



Scientific research activity of doctoral students

Active participation in scientific conferences and seminars

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2025

Congress of the Slovak Gynecological and Obstetrical Society SLS 2025

The XXXI Congress of the Slovak Gynecological and Obstetrical Society SLS was held from **May 15 to 17, 2025**, in Dom Umenia in Košice. The event ranks among the most significant professional meetings in gynecology and obstetrics in Slovakia and annually provides a platform for presenting the latest knowledge from both clinical practice and biomedical research. The main scientific topics of the congress included gynecological oncology, perinatology, ultrasound diagnostics, and reproductive medicine. The professional guarantor of the event was prof. MUDr. Peter Urdzík, PhD., MPH.



Congress of the Slovak Gynecological and Obstetrical Society SLS 2025

a) Nicole Fabianová b) Monika Švecová c) Gabriela Kováčová d) (from left) Monika Švecová, Nicole Fabianová, Gabriela Kováčová e) (from left) Assoc. Prof. Toporcerová, Prof. Rabajdová, Dr. Balasičová, Monika Švecová, Gabriela Kováčová, Nicole Fabianová

Doctoral students and staff members of the department actively participated in the congress, presenting the results of their research through oral presentations and commented electronic posters.

Oral presentation:

- **prof. RNDr. Miroslava Rabajdová, PhD.:** Reproductive Health in the 21st Century: Research, Development, and Education

Commented e-posters:

- **Mgr. Gabriela Kováčová:** Vascular Growth Factors as Key Mediators of the Progression of Endometrioid Pathologies of the Female Reproductive Tract
- **RNDr. Monika Švecová, PhD.:** Predictive Models and Educational Strategies in the Modulation of Reproductive Health
- **Mgr. Nicole Fabianová, MHA:** Hyaluronans in Reproduction and Their Role in the Modulation of Endometrial Receptivity

A significant achievement of the department was an award in the poster section. Mgr. Gabriela Kováčová received **2nd place in the poster section** at the XXXI Congress of the Slovak Gynecological and Obstetrical Society SLS. Participation in the congress enabled the department to present its scientific research results to the



professional community, fostered expert discussion, and created opportunities to establish new professional collaborations in reproductive medicine and gynecological oncology. The event also strengthened the link between research and clinical practice and disseminated the latest diagnostic and therapeutic approaches in the care of women's reproductive health.

Global Reproduction, Fertility and Gynecology Conference 2025

We are pleased to announce that our doctoral student, **Mgr. Eva Kriváková** participated in the Global Reproduction, Fertility and Gynecology Conference (GRFG 2025), which was held on **April 29–30** in Vienna, Austria, under the auspices of the United Research Forum.



Global Reproduction, Fertility and Gynecology Conference 2025

Her lecture, entitled “The Role of Hyaluronic Acid Metabolism in Endometrial Receptivity: Insights from RNA-seq Analyses and Cellular Models,” was recognized with an **official Certificate of Recognition** from the conference organizers. The certificate was personally presented to her by Maria Veronica Lopez from Argentina.

Biochemistry Congress of Czech and Slovak Societies for Biochemistry & Molecular Biology

The **FEBS3+ Meeting: XXVIIIth Biochemistry Congress of Czech and Slovak Societies for Biochemistry and Molecular Biology** was held from **September 7 - 10, 2025**, in Prague, Czech Republic, at the National Library of Technology. The congress was dedicated to the 70th anniversary of the founding of the original Czechoslovak Biochemical Society, and its motto was “Unlocking the Secrets of Life.”



Research results presentation

Department of Medical and Clinical Biochemistry



Doctoral students and staff members from our department also presented their research at the congress:

- Oral presentation: **RNDr. Monika Švecová, PhD.:** “Combined Urine and Serum Fluorescence Profiling Using Machine Learning for Non-invasive Detection of Endometrial Cancer.” In addition to her lecture, Monika also actively served as a **co-chair of the session focused on artificial intelligence**.
- Poster presentation: **Mgr. Peter Artimovič:** “Machine Learning and Network-Based Transcriptomics Reveal Impaired Regulatory Patterns in Recurrent Implantation Failure.” The poster was presented in the **bioinformatics and structural biology section**.



XXVIIIth Biochemistry Congress of Czech and Slovak Societies for Biochemistry and Molecular Biology.

a) lecture by Monika Švecová b) poster presentation by Peter Artimovič c) (from left) Monika and Peter

Participation in the congress represented an important opportunity to present the department’s research results to the international scientific community, supported the exchange of scientific knowledge, and stimulated intensive discussions on the application of machine learning in biomedical research. The scientific level of the event was further highlighted by the participation of several globally recognized personalities, including Nobel Prize laureate **Paul Nurse** and the distinguished scientist and expert on the history of Nobel Prizes **Erling Norrby**, which created a unique environment for discussing current research trends at the highest international standards.

The event was held under the auspices of the closely cooperating **Czech and Slovak Societies for Biochemistry and Molecular Biology**, which built upon a shared scientific tradition established in 1956 and has long provided a stable platform for connecting research communities of both countries and supporting the development of international scientific collaboration.

Interactive Conference of Young Scientists 2025

The 17th edition of the **Interactive Conference of Young Scientists Preveda 2025** took place from **May 22 to June 30, 2025**, in the form of online presentations and expert discussions. The event annually provides a unique platform for doctoral students and young researchers to present their scientific results, engage in professional debate, and receive feedback from reviewers and the wider scientific community. The conference brought together more than 100 young researchers from Slovakia and abroad and confirmed the high scientific quality of the contributions presented across several areas of both basic and applied research.



- **Mgr. Peter Artimovič:** Multidisciplinary Approach to the Study of Uterine Endometrial Receptivity
- **MUDr. Ema Macejková:** Analysis of microRNAs Associated with Tissue Response in Acute Limb Ischemia

An outstanding achievement was recorded by **Mgr. Peter Artimovič**, who became one of the two main laureates of the **Preveda Award 2025**. He received the award in the biochemistry section, where his study impressed the expert jury with its high scientific quality, interdisciplinary character, and innovative methodological approach to issues in reproductive medicine.



Awards for the contributions of Peter Artimovič and Ema Macejková

Another significant recognition was received by **MUDr. Ema Macejková**, in collaboration with Peter Artimovič, whose contribution was awarded in the Basic and Clinical Medicine section, confirms the importance of their research for understanding the molecular mechanisms of serious vascular diseases and their clinical consequences.

The conference once again confirmed its position as an important platform for supporting the young scientific community, increasing research visibility, and fostering professional collaborations. Participation in the event provided young researchers with valuable experience in presenting scientific results, strengthened their professional profiles, and supported their integration into the broader scientific community.

Assisted Reproduction Congress

The **Assisted Reproduction Congress** was held on **November 11–12, 2025**, in **Brno, Czech Republic**. The event is considered an important professional meeting for specialists in reproductive medicine, embryology, gynecology, and molecular biology of reproduction. The scientific program focused on modern diagnostic and therapeutic approaches in assisted reproduction, experimental models for studying embryo implantation, and new insights into the molecular mechanisms regulating reproductive processes. Doctoral students and departmental staff members presented their research results as posters.

