

FEBS3+ MEETING

24th - 27th September

Hotel M / Belgrade



Serbia, Croatia, Hungary,
Slovenia, Bosnia and Herzegovina

” ADVANCES IN MOLECULAR BIOSCIENCES:
FROM GENES TO PERSONALIZED THERAPIES ”

SUPPORTED BY >



FEDERATION OF EUROPEAN
BIOCHEMICAL SOCIETIES



BOOK OF ABSTRACTS

ORGANIZED BY >



Хемијски факултет
Универзитет у Београду



HDBMB
Hrvatsko društvo za biokemiju
i molekularnu biologiju



SLOVENIAN
BIOCHEMICAL
SOCIETY



UBMB U BIH
ABMB IN B&H



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SESSION TOPICS

1. MOLECULAR EVOLUTION

2. SYSTEMS BIOLOGY AND BIOINFORMATICS

3. REGULATION OF GENE EXPRESSION

4. BIOMARKERS AND THERAPEUTICS DEVELOPMENT

5. MOLECULAR BASIS OF DISEASE

6. DESIGN AND STRUCTURE OF PROTEINS

7. GENETICS

8. BIOTECHNOLOGY

9. BIOACTIVE COMPOUNDS AND METABOLISM

10. CELLULAR PROCESSES AND SIGNALING



DAY 1

WEDNESDAY 24th September 2025

13:00 - 14:30



REGISTRATION

14:30 - 15:00

OPENING CEREMONY



15:00

FEBS

15:15

PRESENTATION



15:15

FEBS EDUCATION LECTURE

Chairpersons:

16:00

**Natalija Polović /Serbia,
Nino Sinčić /Croatia**

Ferhan Sagin /Turkey

Publish or perish? Zoom or doom?
Rethinking the future of research
and education

16:00

PLENARY LECTURE

Chairperson:

17:00

Beata Lontay /Hungary

Balázs Papp /Hungary

Leveraging genomic surveillance
to understand and combat antibiotic resistance

TOPIC 1

17:00

MOLECULAR EVOLUTION

Chairpersons:

18:00

**Marta Popović /Croatia,
Bálint Csörgő /Hungary**

TOPIC 2

**SYSTEMS BIOLOGY
AND BIOINFORMATICS**

Chairpersons:

**Attila Csikász-Nagy /Hungary,
Radivoje Prodanović /Serbia**

17:00

> Damir Baranašić /Croatia

17:30

Sequence determinants of
transcription initiation and promot-
er architecture in vertebrates

> Attila Csikász-Nagy /Hungary

From yeast cells to digital twins:
Charting cellular networks for
disease and drug discovery

17:30

> Bálint Csörgő /Hungary

18:00

Molecular tools for probing
bacteriophage-host interactions
in clinical pathogens

> Abdurahim Kalajdžić /BIH

Innovations in bioinformatics tools for
the analysis of archeogenomics data



18:00
-
18:30

INDUSTRY LECTURE
ANALYSIS

Luka Mihajlović
Recent advances in HRAM-based -omics

19:00 - 20:30



WELCOME RECEPTION



DAY 2

THURSDAY 25th September 2025

09:00
-
10:00

PLENARY LECTURE
Chairperson:
Boris Rogelj /Slovenia

Jernej Ule /Slovenia
Collective homeostasis of condensation-prone proteins via their mRNAs

10:00
-
11:00

TOPIC 3

**REGULATION OF GENE
EXPRESSION**

Chairpersons:
Igor Stuparević /Croatia,
Ágnes Tantos /Hungary

TOPIC 4

**BIOMARKERS AND
THERAPEUTICS DEVELOPMENT**

Chairpersons:
Nino Sinčić /Croatia,
Tamara Saksida /Serbia

10:00
-
10:30

> **Erna Karalija /BIH**
Priming the future: Harnessing plant memory for climate-resilient crops

> **Olga Gornik /Croatia**
N-glycosylation of complement component 3 (C3) as a potential target in type 1 diabetes

10:30
-
11:00

> **Rosa Karlić /Croatia**
Decoding the interplay between the epigenome and mutational processes in cancer

> **Jelena Vekić /Serbia**
Aspects of cardiometabolic risk in women: focus on pregnancy

11:00 - 11:30



COFFEE BREAK



11:30
-
13:30

SHORT TALK SESSION 1

SHORT TALK SESSION 2

11:30 > **Mehmet Gümüş /Turkey**
11:45 SACM1L modulates autophagic flux,
cellular dynamics and
PI3K-AKT-mTOR signalling
in MCF7 breast cancer cells

> **Isidora Protić-Rosić /Austria**
Redirected killing of allergen-specific
CD4⁺ T cells by pMHC class II
CAR NK-92 cells

