi tima:

Stalni članovi grupe

Dr Marin Jukić, docent

Mag. farm. Filip Milosavljević, doktorant

Mag. farm. Aleksandra Jeremić, doktorant

Dr Zorana Pavlović (Psihijatar, Medicinski fakultet i Klinički Centar Srbije – Klinika za Psihijatriju)

Dr Čedo Miljević, docent (Psihijatar, Medicinski fakultet i Institut za Mentalno zdravlje)

Dr Zvezdana Stojanović, docent (Psihijatar, Medicinski fakultet Vojnomedicinske akademije i VMA-Klinika za Psihijatriju)

pp. Dr Danilo Joković (Psihijatar, Medicinski fakultet Vojnomedicinske akademije i VMA-Klinika za Psihijatriju)

Saradnici na projektima NEMO grupe

Dr Bojan Batinić, docent (PsyCise projekat)

Dr Bojan Marković, vanredni profesor (PsyCise projekat)

Dr Sandra Vladimirov (PsyCise projekat)

Oprema:

QuantStudio 5 – rtPCR mašina

FujiLAS-1000plus – hemilumiscentni i fluorescentni imidžer

Pumpa za transkardijalnu perfuziju glodara

Azotni uparivač pridružen na generator azota

Sitna oprema koja se koristi za pripremu uzoraka za PCR i HPLC

Metode:

Post mortem MRI mozga glodara visoke rezolucije (u saradnji sa Karolinska Institutom – KERIC neuroimidžing centrom)

Bihevioralna analiza glodara

Western Blot

rtPCR – genotipizacija i genska ekspresija

Imunohistohemija

Određivanje koncentracije psihijatrijskih lekova u plazmi





ISTRAŽIVAČKA GRUPA DOC. DR MARIN JUKIĆ

Projekti/
finansiranje

PsyCise – Fond za nauku Republike Srbije 199.872,88 EUR
PGx-PSY – Horizon 2020 research and innovation inicijativa 484.981,25 EUR
Pokreni se za nauku inicijativa 1.200.000 RSD

Saradnje

Univerzitet u Beogradu - Farmaceutski fakultet

Grupa Prof. Vesne Pešić

Grupa Prof. Miroslava Savića

Grupa Prof. Svetlane Ignjatović

Katedra za Farmaceutsku hemiju (HPLC aparat/metoda)

Katedra za Medicinsku Biohemiju (HPLC aparat/metoda)

Univerzitet u Beogradu – Medicinski fakultet

Grupa Prof. Nađe Marić Bojović

Grupa Prof. Branislava Filipovića

Inostrane kolaboracije

Karolinska Institut, Stokholm, Švedska; grupa Prof. Magnusa Ingelmana-Sundberga

Karolinska Institut, Stokholm, Švedska; grupa Dr. Petera Damberga (KERIC neuroimidžing centar)

Univerzitet u Stockholmu, Švedska; grupa Čunlianga Vanga

Univerzitet u Oslu, Norveška; grupa Prof. Espena Moldena

Medicinski Univerzitet u Beču, Austrija; grupa Prof. Ruperta Lanzenbergera

Univerzitet u Munsteru, Nemačka; grupa Prof. Uda Danlovskog

Univerzitet u Bonu, Nemačka; grupa Prof. Markusa Nutena

Univerzitet Merilend, Bethesda, SAD; grupa Prof. Toda Gulda

Univerzitet u Mastrohtu, Holandija; grupa Doc. Ros van Vesterhennen

Univerzitet u Torontu, Kanada; grupa Prof. Rejčel Tindejl

Odabrane
publikacije

Milosavljevic F, Bukvic N, Pavlovic Z, Miljevic C, Pešić V, Molden E, Ingelman-Sundberg M, Leucht S, Jukic MM. Association of CYP2C19 and CYP2D6 Poor and Intermediate Metabolizer Status With Antidepressant and Antipsychotic Exposure: A Systematic Review and Meta-analysis. **JAMA Psychiatry**. 2020 Nov 25 (ahead of print)

Jukic MM, Smith RL, Haslemo T, Molden E, Ingelman-Sundberg M. Effect of CYP2D6 genotype on exposure and efficacy of risperidone and aripiprazole: a retrospective, cohort study. **Lancet Psychiatry** 2019 May;6(5):418-426.

Jukic MM, Haslemo T, Molden E, Ingelman-Sundberg M. Impact of CYP2C19 Genotype on Escitalopram Exposure and Therapeutic Failure: A Retrospective Study Based on 2,087 Patients. **Am J Psychiatry** 2018 May 1;175(5):463-470.

Jukić MM, Opel N, Ström J, Carrillo-Roa T, Miksys S, Novalen M, Renblom A, Sim SC, Peñas-Lledó EM, Courtet P, Llerena A, Baune BT, de Quervain DJ, Papassotiropoulos A, Tyndale RF, Binder EB, Dannlowski U, Ingelman-Sundberg M. Elevated CYP2C19 expression is associated with depressive symptoms and hippocampal homeostasis impairment. **Mol Psychiatry**. 2017 Aug;22(8):1155-1163.

Jukic MM, Carrillo-Roa T, Bar M, Becker G, Jovanovic VM, Zega K, Binder EB, Brodski C. Abnormal development of monoaminergic neurons is implicated in mood fluctuations and bipolar disorder. **Neuropsychopharmacology**. 2015 Mar;40(4):839-48.