Poster contributions by doctoral students:

- **Mgr. Nicole Fabianová, MHA:** Modeling Receptivity: Advancing In Vitro Endometrial Models from 2D Monolayers to 3D Approaches
- **Mgr. Eva Kriváková:** The Importance of Hyaluronic Acid in Embryo Implantation: Insights from the Reanalysis of Bulk and Single-cell RNA-seq Data

Poster contribution by department staff:

- **prof. RNDr. Miroslava Rabajdová, PhD.:** Reproductive Health, Education and Digital Trends in Slovakia

The poster presentations brought new insights into experimental models of endometrial receptivity, the molecular regulation of embryo implantation, and the interdisciplinary integration of reproductive medicine



with digital technologies and education. The presented results stimulated expert discussions on the use of innovative in vitro models, transcriptomic analyses, and data-driven approaches in the research of fertility disorders. Participation in the event strengthened professional collaboration with institutions specializing in assisted reproduction and enabled the exchange of experience between clinical and experimental research.



Assisted Reproduction Congress.

a) Nicole Fabianová b) (from left) Nicole Fabianová, Prof. Rabajdová, Eva Kriváková c) Eva Kriváková

International Medical Doctoral Conference 2025

The **International Medical Doctoral Conference (IMDC)** was held from **November 19 to 21, 2025**, in **Hradec Králové, Czech Republic**. The event is considered an important international scientific meeting for doctoral students in medicine and provides a platform for presenting current research results, fostering professional collaboration, and exchanging knowledge among young researchers.

The research team actively participated in the conference by presenting results focused on immune regulation disorders, transcriptomic profiling, and mechanisms of endometrial receptivity with an emphasis on their translational relevance in reproductive medicine. The following scientific contributions were presented:

- **Mgr. Peter Artimovič:** Cross-tissue Transcriptomics Identifies Immune Crosstalk Connecting Psoriasis and Recurrent Implantation Failure
- **Mgr. Eva Kriváková:** Role of Hyaluronic Acid Metabolism in Endometrial Receptivity: Insights from RNA-seq and Cellular Models

A significant achievement was the **2nd place in the poster section**, awarded to **Mgr. Eva Kriváková** for her research focused on the role of hyaluronic acid metabolism in endometrial receptivity.

The conference provided a high-quality platform for expert discussion, presentation of scientific results, and the establishment of interdisciplinary collaborations. The event strengthened international scientific contacts and supported further research in reproductive medicine.



International Medical Doctoral Conference 2025.

a) poster presentation by Peter Artimovič b) poster presentation by Eva Kriváková c) award of Eva Kriváková

LABKVALITA 2025

The professional conference **LABKVALITA 2025** was held from **October 5 to 7, 2025**, in **Demänovská Dolina, Slovakia**. The event represents an important professional forum in the field of laboratory diagnostics and clinical biochemistry, focusing on the presentation of new scientific findings, methodological approaches, and innovative technologies used in diagnostic laboratories. The program included expert lectures, scientific presentations, and discussions focused on modern analytical approaches, improving the quality of laboratory testing, and implementing research findings into clinical practice.

The research team actively contributed to the event by presenting several scientific contributions focused on reproductive medicine, molecular diagnostics, and advanced analytical methods:

- **Mgr. Nicole Fabianová, MHA:** Testing Endometrial Receptivity under Laboratory Conditions: Comparison of Cytometric Techniques in the Evaluation of 2D Models
- **Mgr. Eva Kriváková:** Testing Endometrial Receptivity under Laboratory Conditions: Comparison of Cytometric Techniques in the Evaluation of 2D Models
- **Mgr. Peter Artimovič:** Highly Sensitive Detection of miRNA in Culture Medium Using Upconversion Nanoparticles
- **MSc. Jana Lukáčová:** From Separation to Mass Spectrometry: Optimization of a Method for Detailed Analysis of Lipoproteins and Lipids

The contributions presented were published in the peer-reviewed professional journal “Laboratórna diagnostika”, intended for specialists working in clinical and diagnostic laboratories. Participation in the conference contributed to the presentation of current research results, strengthened professional collaboration, and supported the exchange of experience among institutions working in the field of laboratory medicine.



LABKVALITA 2025.

a) poster presentation by Peter Artimovič b) poster presentation by Nicole Fabianová c) (from left) Peter Artimovič, Jana Lukáčová, Nicole Fabianová

Izakovič Memorial 2025

The **35th Izakovič Memorial** was held from **October 8 to 10, 2025**, in **Starý Smokovec, Slovakia**. The conference is considered an important scientific meeting focused on medical genetics, molecular biology, and biomedical research. The event provides a platform for presenting the latest scientific findings, fostering professional collaboration, and exchanging experiences among research institutions.

The research team actively participated in the conference by presenting contributions focused on molecular mechanisms in reproductive medicine and experimental biomedicine:

- **prof. RNDr. Miroslava Rabajdová, PhD.:** Molecular Dynamics of Hyaluronic Acid during Implantation: Correlation of RNA-seq Analyses and In Vitro Models of Receptive Endometrium
- **RNDr. Ivana Tóthová, PhD.:** Molecular Mechanisms of the Zn-NSAID Complex: Impact on Mitochondrial Dysfunction in Endometriotic Cells

A significant achievement of the department was the receipt of several scientific awards:

- The **Best Oral Presentation Award** was granted to **Prof. RNDr. Miroslava Rabajdová, PhD.** for her presentation on the molecular dynamics of hyaluronic acid during implantation and its relationship with transcriptomic analyses and experimental endometrial models.
- The **Best Poster Presentation Award** was awarded to **RNDr. Ivana Tóthová, PhD.** for her research on the molecular mechanisms of the Zn-NSAID complex and its impact on mitochondrial dysfunction in endometriosis cells.





Izakovič Memorial 2025 a) lecture by Prof. Rabajdová b) (from left) Dr. Tóthová, Prof. Rabajdová c) Best Oral Presentation Award presented to prof. Rabajdová d) Best Poster Presentation Award presented to Dr. Tóthová e) poster presentation by Dr. Tóthová

2024

Young Oncologists Competition 2024

During the Cancer Research Day on **12 March 2024**, the Cancer Research Foundation organized the 9th edition of the **Young Oncologists Competition**. The aim of this event was to bring together young enthusiasts in oncology research and to provide them with an opportunity to publicly present their interests and the results of their scientific work. Participants competed in three categories: university students, PhD students, and young researchers under 35. The competition in the PhD student category was particularly engaging this year, with a record number of 27 PhD students from across Slovakia taking part. Each participant had 10 minutes to present their contribution, followed by 5 minutes of discussion led by the evaluation committee. The panel was prestigiously composed of leading experts in the field of oncology, including prof. MUDr. Dalibor Ondruš, DrSc. as chairman, Mgr. Gabriela Pavlíková, PhD., MUDr. Mária Rečková, PhD., RNDr. Jana Jakubíková, PhD., doc. RNDr. Zora Lasabová, PhD., and doc. RNDr. Rastislav Jendželovský, PhD.