11:45 > **Agnes Tantos /Hungary**
12:00 Structural and functional effects of
disease-related mutations of
KMT2D

> **Zorana Lopandić /Serbia**
Glycoengineered H1sD2 as a novel
immunomodulatory agent for
enhancing allergen-specific immu-
notherapy

12:00 > **Buse Ceyda Öncel, Turkey**
12:15 Transcriptome analysis of propranolol
and labetalol applied sensitive
and doxorubicin-resistant breast
cancer cells

> **Loretta Laszlo /Hungary**
Stage-Dependent Remodeling of the
RAS Network in Colon Adenocarci-
noma

12:15 > **Belmina Šarić Medić /BIH**
12:30 In silico functional assessment and
molecular interaction modeling of
antimicrobial agents

> **Matilda Šprung /Croatia**
Quinuclidine-based quaternary
ammonium compounds: a natural
scaffold for antimicrobial innovaion

12:30
-
13:30

PLENARY LECTURE

Chairperson:

Marija Gavrović Jankulović
/Serbia

Ana Cvejić /Denmark

Single-cell multi-omics map of human
foetal blood in Down syndrom

13:30 - 16:00

LUNCH AND POSTER PRESENTATIONS

13.30

> **LUNCH**



14:00
-
16:00

- > POSTER SESSION 1 : **Biomarkers and therapeutics development /Molecular basis of disease**
- > POSTER SESSION 2 : **Biotechnology/Genetics**



16:00
-
16:30

INDUSTRY LECTURE LKB

Aleksandra Kukhareva
Simplified tagged protein purification and removal

16:30
-
17:30

TOPIC 5

MOLECULAR BASIS OF DISEASE

Chairpersons:
Boris Rogelj /Slovenia,
Nino Sinčić /Croatia

TOPIC 6

DESIGN AND STRUCTURE OF PROTEINS

Chairpersons:
Marta Popović /Croatia,
Roman Jerala /Slovenia

16:30
-
17:00

> **Naida Lojo-Kadrić /BIH**
Genetic basis of coronavirus associated dysosmia and dysgeusia

> **Gregor Anderluh /Slovenia**
Engineering of protein nanopore for sensing applications

17:00
-
17:30

> **Damjana Rozman /Slovenia**
Integrative omics for biomarker discovery in metabolic associated steatotic liver disease and hepatocellular carcinoma

> **Natalija Polović /Serbia**
Amyloids - from pathological protein aggregates to promising nanomaterials

17:30
-
18:30

SHORT TALK SESSION 3

SHORT TALK SESSION 4

17:30
-
17:45

> **Alma Herić /BIH**
Monitoring a patient with suspected myelodysplastic syndrome - case report

> **Eszter Nagy-Kanta /Hungary**
Insights on the interaction between the postsynaptic GKAP and Shank scaffold proteins

17:45
-
18:00

> **Antonija Jurak Begonja /Croatia**
Interleukin-1 alpha alters megakaryocyte maturation, promotes emperipolesis, and induces a distinct proteomic profile

> **Albert Pál /Hungary**
Engineering non-CG specific DNA methyltransferases for functional studies of epigenetic regulation

18:00
-
18:15

> **Tamara Saksida /Serbia**
Connecting brain and gut inflammation in the murine model of Alzheimer's disease

> **Natalija Andrejević /Serbia**
Unraveling the human serum albumin aggregation pathway: Structural insights into the amyloid/amorphous aggregation shift and oligomerization potential modulated by physiological ligands and thiol content



18:15
18:30

> **Özlem Darcansoy İşeri / Turkey**
Cellular and gene regulatory effects of genistein on docetaxel sensitive and resistant breast cancer cells

> **Mujo Hasanović /BIH**
Seed priming of *Solanum lycopersicum* with *Paraburkholderia phytofirmans* PsJN enhances nickel stress response and induces intergenerational transcriptomic modulation

20:00 - 23:00



CONGRESS **DINNER**



DAY 3

FRIDAY 26th September 2025

09:00
10:00

PLENARY LECTURE

Chairperson:

Antonija Jurak Begonja /Croatia

Ivan Mijaković /Sweden

Molecular biology meets nanotechnology: promise of personalized medicine

10:00
11:00

TOPIC 7

GENETICS

Chairpersons:

Emina Kiseljaković /BIH
Đorđe Miljković /Serbia

TOPIC 8

BIOTECHNOLOGY

Chairpersons:

Tanja Čirković Veličković /Serbia
Zoltan Lipinszki /Hungary

10:00
10:30

> **Lejla Kapur Pojskić /BIH**
Novel research insights into biological effects of halogenated boroxine (HB) reconfirm its antitumor potential