Ostali radovi:

Repozitorijum Farmaceutskog fakulteta - FarFaR ([link](#))



ISTRAŽIVAČKA GRUPA PROF. DR SVETLANA IGNJATOVIĆ



M E D I C I N S K A B I O H E M I J A

Naslov istraživačke teme: Procena biomarkera bolesti i disfunkcije organa

Članovi tima: Dr Svetlana Ignjatović, redovni profesor
Dr Aleksandra Topić, redovni profesor
Dr Miloš Žarković, redovni profesor *
Dr Jasmina Ćirić, redovni profesor *
Dr Biljana Nedeljković Beleslin, docent *
Dr Duško Mirković, vanredni profesor
Dr Mirjana Bećarević, redovni profesor **
Dr Neda Milinković, asistent
Marija Sarić Matutinović, istraživač pripravnik
* Univerzitet u Beogradu-Medicinski fakultet
** Univerzitet u Novom Sadu-Medicinski fakultet

Oprema i metode:

- Deep freeze refrigerator, SANYO-3254 Ultra low
- Olympus AU400 biochemistry analyzer (Beckman Coulter)
- Access 2 immunochemical analyzer (Beckman Coulter)
- Hematological analyzer, Beckman Coulter, ACT DIFF
- Flow cytometer, BD Biosciences, USA, FA CSCALIBUR 4-COLOR
- Rayto ELISA reader and Rayto Mikroplate washer
- Liquid Chromatograph (HPLC), Shimadzu Corporation, Tokyo, Japan, HPLC Nexera i LC2040C 3D Liquid Chromatograph
- Ultra high pressure liquid chromatography with mass-mass detection (UHPLC/MS/MS), Thermo ACCELA Scientific), Agilent Technologies



ISTRAŽIVAČKA GRUPA PROF. DR SVETLANA IGNJATOVIĆ

Projekti/
finansiranje: 2011–2019: Biomarkeri oštećenja i disfunkcije organa (#175036); Kompleksne bolesti kao model sistem za proučavanje modulacije fenotipa-strukturalna i funkcionalna analiza molekularnih biomarkera (#173008) / Ministarstvo prosvete, nauke i tehnološkog razvoja Republike Srbije

Saradnja: Research group from the Laboratory for Molecular Thyroid Research, Johannes Gutenberg University (JGU) Medical Centre in Mainz, Germany

Odabrane publikacije: Ignjatovic S, Majkic-Singh N, Mitrovic M, Gvozdenovic M. Biochemical evaluation of patients with acute pancreatitis. *Clin Chem Lab Med* 2000; 38: 1141–4.

Lukic V, Ignjatovic S. Optimizing moving average control procedures for small-volume laboratories: can it be done? *Biochem Medica* 2019;3:030710.

Žarković M, et al. Asymmetry indicates more severe and active disease in Graves' orbitopathy: results from a prospective cross-sectional multicentre study. *J Endocrinol Invest* 2020;43: 1717–1722.

Nedeljković-Beleslin B, Ćirić J, Stojković M, et al. Comparison of efficacy and safety of parenteral versus parenteral and oral glucocorticoid therapy in Graves' orbitopathy. *Int J Clin Pract* 2020 Jul 10;e13608.

Topic A, Francuski Dj, Markovic B, et al. Gender-related reference intervals of urinary 8-oxo-7,8-dihydro-2'-deoxyguanosine determined by liquid chromatography-tandem mass spectrometry in Serbian population. *Clin Biochem* 2013;46:321-326.

Becarevic M, Mirkovic D, Ignjatovic S. Double positivity of the IgG isotype of both anticardiolipin and anti-β2gpl antibodies is associated with the highest number of vascular impairment parameters in patients with primary antiphospholipid syndrome: preliminary data. *Clin Rheumatol* 2016;35:2947–54.

Milinković N, Jovičić S, Ignjatović S. Measurement uncertainty as a universal concept: can it be universally applicable in routine laboratory practice? *Crit Rev Clin Lab Sci* 2020 Jul 16;1–12. doi: 0.1080/10408363.2020.1784838.





ISTRAŽIVAČKA GRUPA PROF. DR JELENA ANTIĆ STANKOVIĆ



M I K R O B I O L O G I J A

Naslov
istraživačke
teme: Investigation of antimicrobial and
anti-proliferative compounds

Članovi tima: Dr Jelena Antić Stanković, redovni profesor
Dr Dragana Božić, vanredni profesor
Dr Brankica Filipić, vanredni profesor
Dr Slađana Tanasković, vanredni profesor
Dr Branka Dražić, docent

Oprema i
metode: Our group is mainly focused on pharmaceutical (medicinal) chemistry of the new compounds with potential antimicrobial activities and anti-proliferative effects. Also, we investigate antimicrobial and anti-proliferative effects of compounds of natural origin, especially essential oils, as well as new synthesized mixed-ligand transitional metal complexes with different macrocycles and additional aromatic and aliphatic carbocylates. The structure of the complexes is defined using physico-chemical methods.

We determine *in vitro* cytotoxic activity of samples according to cell lines originating from different types of cancer, as well as the selectivity of cytotoxic action on the established line of normal human cells. Also, we analyze the effect of samples from plant material on cell distribution at different stages of the cell cycle, as well as the type of cell death.

We use the diffusion, microdilution and agar microdilution method to determine the antimicrobial effect of the samples.

Projekti/
finansiranje: Institucionalno finansiranje putem Ugovora sa MPNTR-om, evidencioni
br. 451-03-9/2021-14/200161.