Among the participants were **two** of our **PhD students** – RNDr. **Monika Švecová** and RNDr. **Ivana Večurkovská**. Both were praised for their scientific presentations and engaged in meaningful discussions with the committee.

Monika Švecová, with her presentation titled “**Fluorescence Metabolomics: A New Approach to Endometrial Cancer Diagnosis**,” achieved **third place** in the PhD student category. This event, highlighting the importance of cancer research, not only supports young scientists in their career development but also offers hope that Slovak science, despite challenging conditions, has capable successors. The Cancer Research Foundation thus successfully motivates young people to pursue scientific work and provides them with an invaluable opportunity to engage in mutual communication and knowledge sharing in oncology. The doctoral students had the chance to hear many significant scientific contributions, meet other PhD candidates working in oncology, and establish new connections.



Young Oncologists Competition 2024 a) (from left) Monika Švecová, Ivana Večurkovská, PharmDr. Dominik Kl'oc (Department of Pharmacology, FM UPJŠ), MUDr. Lea Balážová (Department of Radiotherapy and Oncology FM UPJŠ), Mgr. Martina Mečiaková (Department of Medical Biochemistry, JLF UK), Ing. Marek Bajtoš (Department of Theoretical Electrical Engineering and Biomedical Engineering, UNIZA) b) doctoral student's awards (from left) Professor Ondruš, Monika Švecová (3rd place), Mgr. Aneta Ševčíková (1st place, Institute of Experimental Oncology, BMC SAV), Mgr. Lenka Trnková (2nd place, Institute of Experimental Oncology, BMC SAV) c) group photo of the PhD section d) Ivana Večurkovská and Monika Švecová

Spring school of doctoral students 2024

The 10th Annual Spring School for Doctoral Students at Pavol Jozef Šafárik University in Košice was held from **June 4 to June 6, 2024**, at the Congress Centre of the Slovak Academy of Sciences – Academia in **Stará Lesná**. This university-wide event aimed to support the quality of doctoral education across all faculties and disciplines, including the social sciences, humanities, medical, natural, mathematical, and information sciences. It fostered interdisciplinarity, knowledge exchange, and alignment of research with international trends.

The professional program featured five plenary lectures delivered by prominent experts from Pavol Jozef Šafárik University and Comenius University, as well as one workshop focused on developing research and academic competencies. The program also included a panel discussion with the UPJŠ leadership, which gave participants the chance to discuss key topics in doctoral studies. A total of 47 full-time doctoral students presented their ongoing research results – 23 in the medical and natural sciences section (Faculty of Medicine, Faculty of Science) and 24 in the social sciences and humanities section (Faculty of Law, Faculty of Public Administration, Faculty of Arts). The professional contributions were published in a peer-reviewed book of abstracts.

Five doctoral students from the Department of Medical and Clinical Biochemistry actively participated by giving oral presentations on their research findings on the following topics:

- RNDr. **Michaela Abrahamovská**: Molecular basis of angiogenesis in selected pathological conditions of the uterine endometrium
- Mgr. **Peter Artimovič**: Comparative analysis of hormonal modulation of selected endometrial epithelial cell lines
- Mgr. **Eva Kriváková**: Role of hyaluronic acid in endometrial receptivity
- MUDr. **Ivana Lukáčová**: Is it possible to predict embryo transfer success using 3D fluorescence analysis?



- MUDr. **Ester Tomajková**: Arg/Orn as a new biomarker of vasospasm after subarachnoid hemorrhage

The Spring School for Doctoral Students provided young researchers with a space for presentations, expert discussions, workshops, and the development of interdisciplinary collaborations, thus contributing to their academic and professional growth.



Spring School for Doctoral Students 2024. a) (from left) Pavol Harvanik (Department of Medical Biology, Faculty of Medicine), Frederika Chovancová (Department of Physical Chemistry, Faculty of Science), Eva Kriváková, Peter Artimovič, Dominik Kl'oc (Department of Pharmacology, Faculty of Medicine), Ivana Lukáčová, Šimon Salanci (Department of Pharmacology, Faculty of Medicine), Ester Tomajková b) Presentation of results by Peter Artimovič c) Presentation of results by Michaela Abrahamovská

Student Scientific International Conference GenICa

The **Student International Scientific Conference** in the **High Tatras**, held from **June 19 to 21, 2024**, under the auspices of the Dean of the Faculty of Medicine at Pavol Jozef Šafárik University, Prof. MUDr. Peter Jarčuška, PhD, was a significant contributor to the bilateral project “GenICa – Genomic Instability and Cancer.” The conference provided doctoral students and young researchers from Slovakia and Iceland with a unique opportunity to present their research projects, engage in expert discussions, and inspire one another.

From the Department of Medical and Clinical Biochemistry at the Faculty of Medicine, Pavol Jozef Šafárik University, **six doctoral students** actively participated in the conference. They presented the results of their research in English through 10-minute lectures, followed by 5-minute discussions.

The topics of their scientific presentation were:

- RNDr. **Marko Morávek**: A comparative analysis of conditioned medium and extracellular vesicles from osteoarthritic tissues and cells
- RNDr. **Monika Švecová**: Non-invasive cancer diagnostics utilizing 3D fluorescent analysis
- MUDr. **Ester Tomajková**: Calcitonine gene-related peptide as new potential biomarker of vasospasm after subarachnoid hemorrhage
- Mgr. **Eva Kriváková**: Role of hyaluronic acid in endometrial receptivity
- Mgr. **Peter Artimovič**: Effect of 17 β -estradiol on two endometrial epithelial cell lines with different expression of estrogen receptors



Research results presentation

Department of Medical and Clinical Biochemistry



- RNDr. Slavomíra Gulová: The pivotal role of synovitis in the pathogenesis of osteoarthritis



Student International Scientific Conference GenICa. a) Group photo of PhD students from the Faculty of Medicine, UPJŠ b) Presentation of scientific results by Eva Kriváková c) Group photo of all conference participants

The conference was enriched by invited international speakers – Dr. Jozef Madžo (Coriell Institute for Medical Research, USA), Dr. Júlia Starková (Second Faculty of Medicine, Charles University and Motol University Hospital, Prague), and Dr. Stefán Þórarinn Sigurðsson (University of Iceland), who delivered plenary lectures on current topics in the fields of epigenetics, metabolic changes in leukemia, and DNA repair mechanisms.

Thanks to the participation of several Icelandic students and researchers, our PhD students had the opportunity to establish new contacts, exchange experiences, and learn not only about their research activities but also about their culture and approach to scientific research in Iceland. The event significantly strengthened international cooperation and mutual understanding between the research communities of both countries. The conference was the result of a successful scientific and educational collaboration between the Faculty of Medicine of Pavol Jozef Šafárik University in Košice and the University of Iceland, coordinated by RNDr. Martina Šemeláková, PhD., from the Department of Medical Biology, Faculty of Medicine, UPJŠ.