> **Balázs Enyedi /Hungary**
Illuminating leukocyte migration: Visualizing chemoattractant gradients with novel fluorescent probes

10:30
11:00

> **Uroš Potočnik /Slovenia**
Multi-omic biomarkers for personalized medicine and molecular mechanisms of non-response to biological drugs in chronic immune diseases

> **Marko Živanović /Serbia**
Electrospun scaffolds: Merging technology and biomedicine for scientific progress



11:00 - 11:30



COFFEE BREAK

11:30
-
12:30

SHORT TALK SESSION 5

- 11:30
-
11:45
- > **Anita Skakić /Serbia**
CRISPR/Cas9 and iPSC-based platforms to explore pathophysiology and therapeutic approaches in glycogen storage disease type Ib

- 11:45
-
12:00
- > **Cecile Otten /Croatia**
ACRC/GCNA is an essential protease which repairs DNA-protein crosslinks during embryonic development

- 12:00
-
12:15
- > **Anja Pišlar /Slovenia**
Multifunctional roles of γ -enolase in the central nervous system: More than a neuronal marker

- 12:15
-
12:30
- > **Arshi Arshi /Hungary**
Effects of 2-deoxyglucose and diclofenac sodium on MCF7 cell lines

SHORT TALK SESSION 6

- > **Luka Blagojević /Serbia**
Characterisation and recombinant expression of a thermostable endoglucanase from *Bacillus velezensis* for lignocellulosic biomass hydrolysis

- > **Tina Vida Plavec /Slovenia**
Engineering *Lactococcus cremoris* for recombinant protein packaging into extracellular vesicles

- > **Nina Tiršo /BIH**
Melatonin modulates lipid metabolism in a rat model of testosterone-induced polycystic ovary syndrome: Comparison with metformin and combination therapy

- > **Mario Stojanović /Croatia**
Toll-like receptors as a missing link in Notch signaling cascade during neurodevelopment

12:30
-
13:30

PLENARY LECTURE

Chairperson:

Lejla Kapur Pojskić /BIH

Lada Lukić Bilela /BIH

Lightless, not lifeless: Extreme habitats as sources of novel bioactive molecules



13:30 - 16:00

LUNCH AND POSTER PRESENTATIONS

13.30

> **LUNCH**



14:00
-
16:00

> **POSTER SESSION 3**

Design and structure of proteins/Regulation of gene expression/Systems biology and bioinformatics

> **POSTER SESSION 4**

Bioactive compounds and metabolism/Cellular processes and signalling

**16:00
-
17:00**

TOPIC 9

BIOACTIVE COMPOUNDS AND METABOLISM

Chairpersons:

**Nataša Poklar Ulrih /Slovenia
Suzana Jovanović Šanta /Serbia**

TOPIC 10

CELLULAR PROCESSES AND SIGNALING

Chairpersons:

**Igor Stuparević /Croatia
Antonija Jurak Begonja /Croatia**

16:00
-
16:30

> **Zita Bognár /Hungary**

Comparison of mitochondrial and antineoplastic effects of amiodarone and desethylamiodarone in cancer lines

> **Mirta Boban /Croatia**

Degradation-mediated protein quality control in quiescent cells

16:30
-
17:00

> **Ivana Beara /Serbia**

Wine polyphenols: occurrence and biological activity as a biochemical aspect of wine quality

> **Tea Lanišnik Rižner /Slovenia**

From biomarker discovery to molecular mechanisms: omics approaches in endometriosis

**17:00
-
17:30**

SHORT TALK SESSION 7

17:00
-
17:15

> **Cene Skubic /Slovenia**

Sterol specific regulation of hepatic signaling distinct roles of lanosterol, desmosterol and lathosterol in liver cell fate and signaling

SHORT TALK SESSION 8

> **Snježana Jurić /Slovenia**

Nanobodies Uncouple Florigen Binding to Membranes and THF1



17:00 - 17:15 > **Dragica Mićanović /Serbia**
The mechanism of action of HYCO-3, an Nrf2 activator/CO releaser hybrid, in inhibiting autoimmune disease development in mouse models

> **Milena Zlatanova /Serbia**
Proteolytically active allergen Act d 1 induces inflammation via TLR4 receptor cleavage

17:15 - 17:30 > **Berfin Doğa Koçkaya /Turkey**
Investigation of the effects of selected miRNAs using bioinformatics approaches on AHNAK protein regulation in drug-resistant breast cancer cells

> **Lana Vujica /Croatia**
Understanding the ecotoxicological role of the Oatp1d1 transmembrane transporter using a zebrafish (Danio rerio) Oatp1d1 mutant line