ISTRAŽIVAČKA GRUPA

PROF. DR JELENA ANTIĆ STANKOVIĆ

Odabrane publikacije

- Mirjana Antonijević-Nikolić, Jelena Antić Stanković, Branka Dražić, Sladjana Tanasković, New macrocyclic Cu(II) complex with bridge terephthalate: synthesis, spectral properties, *in vitro* cytotoxic and antimicrobial activity. Comparison with related complexes, *J Mol Struct.* 2019, 1184(15):41-48
- Antonijević-Nikolić M, Dražić B, Antić-Stanković J, Tanasković S New mixed-ligand Ni(II) and Zn(II) macrocyclic complexes with bridged bicyclo-[2,2,1]-hept-5-en-endo-2,3-cis-dicarboxylate: synthesis, characterization, antimicrobial and cytotoxic activity, *J. Serb. Chem. Soc.* 2019; 841–13
- Antonijević Nikolić M, Antić Stanković J, Tanasković S: Synthesis, characterization and *in vitro* antiproliferative and antibacterial studies of tetraazamacrocyclic complexes of Co(II) and Cu(II) with pyromellitic acid, *J Coord Chem*, 2018, 71(10): 1542-59
- Perovic S, Veinovic G, Antić Stanković J: A review on antibiotic resistance: origin and mechanisms of bacterial resistance as biological phenomenon, *Genetika.* 2018, 50(3): 1123-35
- Milović S, Kundaković TD, Macić V, Antić-Stanković J, Grozdanić N, Djurčić I, Stanković I, Anti α -glucosidase, antitumour, antioxidative, antimicrobial activity, nutritive and health protective potential of some seaweeds from the Adriatic coast of Montenegro, *Farmacia.* 2017, 65 (5): 731-740
- Damjanović Ana, Kalinić Marko, Tasić Gordana, Erić Slavica, Antić Stanković Jelena, Savić Vladimir: Synthesis, cytotoxicity and computational study of novel protoberberine derivatives, *Journal of the Serbian Chemical Society*, 2016, 81 (2): 103–123
- Matej S, Žižak Ž, Antić Stanković J, Prijatelj M, Turk S, Juranić Z, Mlinarić Raščan I, Gobec S: Cinnamic Acid Derivates Induce Cell Cycle Arrest in Carcinoma Cell Lines, *Medicinal chemistry*, 2013, vol 9 (5), 633-641
- Erić Slavica, Ke Song, Barata Teresa, Solmajer Tom, Antić Stanković Jelena, Juranić Zorica, Savić Vladimir, Zloh Mire: Target fishing and docking studies of the novel derivatives of aryl-aminopyridines with potential anticancer activity, *Biorganic & medical chemistry*, 2012, vol 20 (17), 5220-5228
- Stanić Vojislav, Dimitrijević Suzana, Antić-Stanković Jelena, Mitrić Miodrag, Jokić Bojan, Plečaš Ilija, Raičević Slavica: Synthesis, characterization and antimicrobial activity of copper and zinc-doped hydroxyapatite nanopowders, *Applied surface science*, 2010, 256 (20), 6083-6089
- Mirjana Antonijević-Nikolić, Jelena Antić-Stanković, Branka Dražić, Sladjana Tanasković, New macrocyclic Cu(II) complex with bridge terephthalate: synthesis, spectral properties, *in vitro* cytotoxic and antimicrobial activity. Comparison with related complexes, *J Mole Struct.* 2018, ISSN 0022-2860, <https://doi.org/10.1016/j.molstruc.2018.10.027>
- Cirković I, Božić DD, Draganic V, Lozo J, Berić T, Kojic M, Arsic B, Garalejic E, Djukic S, Stankovic S. Lichenocin 50.2 and Bacteriocins from *Lactococcus lactis* subsp. *lactis* biovar. *diacetylactis* BGBU1-4 inhibit biofilms of coagulase negative *Staphylococci* and *Listeria monocytogenes* clinical isolates. *PLoS One.* 2016; 11(12):e0167995. doi: 10.1371/journal.pone.0167995.
- Samardžić S, Arsenijević J, Božić D, Milenković M, Tešević V, Maksimović Z. Antioxidant, anti-inflammatory and gastroprotective activity of *Filipendula ulmaria* (L.) Maxim. and *Filipendula vulgaris* Moench. *Journal of Ethnopharmacology* 2018;213:132-137. DOI 10.1016/j.jep.2017.11.013
- Cirković I, Pavlović B, Božić DD, Jotić A, Bakić Lj, Milovanović J. Antibiofilm effects of topical corticosteroids and intranasal saline in patients with chronic rhinosinusitis with nasal polyps depend on bacterial species and their biofilm-forming capacity. *Eur Arch Otorhinolaryngol* 2017 274:1897–1903. DOI 10.1007/s00405-017-4454-6
- Cirković I, Jocić D, Božić DD, Djukic S, Konstantinovic N, Radak Dj. The Effect of Vacuum-Assisted Closure Therapy on Methicillin-Resistant *Staphylococcus aureus* Wound Biofilms. *ADV SKIN WOUND CARE* 2018; 31(8):361-364.
- Usjak D, Ivković B, Božić DD, Boslović L, Milenković M. Antimicrobial activity of novel chalcones and modulation of virulence factors in hospital strains of *Acinetobacter baumannii* and *Pseudomonas aeruginosa*. *Microbial Pathogenesis* 2019; 131:186-196.
- Božić DD, Milenković MT, Ivković BM, Larsen AR, Čirković IB. Inhibitory effect of newly-synthesized chalcones on hemolytic activity of methicillin-resistant *Staphylococcus aureus*. *Polish Journal of Microbiology* 2015; 64 (4): 379-382.
- Miljković M, Jovanović S, O'Connor PM, Mirković N, Jovčić B, Filipić B, Dinic M, Studholme DJ, Fira D, Cotter PD, Kojic M. *Brevibacillus laterosporus* strains BGSP7, BGSP9 and BGSP11 isolated from silage produce broad spectrum multi-antimicrobials. *PLoS One.* 2019 May 10;14(5):e0216773. doi: 10.1371/journal.pone.0216773. PMID: 31075157; PMCID: PMC6510442.
- Lukić J, Strahinić I, Jovčić B, Filipić B, Topisirović L, Kojić M, Begović J. Different roles for lactococcal aggregation factor and mucin binding protein in adhesion to gastrointestinal mucosa. *Appl Environ Microbiol.* 2012 Nov;78(22):7993-8000.