Interactive conference of young scientists 2024

[The Interactive Conference of Young Scientists 2024](#), organized by the Civic Association PREVEDA, took place from **March 10 to June 30, 2024**, in the form of online presentations and discussions. This unique platform allows young researchers to present the results of their scientific studies, engage in professional dialogue, and receive feedback through comments and discussions under each contribution. From the Department of Medical and Clinical Biochemistry at the Faculty of Medicine, Pavol Jozef Šafárik University, three doctoral students participated in this year's conference with the following expert contributions:

- Mgr. **Peter Artimovič**: [Analysis of the impact of PPAR \$\gamma\$ on endometrial receptivity](#)
- RNDr. **Ivana Večurkovská**: [Does MMP-7 present a prognostic hope for cancer patients?](#)
- RNDr. **Monika Švecová**: [Fluorescence metabolomics and machine learning models in non-invasive cancer diagnostics](#)

We are pleased to report that two of our colleagues received prestigious awards for their contributions: RNDr. **Ivana Večurkovská** was awarded for an outstanding contribution in the **Biochemistry** section, and RNDr. **Monika Švecová** received the same award in the **Basic and Clinical Medicine** section. Both presentations stood out not only for their scientific quality and relevance but also for their professional execution and ability to spark expert discussion. The Interactive Conference of Young Scientists once again proved in 2024 to be a valuable initiative supporting the young scientific community in Slovakia. It provides a platform for showcasing research activities, establishing new contacts, and gaining feedback from colleagues across disciplines. For our doctoral students, it represents a significant experience that enriches their scientific journey and increases their visibility within the academic environment.



Awards for outstanding contributions by Ivana Večurkovská and Monika Švecová

Young Scientist's Forum and 48th FEBS 2024 Congress

The **23rd Young Scientists' Forum (YSF)** took place from **June 26 to 29, 2024**, in the historic city of Pavia, Italy, home to scientific luminaries such as Alessandro Volta and Albert Einstein. The event welcomed approximately 100 doctoral and postdoctoral researchers from the member societies of FEBS (Federation of European Biochemical Societies). YSF is recognized as an exceptional platform for early-career scientists to present their own research, develop professional skills, and build an international network of contacts.

From the Department of Medical and Clinical Biochemistry, RNDr. **Zuzana Badovská**, PhD, and Mgr. **Peter Artimovič** participated in the event, having been selected based on their successful application for the YSF FEBS fellowship, awarded to approximately 30% of applicants. The YSF program included lectures by renowned scientists, poster presentations, interactive workshops, and career development seminars covering topics such as scientific ethics, CV writing, laboratory documentation, and creativity

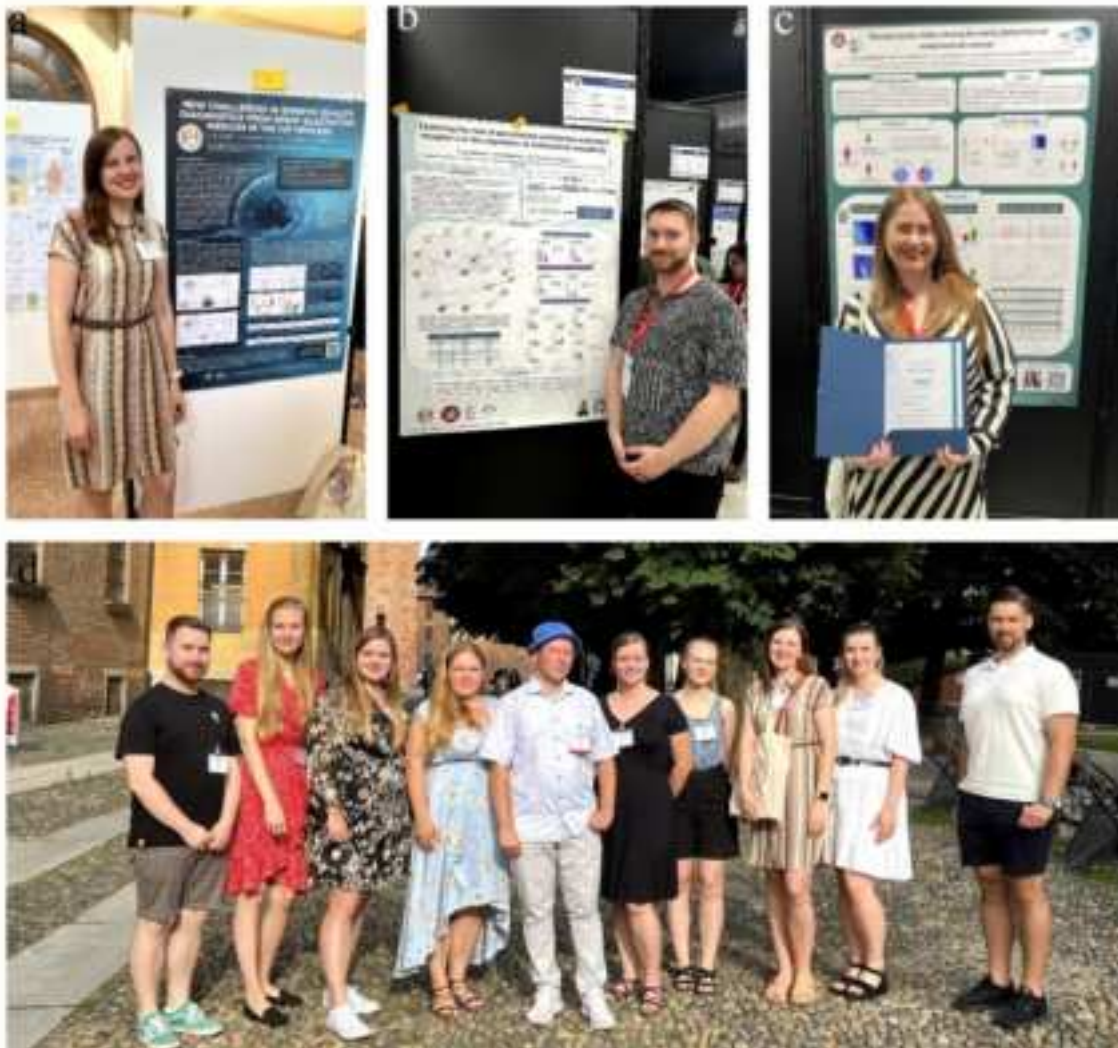


Research results presentation

Department of Medical and Clinical Biochemistry



in science. The social program contributed to informal networking among participants from various European countries.