18:00 - 20:00

SLOVENIAN BIOCHEMICAL SOCIETY SESSION

Chairpersons:

**Gregor Anderluh /Slovenia,
Marija Gavrović – Jankulović /Serbia**

18:00-18:30 > **Igor Križaj /Slovenia**
From snake venom to therapy: A novel drug candidate for short-term thrombosis prevention

18:30-19:00 > **Iva Hafner Bratkovič /Slovenia**
NLRP3 inflammasome and pyroptosis: from mechanisms to applications

19:00-19:30 > **Tina Lebar /Slovenia**
Homology-guided engineering of tyrosine recombinase DNA specificities

19:30-19:45 > **Boštjan Petrič /Slovenia**
Alzheimer's dementia and paraoxonase 1: Why it pays off to measure enzyme kinetics and not just activities

20:00 - 21:00

CLOSING CEREMONY



*Genetics*

Caveolin-1 as potential biomarkers of prostate cancer: Evidence from Serbian population

Suzana Matijašević Joković¹, Aleksandra Korać², Sanja Kovačević³, Ana Đorđević³, Lidija Filipović⁴, Zorana Dobrijević⁵, Duška Savić-Pavičević⁴, Ivan Vuković⁶, Milica Popović⁷, Goran Brajušković⁴

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4 Innovative Centre, Faculty of Chemistry, University of Belgrade, Belgrade, Serbia

5 Institute for the Application of Nuclear Energy—INEP, Department for Metabolism, University of Belgrade, Belgrade, Serbia;

6 Clinic of Urology, Clinical Center of Serbia, Faculty of Medicine, University of Belgrade, Belgrade, Serbia;

7 Faculty of Chemistry, University of Belgrade, Belgrade, Serbia

contact: suzana.matijasevic@bio.bg.ac.rs

KEYWORDS: exosomes, liquid biopsy, prostatic hyperplasia

Caveolin-1, a membrane scaffolding protein, plays a key role in regulating cell proliferation, migration, and angiogenesis. Its overexpression in prostate cancer (PCa) cells is significantly associated with increased tumor aggressiveness. The aim of this study was to investigate whether caveolin-1, found in plasma-derived exosomes, could serve as a liquid biopsy biomarker for PCa.

Exosomes were isolated from plasma samples of 39 patients with PCa and 33 patients with benign prostatic hyperplasia (BPH), used as the control group, using the Total Exosome Isolation Kit (from plasma) according to the manufacturer’s instructions. Morphological characterization of the isolated exosomes was performed using transmission electron microscopy (TEM), scanning electron microscopy (SEM), nanoparticle tracking analysis (NTA), and flow cytometry. Western blot analysis confirmed the presence of the typical exosomal marker CD63, as well as caveolin-1 in plasma exosomes. The results showed no statistically significant difference in exosomal caveolin-1 levels between PCa and BPH patients ($p=0.349$). However, when PCa patients were stratified according to standard prognostic parameters and tumor aggressiveness scores, the relative protein levels differed between subgroups.





Genetics

Caveolin-1 as potential biomarkers of prostate cancer: Evidence from Serbian population

Suzana Matijašević Joković¹, Aleksandra Korać², Sanja Kovačević³, Ana Đorđević³, Lidija Filipović⁴, Zorana Dobrijević⁵, Duška Savić-Pavičević⁴, Ivan Vuković⁶, Milica Popović⁷, Goran Brajušković⁴

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6 Clinic of Urology, Clinical Center of Serbia, Faculty of Medicine, University of Belgrade, Belgrade, Serbia;

7 Faculty of Chemistry, University of Belgrade, Belgrade, Serbia

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Notably, exosomal caveolin-1 levels were significantly higher in PCa patients with elevated PSA levels ($p=0.033$), clinical stage T3 or T4 ($p=0.0083$), and in those with aggressive PCa ($p=0.0061$), compared to patients with favorable clinicopathological features. These findings suggest that while exosomal caveolin-1 may not distinguish PCa from BPH overall, it holds promise as a non-invasive biomarker for identifying aggressive forms of prostate cancer, warranting further investigation.

ORCID: Suzana Matijašević Joković <https://orcid.org/0000-0001-9825-2588>, Ana Đorđević <https://orcid.org/0000-0002-7042-1631>, Lidija Filipović <https://orcid.org/0000-0002-5036-8562>, Zorana Dobrijević <https://orcid.org/0000-0002-4652-7719>, Milica Popović <https://orcid.org/0000-0002-3681-2153>, Goran Brajušković <https://orcid.org/0000-0002-3935-6755>.



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