Ostali radovi:

Repozitorijum Farmaceutskog fakulteta - FarFaR ([link](#))



ISTRAŽIVAČKA GRUPA PROF. DR VLADIMIR SAVIĆ



ORGANSKA HEMIJA

Naslov istraživačke teme:	Nove sintetske metodologije i njihova primena u sintezi prirodnih i biološko aktivnih jedinjenja
Članovi tima:	Dr Vladimir Savić, redovni profesor Dr Milena Simić, vanredni profesor Dr Miloš Petković, vanredni profesor Dr Gordana Tasić, docent Dr Miloš Jovanović, asistent Dr Predrag Jovanović, docent Dr Zorana Tokić Vujošević, vanredni profesor Mag. Farm. Mladen Koravović
Oprema i metode:	Bruker Avance 400 (400 MHz NMR) Synthetic organic chemistry
Projekti/finansiranje:	Design and synthesis of Hsp90 PROTAC degraders as potential anticancer agents (StJude) Next generation DNA encoded libraries platform (Totient)
Saradnje:	St Jude Children Research Hospital, Memphis, USA Totient, Beograd
Odabrane publikacije	Cyclative Cascades of Allenamides Derived from Amino Acids: Synthesis of Annulated Indoxyl Derivatives; Milos Petkovic, Veselin Nasufovic, Dimitrije Djukanovic, Zorana Tokic Vujosevic, Milka Jadranin, Radomir Matovic, Vladimir Savic; Eur. J. Org. Chem. 2016, 1279–1282 Stereocontrolled Synthesis of Highly Substituted trans α,β -Unsaturated Ketones with Potent Anticancer Properties from Glycals; Predrag Jovanovic, Milos Petkovic, Milena Simic, Milos Jovanovic, Gordana Tasic, Marija Djordjic Crnogorac, Zeljko Zizak, Vladimir Savic; Eur. J. Org. Chem. 2019, 4701–4709 Proline Derived Bicyclic Derivatives through Metal Catalysed Cyclisations of Allenes: Synthesis of Longamide B, Styisine D and their Derivatives; Milos Jovanovic, Milos Petkovic, Predrag Jovanovic, Milena Simic, Gordana Tasic, Slavica Eric, Vladimir Savic; Eur. J. Org. Chem. 2020, 295–305

Ostali radovi:

Repozitorijum Farmaceutskog fakulteta - FarFaR ([link](#))



ISTRAŽIVAČKA GRUPA PROF. DR BILJANA SPREMO-POTPAREVIĆ



P A T O B I O L O G I J A

Naslov istraživačke teme:	Evaluacija stepena DNK oštećenja i parametara oksidativnog stresa u izmenjenim fiziološkim uslovima i različitim patološkim stanjima
Članovi tima:	Dr Biljana Spremo-Potparević, redovni profesor Dr Lada Živković, vanredni profesor Dr Dijana Topalović, asistent Marija Bruić, istraživač saradnik
Oprema i metode:	Laboratorija za rad sa ćelijskim kulturama i aparatura za komet test (horizontalna elektroforeza) Metoda komet testa za praćenje DNK oštećenja i procene efikasnosti reparacije oštećenja, u različitim vrstama ćelija.
Projekti/finansiranje:	Institucionalno finansiranje putem Ugovora sa MPNTR-om, evidencioni br. 451-03-9/2021-14/200161.
Saradnje:	Fakultet Veterinarske Medicine UB; Institut za Medicinska Istraživanja UB; Institut za Nuklearne Nauke „Vinča“; INEP-Zemun; Univ. PM, Ancona, Italy; King Abdullah University of Science and Technology, SA; UTSA-Dept. of Biology, Texas, USA





ISTRAŽIVAČKA GRUPA

PROF. DR BILJANA SPREMO-POTPAREVIĆ

Odabrane publikacije

Antigenotoxic and antioxidant potential of medicinal mushrooms (Immune Assist) against DNA damage induced by free radicals-an *in vitro* study.

Živković L, Bajić V, Bruić M, Borozan S, Popić K, Topalović D, Santibanez J, Spremo-Potparević B. *Mutat Res.* 2019 Sep;845:403078. doi: 10.1016/j.mrgentox.2019.06.008. Epub 2019 Aug 1.

Dry olive leaf extract attenuates DNA damage induced by estradiol and diethylstilbestrol in human peripheral blood cells *in vitro*.

Topalović D, Dekanski D, Spremo-Potparević B, Pirković A, Borozan S, Bajić V, Stojanović D, Giampieri F, Gasparini M, Živković L. *Mutat Res.* 2019 Sep;845:402993. doi: 10.1016/j.mrgentox.2018.12.001. Epub 2018 Dec 21.

The X Files: "The Mystery of X Chromosome Instability in Alzheimer's Disease".

Bajic VP, Essack M, Zivkovic L, Stewart A, Zafirovic S, Bajic VB, Gojobori T, Isenovic E, Spremo-Potparevic B. *Front Genet.* 2020 Jan 28;10:1368. doi: 10.3389/fgene.2019.01368. eCollection 2019. PMID: 32047510 Free PMC article. Review.

Review: cell cycle aberrations and neurodegeneration.

Bonda DJ, Bajić VP, Spremo-Potparevic B, Casadesus G, Zhu X, Smith MA, Lee HG. *Neuropathol Appl Neurobiol.* 2010 Apr;36(2):157-63. doi: 10.1111/j.1365-2990.2010.01064.x. Epub 2010 Jan

Surface-modified TiO₂ nanoparticles with ascorbic acid: Antioxidant properties and efficiency against DNA damage *in vitro*.

Bajić V, Spremo-Potparević B, Živković L, Čabarkapa A, Kotur-Stevuljević J, Isenović E, Sredojević D, Vukoje I, Lazić V, Ahrenkiel SP, Nedeljković JM. *Colloids Surf B Biointerfaces.* 2017 Jul 1;155:323-331. doi: 10.1016/j.colsurfb.2017.04.032. Epub 2017 Apr 14. PMID: 28448902





ISTRAŽIVAČKA GRUPA PROF. DR GORDANA LEPOSAVIĆ



P A T O B I O L O G I J A

Naslov
istraživačke
teme:

Plastičnost imunskog sistema tokom starenja: imunomodulatorni potencijal estrogena

Članovi tima:

Dr Gordana Leposavić, redovni profesor
Dr Nevena Arsenović-Ranin, redovni profesor
Dr Zorica Stojić-Vukanić, redovni profesor
Dr Biljana Bufan, vanredni profesor
Dr Mirjana Nacka-Aleksić, docent
Dr med. Jasmina Đuretić, saradnik u nastavi
Dr med. Marija Stojanović, saradnik u nastavi

Oprema i
metode:

Real-time PCR za specifično određivanje i kvantifikaciju nukleinskih kiselina u ćelijama i tkivima.
Protočni citofluorimetar za imunofenotipizaciju, određivanje broja i vijabilnosti ćelija, ćelijskog ciklusa i funkcije ćelija.
Inkubator sa CO₂ i laminarna komora za *in vitro* rad sa ćelijskim i tkivnim kulturama.
Čitač za mikrotitar ploče za enzimske imunotestove (ELISA).