Young Scientists' Forum 2024 and FEBS Congress 2024. a) poster presentation of Zuzana Badovská b) poster presentation of Peter Artimovič c) poster award of Monika Švecová d) group photo of Czech and Slovak young scientists at YSF 2024 with MUDr. Vlastimil Kulda, PhD

Immediately after the end of the YSF, the 48th FEBS Congress was held from **June 29 to July 4, 2024**, attended by Zuzana Badovská and Peter Artimovič as well as **three** other researchers from the department.

- Mgr. **Peter Artimovič**: Exploring the role of peroxisome proliferator-activated receptor γ in the regulation of endometrial receptivity
- RNDr. **Zuzana Badovská**, PhD.: New challenges in embryo quality diagnostics from spent blastocyst medium in the IVF process
- RNDr. **Lukáš Smolko**, PhD.: Zn(II) and Mn(II) flurbiprofenate complexes and their effects on endometrial, uterine and ovarian cell lines
- RNDr. **Ivana Špaková**, PhD.: Non-invasive detection of markers of embryo compatibility and maternal readiness in the IVF process
- RNDr. **Monika Švecová**: Metabolomic data mining for early detection of endometrial cancer

RNDr. **Monika Švecová** received two prestigious awards for her presentation – the FEBS Journal Prize for the best poster presentation of the day and, subsequently, the Grand Prize for the best poster of the entire congress, achieving extraordinary success and contributing to raising the visibility of our institution



at the international level. This important international recognition underscores the quality and innovativeness of our fluorescence research, while also proving that Slovak science can succeed at the highest level in global competition. Her success also underscores the importance of integrating biochemistry with analytical and computational techniques to address current biomedical challenges.

15th Congress of the Slovak Society of Clinical Biochemistry

The 15th Congress of the Slovak Society of Clinical Biochemistry (SSKB) was held from **October 6 to 8, 2024**, at the Chopok Congress Hotel in **Demänovská Dolina** in the Low Tatras. The event was held under the auspices of the European Federation of Clinical Chemistry and Laboratory Medicine and the Minister of Health of the Slovak Republic. This biennial congress brought together experts in clinical biochemistry to present new knowledge, share research findings, and promote collaboration.

The scientific program consisted of plenary lectures and a poster session, covering topics such as lipidology, pediatric biochemistry, sepsis markers, biomarkers in oncology, and decentralized diagnostics. Participants also had the opportunity to explore the latest technologies in laboratory diagnostics, presented by the congress's industry partners. The event was included in the Continuing Medical Education (CME) system, allowing participants to earn the corresponding credits. All scientific contributions were published in **Laboratórna diagnostika** – a peer-reviewed professional journal intended for professionals in diagnostic laboratories.

From the Department of Medical and Clinical Biochemistry at the Faculty of Medicine, Pavol Jozef Šafárik University, two doctoral students had the opportunity to present their original research work in the poster session:

- Mgr. **Peter Artimovič**: Integration of publicly available transcriptomic data in the analysis of endometrial receptivity
- Mgr. **Gabriela Kováčová**: Pilot study of biochemical parameters in patients undergoing cardiac surgery in relation to selected diseases



The 15th Congress of the Slovak Society of Clinical Biochemistry

International Medical Doctoral Conference 2024

The **International Medical Doctoral Conference (IMDC)** took place from **November 20 to 22, 2024**, at the Educational Center of the **Faculty of Medicine, Charles University in Hradec Králové, Czech Republic**. Established in 2005, the conference serves as a platform for doctoral students in medicine to present their research, foster international collaboration, and engage in scientific networking. The 21st edition of the conference included oral and poster presentations, workshops, and expert discussions focused on new challenges and opportunities in medicine. The event was held under the motto: *“Empowering PhD Research: New Challenges and Opportunities in Medicine.”*



From the Department of Medical and Clinical Biochemistry, Faculty of Medicine, Pavol Jozef Šafárik University, our doctoral student Mgr. **Peter Artimovič** had the opportunity to present his original research with a poster contribution titled “**Targeting PPAR γ in Endometrial Receptivity: Friend or Foe?**”

The event was supported by faculty and national grants, enabling doctoral students to participate free of charge, receive accommodation, and enjoy meals, thereby ensuring its accessibility and inclusivity. The conference abstracts were published in the form of a proceedings book and are available on the [official event website](#).

2023

Physiological Days

The 98th edition of the **Physiological Days conference** was held in Prague on **7-8 February 2023**, welcoming a wide range of experts from biomedical fields and providing a platform for the presentation of the latest scientific research. Among the distinguished participants of the conference was our PhD student, Mgr. **Ivana Večurkovská** (fig), whose doctoral paper was selected for an oral presentation of her thesis entitled "Comparative analysis of colorectal carcinoma using zymography," was included in the youth competition, sponsored by the Slovak Physiological Society.



Spring school of doctoral students 2023

The ninth conference of the university-wide **UPJŠ PhD Student Spring School** took place in Stará Lesná from **June 13 to 16, 2023**. This event has long supported the advancement of interdisciplinarity, the mutual exchange of knowledge, and the enhancement of the standard of PhD education at our university, while taking into consideration global trends. Expert lectures from academic faculty members and external experts were presented at this conference. As part of the scientific program, doctoral students presented their research results, with each PhD student having 10 minutes for the presentation and 5 minutes for discussion. Four doctoral students from the Department of Medical and Clinical Biochemistry UPJŠ LF gave oral presentations of their research findings on the following topics:

- RNDr. **Michaela Abrahamovská**: Antioxidant status of the corpus uteri endometrium in endometriosis and endometrial cancer
- Mgr. **Slavomíra Gulová**: Potential of extracellular vesicles isolated from blood plasma in osteoarthritis therapy
- RNDr. **Monika Švecová**: Comparative 3D fluorescence analysis as a prospective diagnostic tool for selected oncological diseases
- RNDr. **Ivana Večurkovská**: The role of urokinase and its inhibitor in the process of tumorigenesis



of colorectal cancer

- RNDr. **Ivana Večurkovská**: Matrix metalloproteinases as potential biomarkers of pancreatic cancer (co-author, first author and presenter – PhD student MUDr. Veronika Roškovičová 1st Department of Surgery UNLP)

The presented scientific contributions were published in the peer-reviewed book of abstracts. At this event, doctoral students had a unique opportunity to gain a different research perspective and to familiarize themselves with current research across various study programs. The opportunity to network with other PhD students across many scientific fields and to have fruitful discussions with them was an essential benefit of the Spring School for doctoral students 2023.



