

10th IAPC Meeting
Tenth World Conference on
Physico-Chemical Methods in Drug Discovery
&
Sixth World Conference on ADMET and DMPK



Book of
Abstracts



September 4-6, 2023 :: Belgrade, Serbia

10th IAPC Meeting

*Tenth World Conference on Physico-Chemical Methods in Drug Discovery
&*

*Sixth World Conference on ADMET and DMPK
Belgrade, Serbia, September 4-6, 2023*

Book of Abstracts

Organized by

International Association of Physical Chemists

&

Faculty of Chemistry, University of Belgrade, Serbia

Published by

International Association of Physical Chemists

E-mail: office@iapchem.org, URL: <http://www.iapchem.org>

For Publisher

Zoran Mandić

Editor

Tatjana Verbić & Zoran Mandić

Design, page making and computer layout

Aleksandar Dekanski

On Line version only

The Scientific and Organizing Committee:

Tatjana Verbić, Conference Chair
University of Belgrade, Serbia,

Alex Avdeef
ADME Research, New York, USA

Kiyohiko Sugano
Ritsumeikan University, Osaka, Japan

Kin Tam
University of Macau, Macau

Zoran Mandić
University of Zagreb, Croatia

Klara Valko
Biomimetic chromatography Ltd. UK

Godefridus J. Peters
Amsterdam University Medical Centers, The Netherlands

Hong Wan
WHDeX Consulting AB, Sweden

Local Organizing Committee

Tatjana Verbić, Conference Chair
University of Belgrade, Faculty of Chemistry, Serbia

Goran Roglić
University of Belgrade, Faculty of Chemistry, Serbia

Ilija Cvijetić
University of Belgrade, Faculty of Chemistry, Serbia

Miloš Pešić
University of Belgrade, Faculty of Chemistry, Serbia

Olivera Marković
University of Belgrade, Institute of Chemistry, Technology and Metallurgy, Serbia

Aleksandar Dekanski
University of Belgrade, Institute of Chemistry, Technology and Metallurgy, Serbia

Marija Popović Nikolić
University of Belgrade, Faculty of Pharmacy, Serbia

Organization of IAPC-10 Meeting is supported by



Ministry of Science, Technological
Development and Innovation
of the Republic of Serbia

Sponsors and Exhibitors



Nenad M. Kostić
Fund for Chemical Sciences



Granny's
Secret

Bakina
Tajna



SUPERLAB[®]
Your lab - Our passion



ADMET



P 26

¹H-NMR-based serum metabolomics of bipolar disorder patients

Nataša Avramović^{1,*}, Katarina Simić², Zoran Miladinović³, Nina Todorović²,
Snežana Trifunović⁴, Aleksandra Gavrilović⁵, Silvana Jovanović⁵, Dejan Gođevac²,
Ljubodrag Vujisić⁴, Vele Tešević⁴, Ljubica Tasić⁶, Boris Mandić⁴

¹University of Belgrade-Faculty of Medicine, Institute of Medical Chemistry, Višegradska
26, 11000 Belgrade, Serbia

²Institute of Chemistry, Technology and Metallurgy, National Institute, University of
Belgrade, Studentski trg 12-16, 11000 Belgrade, Serbia

³Institute of General and Physical Chemistry, Studentski trg 12-16, 11158 Belgrade, Serbia;

⁴University of Belgrade - Faculty of Chemistry, Studentski trg 12-16, 11000 Belgrade, Serbia

⁵Special Hospital for Psychiatric Diseases "Kovin", Cara Lazara 253, 26220 Kovin, Serbia

⁶Institute of Chemistry, Organic Chemistry Department, State University of Campinas,
Campinas 13083-970, SP, Brazil

*Correspondence: natasa.avramovic@med.bg.ac.rs

Bipolar disorder (BD) is a mental disorder that causes alteration of mood states including mania, depression, and euthymia and it is ranked as one of the leading causes of disability and premature mortality, with a prevalence of 60 million people worldwide. BD is a heterogenous illness including diverse genetic, environmental, and biochemical factors and its pathophysiology is still largely unknown. Diagnosis of BD exclusively depends on the subjective recognition of symptoms without any objective methods such as a clinical test of biomarker identification, instigating misdiagnosis, inadequate treatments and deficient clinical outcomes. ¹H-NMR-based serum metabolomics of Serbian patients with BD (33) and healthy controls (39) contributed to identification of 22 metabolites for this disease. Threonine, aspartate, gamma-aminobutyric acid, 2-hydroxybutyric acid, serine, and mannose make a unique biomarker set, and were confirmed for the first time in BD Serbian serum samples. Additional six identified metabolites (3-hydroxybutyric acid, arginine, lysine, tyrosine, phenylalanine, and glycerol) are in accordance with the previously determined NMR-based sets of serum BD biomarkers in Brazilian and/or Chinese patient samples, while nine identified metabolites (lactate, alanine, valine, leucine, isoleucine, glutamine, glutamate, glucose, and choline) are the same established biomarkers in three different ethnic and geographic origins (Serbia, Brazil, and China). The same confirmed metabolites are an indicator of the right path in discovery of the universal set of BD biomarkers by NMR.