Projekti/
finansiranje:

Institucionalno finansiranje putem Ugovora sa MPNTR-om, evidencioni br. 451-03-9/2021-14/200161.

Saradnje:

U okviru programa saradnje srpske nauke sa dijasporom, saradnja sa Institutom za neurodegenerativne bolesti, Univerziteta u Bordou, Francuska





ISTRAŽIVAČKA GRUPA PROF. DR GORDANA LEPOSAVIĆ

Odabrane publikacije

Pilipović I, Stojić-Vukanić Z, Prijčić I, Jasnić N, Leposavić Gordana. Propranolol diminished severity of rat EAE by enhancing immunoregulatory/protective properties of spinal cord microglia. *Neurobiology of Disease* 2020, 134: 104665. <https://doi.org/10.1016/j.nbd.2019.104665>

Dimitrijević M, Arsenović-Ranin N, Kosec D, Bufan B, Nacka-Aleksić M, Pilipović I, Leposavić G. Sexual dimorphism in Th17/Treg axis in lymph nodes draining inflamed joints in rats with collagen-induced arthritis. *Brain Behavior and Immunity* 2019, 76:198-214. doi: 10.1016/j.bbi.2018.11.311

Nacka-Aleksić M, Stojanović M, Pilipović I, Stojić-Vukanić Z, Kosec D, Leposavić G. Strain differences in thymic atrophy in rats immunized for EAE correlate with the clinical outcome of immunization. *PLoS ONE* 2018, 13(8): e0201848. doi: 10.1371/journal.pone.0201848

Stojić-Vukanić Z, Kotur-Stevuljević J, Nacka-Aleksić M, Kosec D, Vujnović I, Pilipović I, Dimitrijević M, Leposavić G. Sex Bias in Pathogenesis of Autoimmune Neuroinflammation: Relevance for Dimethyl Fumarate Immunomodulatory/Antioxidant Action. *Molecular Neurobiology* 2018, 55(5):3755-3774. doi: 10.1007/s12035-017-0595-2.

Živković I, Bufan B, Petrušić V, Minić R, Arsenović-Ranin N, Petrović R, Leposavić G. Sexual dimorphism in antibody response to whole virus trivalent inactivated influenza vaccine in outbred mice. *Vaccine* 2015, 33(42):5546-5552. doi: 10.1016/j.vaccine.2015.09.006.





ISTRAŽIVAČKA GRUPA PROF. DR DUŠANKA KRAJNOVIĆ



S O C I J A L N A F A R M A C I J A

Naslov
istraživačke
teme:

Istraživanje upotrebe lekova u kontekstu unapređenja farmaceutskih usluga i zdravstvenih ishoda kod pacijenata

Članovi tima:

Dr Dušanka Krajnović, redovni profesor
Dr Valentina Marinković, redovni profesor
Dr Ivana Tadić, vanredni profesor
Dr Marina Odalović, vanredni profesor
Dr Dragana Lakić, vanredni profesor
Dr Andrijana Milošević Georgiev, asistent
Mag. farm. Sofija Šesto, asistent
Mag. farm. Ivana Stević

Oprema i
metode:

Oprema: Software SPSS ver. 25, TreeAge
Metode: kvalitativna i kvantitativna istraživanja u farmaceutskoj praksi (uključujući farmakoepidemiološka, farmakoekonomska istraživanja, istraživanja upotrebe lekova i mnoga druga)

Projekti/
finansiranje:

Institucionalno finansiranje putem Ugovora sa MPNTR-om, evidencioni br. 451-03-9/2021-14/200161.
Farmaceutska usluga za pacijente sa dijabetesom – razvoj e-portala i mobilne aplikacije kao koncepta za podršku zasnovanog na potrebama korisnika / Fond za inovacionu delatnost Republike Srbije, Rukovodilac projekta dr. sc. Marina Odalović, vanr. prof.
COST CA 19132 „European network to advance best practices & technology on medication adherence“, 2020-2024
COST CA 19113 „The European Researchers' Network Working on Second Victims“, 2020-2024

Saradnje:

-Međunarodna saradnja i saradnja sa drugim akademskim institucijama:
Univerzitet medicinskih nauka u Kaunasu-Farmaceutski fakultet,
Univerzitet u Sarajevu-Farmaceutski fakultet,
Trinity collage Dublin-Farmaceutski fakultet,
Medicinski Univerzitet u Sofiji-Farmaceutski fakultet,
Karlov Univerzitet u Pragu-Farmaceutski fakultet,
Medicinski Univerzitet u Bukureštu-Farmaceutski fakultet
-Saradnja sa drugim akademskim institucijama:
Medicinski fakultet Univerziteta u Novom Sadu
-Saradnja sa drugim ministarstvima i organizacijama:
Farmaceutska komora Srbije, Privredna komora Srbije, Ministarstvo zdravlja,
Republički institut za javno zdravlje “Dr Milan Jovanović Batut“,
Agencija za akreditaciju zdravstvenih ustanova Srbije