Spring school of doctoral students 2023 in Stará Lesná a) (from left) Ivana Večurkovská, Michaela Abrahamovská, Slavomíra Gulová, Monika Švecová, Veronika Roškovičová b) doctoral students with prof. MUDr. Pavol Jarčuška, PhD. c) group photo of the medical and natural sciences section

Young Scientist's Forum and 47th FEBS 2023 Congress

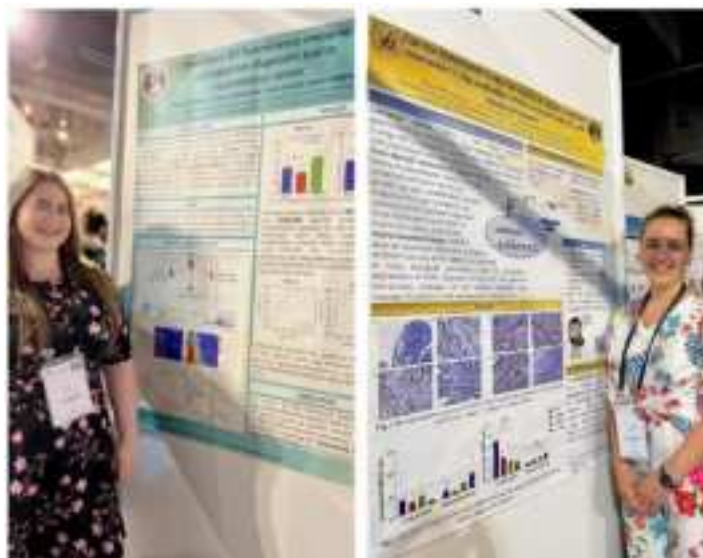
The 22nd edition of the **Young Scientists' Forum (YSF) conference took place on July 6-8, 2023, in Tours, a very historic and beautiful city on the banks of the Cher and Loire rivers in France.** The Young Scientists Forum is a popular event for around 100 PhD students and post-docs from FEBS constituent societies, held in conjunction with – and just before – the FEBS Annual Congress. YSF offers opportunities for participants to present their own research work, attend careers skills seminars, hear and meet keynote speakers and enjoy a social programme. The success rate for applicants supported by the YSF FEBS grant is approximately 30%. This year, thanks to this grant, **2 doctoral students** of the Department of Medical and Clinical Biochemistry participated: RNDr. **Ivana Večurkovská** and RNDr. **Monika Švecová**. The scientific program for this year included a number of scientific lectures by experts, doctoral students as well as a poster section. During the career seminars, they discussed with several experts the ethical aspects of publishing, professional writing of their laboratory journal, or going through the creation of a successful CV, as well as consulting their own CV. During the YSF, our doctoral students had many opportunities to build international contacts and meet doctoral students or postdoctoral fellows from different European countries.



Young Scientist's Forum 2023 a) group photo of YSF participants b) (left) Monika Švecová and Ivana Večurková (right) c) dinner in the Tours city center with PhD students

Subsequently, doctoral students also participated in the **47th FEBS Congress** (FEBS, Federation of European Biochemical Societies) in Tours from **July 8 to 12, 2023** under the motto "Together in Bioscience for a Better Future", organized by the French Society for Biochemistry and Molecular Biology. The main scientific program featured inspiring plenary lectures by prominent scientists in biochemistry, molecular biology, and related life sciences. FEBS congresses aim to be exemplary interdisciplinary meetings in the molecular life sciences for research presentation, discussion, learning, inspiration, and encouragement – with participants leaving with new research insights and ideas, and perhaps the start of international collaborations and friendships.

Both doctoral students presented the results of their work in the poster section at both of these conferences: RNDr. **Ivana Večurková** with the topic "Can the BDNF/MMP-9 ratio be used as a suitable prognostic biomarker in the evaluation of the survival of patients with colorectal cancer?", RNDr. **Monika Švecová**: "Comparative 3D fluorescence mapping as a prospective diagnostic tool in endometrial cancer". Abstracts of scientific results were included in the peer-reviewed abstract book for the YSF conference and published in a supplementary issue of FEBS Open Bio at the FEBS congress. The presented research was supported by the ongoing grants VEGA 1/0540/21 and VEGA 1/0435/23.



Poster session of scientific findings Monika Švecová (left) and Ivana Večurková (right)



Interactive conference of young scientists 2023

[The Interactive Conference of Young Scientists](#) is an online conference that provides young researchers with a high-quality platform to present their studies and results. In addition to presenting scientific papers, this conference fosters scientific dialogue through discussions under each contribution, creating space for consultation and the exchange of new knowledge. The following 6 PhDs from the Department of Medical and Clinical Biochemistry have participated in this conference with scientific works:

- RNDr. **Michaela Abrahamovská**, Mgr. **Peter Artimovič**: [Oxidative stress in endometriosis and endometrial cancer corpus uteri](#)
- Mgr. **Slavomíra Gulová**: [Exosomes in the pathophysiology and potential therapy of osteoarthritis](#)
- RNDr. **Marko Morávek**: [Study of the correlation between the amount of inflammation and the generation of extracellular vesicles in osteoarthritic tissues](#)
- RNDr. **Monika Švecová**, RNDr. **Ivana Večurkovská**: [Perspective of colorectal cancer diagnosis based on spectral fluorescence characteristics of blood serum](#)

Throughout the conference, our PhD students participated actively in several discussions about their research findings. All PhDs achieved high scores in the online evaluations. In 2022, Slavomíra Gulová's work was awarded in the biology section, and in 2023, **Monika Švecová's** study was **awarded** in the biochemistry section. The presented scientific works were included in the collection of online abstracts.



Awards for scientific contributions of Slavomíra Gulová in the biology section for 2022 and Monika Švecová in the biochemistry section for 2023

Summer data school 2023

This year, the civic association [Data Science Academy](#) organized the [Summer Data School](#) in Bratislava between **21-25 August 2023**, which our doctoral student RNDr. **Monika Švecová** attended thanks to the awarded scholarship. It is worth noting that the acceptance rate of this scholarship was 30% at the previous event, Winter Data School 2023. The goal of the data school is to mobilize and connect university students, PhD students, researchers and analysts from the private and public sectors who want to learn the fundamentals of data processing and analysis. The Data School also helps to build an interdisciplinary community capable of sharing knowledge to solve data-related problems in multiple fields. The target audience is doctoral students who need to work with data, use complicated statistical methods, or build models in their research. This school consisted of 5 days of Python programming and hands-on workshops using real-world and biomedical datasets. The fifth day consisted of a Hackathon, during which participants could choose from three data challenges and compete in teams: BioMed, Healthcare, and Business. Our PhD student Monika was part of the **winning team** in the **biomedical challenge**, where they jointly analyzed a breast cancer sequencing dataset. Participating in this event enabled Monika to



build a programming foundation in bioinformatics data analysis, which will advance the analysis of fluorescence metabolomics results as part of her PhD studies.



Summer data school 2023 a) The winning presentation of the data analysis results shared on the official Instagram of DSA b) the first day of the data school c) the winning Biomed challenge team consisting of Kristína Macáková (FM UK), Ondrej Vargovčík (FS UK) and Monika Švecová

Small New World 2.0 Conference in Graz, Austria

The second international conference focused on extracellular vesicles (EV) research, called Small New World 2.0, took place at the Medical University of Graz from **September 4th to 5th of 2023**. The conference was organized by the Austrian Society for EV (ASEV) in cooperation with the Hungarian (HSEV), Slovenian (SiN-EV), and Serbian (SrbEVs) Societies for EV. The program included dozens of plenary presentations by top scientists from the field of EV research, which were divided into several sections according to the focus of EV research (Regenerative medicine, Methodology advances in EV analysis, News from industry and development - "Rising projects", EV numbers and cargo, experiences with foreign stays in EV research through the MOVE program, Diversity of EV sources and Purity meets function). The conference also included a poster section with 78 posters across various categories. Our doctoral student, RNDr. **Marko Morávek** also presented the results of his ongoing research in the Diversity of EV sources category. Marko Morávek is doing his doctorate at the Department of Medical and Clinical Biochemistry and conducting his research at the experimental workplace of the Associated Tissue Bank at the Faculty of Medicine UPJŠ. He participated in the conference as the only participant from the Slovak Republic, and the title of his poster was "The effect of inflammation level on the production of osteoarthritic tissues- derived extracellular vesicles." During the breaks between the individual sections of the presentations, there was also the opportunity to get acquainted with the latest technologies in EV research, which were presented as part of a workshop by a number of scientific and technological companies (Abbelight, Beckman Coulter, HansaBioMed etc.).



Small New World 2.0 Conference in Graz. a) poster presentation of Marko Morávek's scientific results, b) meeting with MSc. Alexander Otahal, PhD. from the group dealing with research on the therapeutic effect of EV from the University of Krems, c) the illuminated name of the Medical University of Graz located in front of the entrance to the conference

The biggest advantage of such an event is, in addition to obtaining new and extremely valuable information from the field of EV research, also establishing contacts with other researchers for possible future international cooperation. It was Martin Wolf's presentation at the conference about his research stay in Stockholm that inspired Marko so much that he contacted Martin afterward about a possible research stay with them in Salzburg. Therefore, Marko managed to arrange a research stay thanks to his participation in this conference. After the official end of the conference, the participants had the opportunity to take a guided tour of the city of Graz, which our doctoral student was happy to take advantage of, and at the same time, meet leading scientists from the EV field from all over Europe.

CSAC 2023

The **Cytometry Conference** was held from **September 2-5, 2023**, in **Prague**. The event featured lectures by experts in flow cytometry and microfluidics. As part of the professional program, a doctoral student from the Department of Medical and Clinical Biochemistry at UPJŠ LF presented her scientific results as a poster: **Mgr. Eva Kriváková** – Role of hyaluronic acid in endometrial receptivity

The scientific contributions presented were published in the conference proceedings. A major benefit of the cytometry conference was the opportunity to make new contacts and engage in beneficial discussions with many experts in the field. The presented results were part of the scientific projects APVV-22-0357 and VVGS-2023-2612.



CSAC2023 (A) (from left) Zuzana Badovská, Eva Kriváková (B) (from left) Eva Kriváková, Miroslava Rabajdová, Zuzana Badovská

Conference MEFANET 2023

The Faculty of Medicine of UPJŠ in Košice was a co-organizer of the 16th MEFANET conference, which took place on 7-8 November 2023 at the Congress Hotel Centrum, Košice, under the auspices of the Dean of UPJŠ LF prof. MUDr. Petr Jarčuška, PhD. The conference, focused on the use of artificial intelligence and virtual reality in medical education, welcomed educators and students from medical and nursing faculties from the Czech and Slovak Republics, as well as experts in the field of electronic support for teaching.

The programme included presentations of modern teaching methods and tools, as well as discussions on advances in the creation of simulation centers and the use of audiovisual aids. The first plenary lecture of the conference was given by Dr. Baba Sheba from St. George's University of London on "Generative AI in Medical Education: Beyond Tools to Strategy", where he explained in an interactive way the different aspects of generative machine learning in teaching students and drew attention to his university's guidelines on how to address the ethical issues of AI. Our PhD students also participated in the conference's poster session, where they presented our department's initiatives to improve the teaching of medical biochemistry and chemistry. The presented works included in the peer-reviewed abstract book were part of the KEGA 017UPJS- 4/2023 and KEGA 014UPJS-4/2023 projects:

- RNDr. **Monika Švecová**: Applying theoretical biochemistry knowledge through case studies (co-author)
- RNDr. **Ivana Večurkovská**: Use of audio-visual materials in the teaching of medical chemistry at UPJŠ in Košice (co-author)

The second day included many interesting presentations on the combination of technology and medicine. A prime example was the lecture of prof. Ing. Radovan Hudák, PhD., during which he explained the use of 3D printing in medicine for the production of permanent, personalized implants from specialized materials. This application research has already improved the quality of life of thousands of patients in Slovakia and, in many cases, saved their lives.



MEFANET 2023. a) Poster presentation of Monika Švecová on the application of case studies in the teaching of medical biochemistry b) Poster presentation of Ivana Večurková on audiovisual teachings of medical chemistry c) Monika Švecová (left) with the principal investigator of the presented project MUDr. Anna Birková, PhD. d) poster session of the conference

The conference concluded with Dr. Martin Komenda's presentation on the National Health Information Portal nzip.cz, which provides Czech citizens with verified health information. Doc. Ing. Jaroslav Majerník, PhD., Head of the Department of Medical Informatics and Simulator Medicine at UPJŠ LF, noted that the conference was not only a success in knowledge sharing but also an opportunity to test new technologies, such as the high-fidelity online USG simulator from the Spanish company WAZO Technologies.

University of Miskolc Student Scientific Conference 2023

The Faculty of Health Sciences, University of Miskolc, successfully organized the Annual **Student Scientific Conference** on **November 30, 2023**, bringing together diverse students and research topics in the field of health sciences. This year's event was characterized by an extraordinary participation of both high school and international students, with dedicated sessions for these groups. Due to adverse weather conditions, some presentations, including those of our PhD student Monika Švecová and medical student Alan Senderák, were held online, accommodating participants in Miskolc as well as some participants from Poland. RNDr. **Monika Švecová** presented the research of our department entitled "Diagnostics of endometrial cancer via metabolite analysis and machine learning". In this international section, 6 scientific works were included, and students had 10 minutes to present their results and 5 minutes for discussion. The presentations were in English, and the chair of this section was Assoc. MUDr. Oliver Rácz, CSC.



Research results presentation

Department of Medical and Clinical Biochemistry



(Department of Pathological Physiology, UPJŠ). The presentations were evaluated by the entire expert committee, which awarded first, second, and third place, as well as special mentions for outstanding contributions. A significant achievement was the awarding of a special "Special Prize" award to Monika Švecová for her outstanding research presentation. This recognition not only underscores the quality and significance of her work but also highlights the faculty's commitment to promoting cutting-edge research and academic excellence. The presented results are part of the VEGA 1/0435/23 project. Our colleagues also participated passively in the conference, namely Ing. Beáta Hubková, PhD, and our PhD students, Mgr. **Peter Artimovič**, Mgr. **Gabriela Sabolová** and RNDr. **Michaela Abrahamovská**.