ISTRAŽIVAČKA GRUPA PROF. DR DUŠANKA KRAJNOVIĆ

Odabrane publikacije

- Timic J, Kotur-Stevuljevic J, Boeing H, **Krajnovic D**, Djordjevic B, Sobajic S. A cross-sectional survey of salty snack consumption among Serbian urban-living students and their contribution to salt intake. *Nutrients* 2020; 12, 3290; doi:10.3390/nu12113290
- Krajnović D**, Jocić D. Experience and Attitudes Toward Informed Consent in Pharmacy Practice Research: Do Pharmacists Care? *Science and Engineering Ethics. Sci Eng Ethics* 2017; Dec;23(6):1529-1539. doi: 10.1007/s11948-016-9853-3. Epub 2016
- Krajnović D**, Ubavić S, Bogavac-Stanojević N. Pharmacotherapy Literacy and Parental Practice in Use of Over-the-Counter Pediatric Medicines. *Medicina* 2019; 55: 80. doi: 10.3390/medicina55030080
- Krajnović, D.**; Ubavić, S.; Bogavac-Stanojević, N. Pharmacotherapy Literacy of Parents in the Rural and Urban Areas of Serbia—Are There Any Differences? *Medicina* 2019; 55, 590. doi: 10.3390/medicina55090590
- M. Zekovic, M. Djekic-Ivankovic, M. Nikolic, M. Gurinovic, **D. Krajnovic**, and M. Glibetic. Validity of the Food Frequency Questionnaire Assessing the Folate Intake in Women of Reproductive Age Living in a Country without Food Fortification: Application of the Method of Triads. *Nutrients* 2017; Vol. 9, no. 2, p. 128.
- Stojković T, **Marinković V**, Manser T. Using Prospective Risk Analysis Tools to Improve Safety in Pharmacy Settings: A Systematic Review and Critical Appraisal. *Journal of Patient Safety* 2017, doi: 10.1097/PTS.0000000000000403
- Stojković T, **Marinković V**, Jaehde U, Manser T. Using Failure mode and Effects Analysis to reduce patient safety risks related to the dispensing process in the community pharmacy setting, *Research in Social & Administrative Pharmacy* (2016), doi: 10.1016/j.sapharm.2016.11.009.
- Helen M. Lloyd Inger Ekman, Heather L. Rogers, Vítor Raposo, Paulo Melo, **Valentina D. Marinkovic**, Sandra C. Buttigieg, Einav Sruлович, Roman Andrzej Lewandowski and Nicky Britten, Supporting Innovative Person-Centred Care in Financially Constrained Environments: The WE CARE Exploratory Health Laboratory Evaluation Strategy, *Int. J. Environ. Res. Public Health* 2020, 17(9), 3050; <https://doi.org/10.3390/ijerph17093050>
- Fialová D, Laffon B, **Marinković V**, Tasić L, Doro P, Sós G, Mota J, Dogan S, Brkić J, Teixeira JP, Valdiglesias V. Medication use in older patients and age-blind approach: narrative literature review (insufficient evidence on the efficacy and safety of drugs in older age, frequent use of PIMs and polypharmacy, and underuse of highly beneficial nonpharmacological strategies). *European Journal of Clinical Pharmacology*, 2019;75:451466.
- Stojkovic T, Rose O, Woltersdorf R, **Marinkovic V**, Manser T, Jaehde U. Prospective Systemic Risk Analysis of the Dispensing Process in German Community Pharmacies. *The International Journal of Health Planning and Management* 2017, doi: 10.1002/hpm.2479.
- Tripković K, Šantrić Miličević M, **Odalović M**. Gender Differences In Predictors Of Self-Medication With Tranquillizers And Sleeping Pills: Results Of The Population-Based Study In Serbia. *Zdr Varst.* 2020;59(1):47-56. DOI: 10.2478/sjph-2020-0007
- Ceulemans M, Lupattelli A, Nordeng H, **Odalović M**, Twigg M, Foulon V. Women's Beliefs about Medicines and Adherence to Pharmacotherapy in Pregnancy: Opportunities for Community Pharmacists? *Current Pharmaceutical Design* 2019; doi: 10.2174/1381612825666190321110420
- Tripković K, Nešković A, Janković J, **Odalović M**. Predictors of self-medication in Serbian adult population: cross-sectional study. *Int J Clin Pharm* 2018; DOI: 10.1007/s11096-018-0624-x
- Odalović M**, Milanković S, Holst L, Nordeng H, Heitmann K, Tasić Lj. Pharmacists counselling of pregnant women: Web-based, comparative study between Serbia and Norway. *Midwifery* 2016; Sept (40): 79–86.
- Odalović M**, Tadić I, Lakić D, Nordeng H, Lupattelli A, Tasić Lj. Translation and Factor Analysis of Structural Models of the Edinburgh Postnatal Depression Scale in Pregnant and Postpartum Serbian women - Web-based Study. *Womens Birth* 2015. 28(3):e31-35
- Lakić D**, Stević I, **Odalović M**, Vezmar-Kovacevic S, **Tadić I**. Patients' willingness to pay for cognitive pharmacist services in community pharmacies. *Croat Med J* 2017; 58 (5): 364-71
- Kamusheva M, Manova M, Savova AT, Petrova GI, Mitov G, Harsányi A, Kalo Z, Márky K, Kawalec P, Angelovska B, **Lakić D**, Tesar T, Draganic P, Geitona M, Hatzikou M, Paveliu MS, Männik A. Comparative analysis of legislative requirements about patients' access to biotechnological drugs for rare diseases in Central and Eastern European Countries. *Frontiers in Pharmacology* 2018; 9: 795
- Milenković J, **Lakić D**. Analysis of the economic situation of the south east European pharmaceutical industry, *J Med Econ* 2020; 23(9): 932-9.
- Costa FA, Scullin C, Al-Taani G, Hawwa AF, Anderson C, Bezverhni Z, Binakaj Z, Cordina M, Foulon V, Garcia de Bikuña B, de Gier H, Granás AG, Grinstova O, Griese-Mammen N, Grincevicius J, Grinceviciene S, Kaae S, Kubiliene L, Mariño EL, Martins S, Modamio P, Nadin G, Nørgaard LS, Obarcanin E, **Tadić I**, Tasić L, McElnay JC, Hersberger KE, Westerlund T. Provision of pharmaceutical care by community pharmacists across Europe: Is it developing and spreading? *J Eval Clin Pract*. 2017;23(6):1336-47.
- Novak H, **Tadić I**, Falamić S, Ortner Hadžabiđić M. Pharmacists' role, work practices, and safety measures against COVID-19: A comparative study. *J Am Pharm Assoc.* 2021; 61 (4): 398-407.
- Pavlov-Dolijanovic S, Vujasinovic Stupar N, Zugic V, Ostojic P, Zekovic A, Zivanovic Radnic T, Jeremic I, **Tadić I**. Long-term effects of immunosuppressive therapy on lung function in scleroderma patients. *Clin Rheumatol.* 2018;37(11):3043-50.
- Tadić I**, Vujasinovic Stupar N, Tasić L, Stevanovic D, Dimić A, Stamenkovic B, Stojanovic S, Milenkovic S. Validation of the osteoporosis quality of life questionnaire QUALEFFO-41 for the Serbian population. *Health Qual Life Outcomes* 2012;10:74.
- Tadić I**, Stevanovic D, Tasić LJ, Vujasinovic-Stupar N. Development of a Short Version of the Osteoporosis Knowledge Assessment Tool. *Women Health* 2012;52(1):18-31.
- Dragana Lakić**, Ljiljana Tasić, Mitja Kos, Guenka Petrova, Assena Stoimenova, **Dušanika Krajnović**. Pharmacy network and access to medicines in selected eastern European countries: comparative analysis. *Croatian Medical Journal* 2012; 53: 53-9

Ostali radovi:

Repozitorijum Farmaceutskog fakulteta - FarFaR ([link](#))



ISTRAŽIVAČKA GRUPA PROF. DR BILJANA ANTONIJEVIĆ



T O K S I K O L O G I J A

Naslov
istraživačke
teme:

Toksikologija smeša – Procena rizika po zdravlje ljudi

Članovi tima:

Dr Biljana Antonijević, redovni profesor
Dr Zorica Bulat, redovni profesor
Dr Danijela Đukić-Ćosić, vanredni profesor
Dr Marijana Ćurčić, docent
Dr Aleksandra Buha Đorđević, docent
Dr Evica Antonijević Miljaković, asistent
Katarina Baralić
Dragana Javorac

Oprema i
metode:

Atomski apsorpcioni spektrofotometar
UV-Vis spektrofotometri
GC/TCD
Mikrotalasna pećnica
Derek Nexus softver
PROAST softver
@RISK softver

Projekti/
finansiranje:

Institucionalno finansiranje putem Ugovora sa MPNTR-om, evidencioni
br. 451-03-9/2021-14/200161.

Saradnje:

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Odabrane publikacije:

- Radovanović J, Antonijević B, Kolarević S, Milutinović-Smiljanić S, Mandić J, Vuković-Gačić B, Bulat Z, Ćurčić M, Kračun-Kolarević M, Sunjog K, Kostić-Vuković J. Genotoxicity of Fluoride Subacute Exposure in Rats and Selenium Intervention. *Chemosphere* 2020, 128978. <https://doi.org/10.1016/j.chemosphere.2020.128978>
- Baralić K, Živancević K, Javorac D, Buha Djordjević A, Anđelković M, Jorgovanović D, Antonijević B, Miljaković E, Curčić M, Bulat Z, Antonijević B, Đukić-Cosić D. Multi-strain probiotic ameliorated toxic effects of phthalates and bisphenol A mixture in Wistar rats. *Food and Chemical Toxicology* 2020; 143: 111540.
- Baralić K, Jorgovanović D, Živančević K, Miljaković EA, Antonijević B, Djordjević AB, Ćurčić M, Đukić-Ćosić D. Safety assessment of drug combinations used in COVID-19 treatment: in silico toxicogenomic data-mining approach. *Toxicology and Applied Pharmacology*. 2020; 406:115237.
- Javorac D, Grahovac L, Manić L, Stojilković N, Anđelković M, Bulat Z, Đukić-Ćosić D, Curčić M, Djordjević AB. An overview of safety assessment of the medicines currently used in the treatment of COVID-19 disease. *Food and Chemical Toxicology*. 2020:111639.
- David R. Wallace, Yasmeen M. Taalab, Sarah Heinze, Blanka Tariba Lovakovic, Alica Pizent, Elisavet Renieri, Aristidis Tsatsakis, Ammad Ahmad Farooqi, Dragana Javorac, Milena Andjelkovic, Zorica Bulat, Biljana Antonijević, Aleksandra Buha Djordjević. Toxic-Metal-Induced Alteration in miRNA Expression Profile as a Proposed Mechanism for Disease Development. *Cells* 2020; 9, 901; doi:10.3390/cells9040901.
- Hernandez AF, Buha A, Constantin C, Wallace DR, Sarigiannis D, Neagu M, Antonijević B, Hayes AW, Wilks MF, Tsatsakis A. Critical assessment and integration of separate lines of evidence for risk assessment of chemical mixtures. *Archives of Toxicology* 2019; 93(10): 2741-57.
- Andjelkovic M, Buha-Djordjevic A, Antonijević E, Antonijević B, Stanić M, Kotur-Stevuljević J, Spasojević-Kalimanovska V, Jovanović M, Borčić N, Wallace D, Bulat Z. Toxic Effect of Acute Cadmium and Lead Exposure in Rat Blood, Liver, and Kidney. *International Journal of Environmental Research and Public Health* 2019;16(2):274.
- Antonijević E, Musilek K, Kuca K, Djukić-Cosić D, Andjelković M, Buha Djordjević A, Antonijević B. Comparison of oximes K203 and K027 based on Benchmark dose analysis of rat diaphragmal acetylcholinesterase reactivation. *Chemico-Biological Interactions* 2019; 308(): 385-91 <https://doi.org/10.1016/j.cbi.2019.05.034>.
- Milic J, Curčić M, Brnjas Z, Carapina H, Randjelović J, Krinulović K, Jovović A. The socio-economic impact timeline in Serbia for persistent organic pollutants (POPs). *Science of the total environment*. 2019;688:486-93.
- Antonijević E, Musilek K, Kuca K, Djukić-Cosić D, Curčić M, Miladinović DC, Bulat Z, Antonijević B. DOSE-RESPONSE modeling of reactivating potency of oximes K027 and K203 against a direct acetylcholinesterase inhibitor in rat erythrocytes. *Food Chem Toxicol* 2018; 121:224-30.
- Sljivić Husejnović M, Bergant M, Janković S, Zizek S, Smajlović A, Softić A, Music O, Antonijević B. Assessment of Pb, Cd and Hg soil contamination and its potential to cause cytotoxic and genotoxic effects in human cell lines (CaCo-2 and HaCaT). *Environ Geochem Health* 2018; 40(4):1557-1572. <https://doi.org/10.1007/s10653-018-0071-6>
- Antonijević E, Kotur Stevuljević J, Musilek K, Kosvancova A, Kuca K, Djukić-Cosić D, Spasojević Kalimanovska V, Antonijević B. Effect of six oximes on acutely anticholinesterase inhibitor induced oxidative stress in rat plasma and brain. *Arch Toxicol* 2018; 92(2):745-757.
- Curčić M, Buha A, Stanković S, Milovanović V, Bulat Z, Đukić-Ćosić D, Antonijević E, Vučinić S, Matović V, Antonijević B. Interactions between cadmium and decabrominated diphenyl ether on blood cells count in rats—Multiple factorial regression analysis. *Toxicology* 2017, 376: 120-125.

Ostali radovi:

Repozitorijum Farmaceutskog fakulteta - FarFaR ([link](#))





ISTRAŽIVAČKA GRUPA

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T O K S I K O L O G I J A

Naslov istraživačke teme: Endokrini ometači – Toksikologija smeša

Članovi tima: Dr Aleksandra Buha Đorđević, docent
Dr Zorica Bulat, redovni profesor
Dr Danijela Đukić-Ćosić, vanredni profesor
Dr Evica Antonijević-Miljković, asistent
Mag. farm.-med. biohem. Katarina Baralić, istraživač saradnik
Mag. farm. Dragana Javorac, istraživač saradnik
Dr Stefan Mandić-Rajčević, saradnik u nastavi (Medicinski fakultet, Univerzitet u Beogradu)

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Eksterni saradnici/doktorandi:
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Vera Bonderović, istraživač pripravnik

Oprema i metode: Atomski apsorpcioni spektrofotometar
UV-Vis spektrofotometri
Mikrotalasna pećnica
PROAST softver
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Projekti/finansiranje: „Istraživanje uloge ekspozoma u endokrinom zdravlju“
(br. projekta 6066532) Program za izvrsne projekte mladih istraživača – PROMIS;
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Odabrane publikacije

Buha A, Baralić K, Djukic-Cosic D, Bulat Z, Tinkov A, Panieri E, Saso L. The role of toxic metals and metalloids in NrF2 signaling. *Antioxidants*. 2021, <https://doi.org/10.3390/antiox10050630>

Buha A, Đukić-Ćosić D, Ćurčić M, Bulat Z, Antonijević B, Moulis JM, Goumenou M, Wallace D. Emerging Links between Cadmium Exposure and Insulin Resistance: Human, Animal, and Cell Study Data. *Toxics* 2020, 8, 63.

Baralić K, Buha Djordjevic A, Živančević K, Antonijević E, Anđelković M, Javorac D, Ćurčić M, Bulat Z, Antonijević B, Đukić-Ćosić D. Toxic Effects of the Mixture of Phthalates and Bisphenol A—Subacute Oral Toxicity Study in Wistar Rats. *Int. J. Environ. Res. Public Health* 2020, 17(3), 746.

Nurchi VM, Djordjevic Buha A, Crisponi G, Alexander J, Bjørklund G., Aaseth J. Arsenic Toxicity: Molecular Targets and Therapeutic Agents. *Biomolecules* 2020, 10, 235.

Wallace DR, Taalab YM, Heinze S, Tariba Lovaković B, Pizent A, Renieri E, Tsatsakis A, Farooqi AA, Javorac D, Andjelkovic M, Bulat Z, Antonijević B, Buha Djordjevic A. Toxic-Metal-Induced Alteration in miRNA Expression Profile as a Proposed Mechanism for Disease Development. *Cells* 2020, 9, 901.

Buha, A., Jugdaohsingh, R., Matovic, V., Bulat, Z., Antonijevic, B., Kerns, J.G., Goodship, A., Hart, A., Powell, JJ. Bone mineral health is sensitively related to environmental cadmium exposure-experimental and human data, *Environ Res* 2019, 176 108539

Djordjevic V, Wallace DR, Schweitzer A, Boricic N, Knezevic Dj, Matic S, Grubor N, Kerkez M, Radenkovic D, Bulat Z, Antonijevic B, Matovic V, Buha A. Environmental cadmium exposure and pancreatic cancer: Evidence from case control, animal and *in vitro* studies. *Environ Int* 2019, 128: 353-361.

Karaulov AV, Renieri EA, Smolyagin HI, Mikhaylova IV, Stadnikov AA, Begun DN, Tsarouhas K, Buha Djordjevic A, Hartung T, Tsatsakis A. Long-term effects of chromium on morphological and immunological parameters of Wistar rats. *Food and Chem Toxicol* 2019, 133 110748

Hernandez AF, Buha A, Constantin C, Wallace DR, Sarigiannis D, Neagu M, Antonijevic B, Hayes AW, Wilks, MF, Tsatsakis A. Critical assessment and integration of separate lines of evidence for risk assessment of chemical mixtures. *Arch Toxicol*. 2019, 93(10):2741-2757.

Andjelkovic M, Buha Djordjevic A, Antonijevic E, Antonijevic B, Stanic M, Kotur-Stevuljevic J, Spasojevic-Kalimanovska V, Jovanovic M, Boricic N, Wallace DR, Bulat Z. Toxic Effect of Acute Cadmium and Lead Exposure in Rat Blood, Liver, and Kidney. *International Journal of Environmental Research and Public Health* 01/2019; 16(2):274.

Buha A, Matovic V, Antonijevic B, Bulat Z, Curcic M, Renieri EA, Tsatsakis AM, Schweitzer A, Wallace D. Overview of Cadmium Thyroid Disrupting Effects and Mechanisms. *Int. J. Mol. Sci.* 2018, 19(5), 1501.



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