Student Scientific Conference of the University of Miskolc. (from left) Peter Artimovič, Gabriela Sabolová, Monika Švecová, Associate Professor Oliver Rácz, Alan Senderák, Michaela Abrahamovská, Dr. Hubková in the meeting room of the Department of Medical and Clinical Biochemistry

2022

Young Scientists' Forum and Biochemistry Global Summit

In the previous, 21st edition of the Young Scientists' Forum (YSF 2022), held **from July 6 to 9, 2022**, at the Hotel Golf Mar in **Vimeiro** on the Portuguese coast overlooking the Atlantic Ocean, doctoral student Mgr. **Katarína Kalinová** from the Department of Medical and Clinical Biochemistry contributed the paper titled "microRNA as predictive molecule for the in vitro fertilization process." The YSF 2022 was exceptionally held in conjunction with an international meeting of three societies – FEBS, IUBMB, and PABMB – under the title **The Biochemistry Global Summit**. The aim of the forum was to foster both scientific and personal growth among young researchers, providing them with a platform to present their research and establish new international contacts. Immediately following the forum, our researchers participated in the joint congress of the 25th IUBMB, 46th FEBS, and 15th PABMB, held **from July 9 to 14, 2022, in Lisbon, Portugal**. This exceptional congress became a global center of biochemistry, providing a space for knowledge exchange, discussions, networking, and the presentation of research findings. Participation in the congress was supported by grants from FEBS, IUBMB, and PABMB.

Other researchers from the Department of Medical and Clinical Biochemistry also presented their scientific results at the congress:



- Mgr. **Zuzana Klepcová**: Manganese (II) complex with flufenamic acid and neocuproine and its effect on human endometrial cell lines
- RNDr. **Ivana Špaková**, PhD.: Activation of apoptotic cascade via 'zinc-finger-like' Zn-NSAID complex
- RNDr. **Lukáš Smolko**, PhD.: Cytotoxic effect of novel Zn(II) niflumato complex with neocuproine on endometrial cell lines

The biochemistry global summit (from the left) RNDr. Romana Smolková, PhD.; RNDr. Lukáš Smolko, PhD.; RNDr. Ivana Špaková, PhD.; Mgr. Zuzana Klepcová



Spring school of doctoral students 2022

The 8th year of the university-wide event **Spring School of Doctoral Students** of UPJŠ was held from June **14 to 17, 2023 in Liptovský Ján**. After a two-year break due to the COVID-19 pandemic, the organizers and participants of the Doctoral Spring School (JŠD) of the University of Pavol Jozef Šafárik in Košice met again in the familiar surroundings of beautiful Liptov, traditionally associated with this university-wide event. The pandemic caused that in the fall of 2020, JŠD was held online only for the first time, and in 2021 it was even cancelled for the first time in its short history. After the forced one-year break, also in view of the favorable feedback from the participating doctoral students and prominent domestic and foreign experts from the previous seven years, the university decided to continue the tradition of Spring Schools for doctoral students, as in previous years, in Liptovský Ján and in the proven classical format. The 8th year was held with the participation of 48 doctoral students from all faculties of the university and seven lecturers from the University of Pavol Jozef Šafárik in Košice or from abroad. Over the course of four days, six plenary lectures were given, one workshop was held, and 48 internal doctoral students presented the results of their scientific work achieved during their doctoral studies.

From the Department of Medical and Clinical Biochemistry UPJŠ FM, 3 doctoral students presented their scientific results orally in the topics they focus on during their doctoral studies:

- Mgr. **Katarína Kalinová**: Non-coding RNAs in the IVF process (video)
- Mgr. **Zuzana Klepcová**: The effect of a zinc complex in the process of endometriosis (video)
- Mgr. **Marko Morávek**: Comparative analysis of extracellular vesicles from osteoarthritic tissues



Spring School for Doctoral Students 2022. (A) (from left) Zuzana Klepcová, Katarína Kalinová (B) (from left) Zuzana Klepcová, Marko Morávek, Katarína Kalinová, Mykhailo Huniadi (Department of Pharmacology), Natália Nosálová (Department of Pharmacology)



Aurora CDS Training Event – Mentorship programme for PhDs and early-stage researchers

In collaboration with Palacký University in Olomouc and Vrije Universiteit Amsterdam, the **Aurora CDS training** event took place on **26 and 27 October 2022** and contributed significantly to the development of a mentoring programme for early-career researchers and PhD students. This comprehensive event included an interactive workshop divided into three separate parts, led by Dr. Denyse Snelder and Sabina Di Prima from the Vrije Universiteit Amsterdam. Participants embarked on a journey of self-discovery and shared learning, starting with personal experiences of mentoring, then mapping the programme's integration, and finally engaging in a critical discussion of the criteria for selecting a mentor and a suitable student as a mentee. This workshop was also attended by PhD students of our department: Mgr. **Peter Artimovič**, Mgr. **Zuzana Klepcová**, Mgr. **Ivana Večurková** and Mgr. **Monika Švecová**. Doctoral students presented their ideas on the topics discussed, as well as the potential qualities of a mentor and a mentee in our department, to other colleagues.



Aurora CDS Training Event. a) Mgr. Peter Artimovič presented a poster at the event to promote a potential mentoring program b) PhD students collaborate on individual characteristics of a suitable mentor c) Mgr. Monika Švecová presented an idea for institutionalizing mentoring at our university d) group photo of the event participants

2021

Brno Oncological Days

The 45th edition of the **Brno Oncological Days** and the 35th edition of the Conference for Non-Medical Healthcare Professionals, organized by the Masaryk Memorial Cancer Institute, took place from **October**



13 to 15, 2021. One of the regular sections of the conference is the poster session, which was held online this year. From the Department of Medical and Clinical Biochemistry, Faculty of Medicine, Pavol Jozef Šafárik University, six doctoral students submitted abstracts and subsequently their posters: Mgr. **Michaela Abrahamovská**, Mgr. **Katarína Kalinová**, Mgr. **Zuzana Klepcová**, RNDr. **Petra Lamancová**, Mgr. **Monika Švecová**, Mgr. **Ivana Večurkovská**. Their abstracts were published in a peer-reviewed proceedings book, and the posters were made available on the conference website.

A success for our department was that two of our doctoral students were invited by the expert committee to give an oral presentation of their posters. Mgr. Katarína Kalinová with the contribution “microRNA in female reproductive system disorders” and Mgr. Ivana Večurkovská, with the contribution “The use of gelatin zymography in colorectal cancer diagnostics,” set off on Thursday, October 14, to represent us on Friday in the pleasant setting of Hotel Passage in the center of Brno. Each student presented their work in a 10-minute talk in the large conference hall. In addition to gaining up-to-date knowledge in oncology through expert lectures, they returned home with a sense of accomplishment from overcoming the challenge of public speaking at a major event—an experience that will surely benefit them in their future studies.

Doctoral Student Seminar in Memory of Academician Bod'a

The Doctoral Student Seminar in Memory of Academician Bod'a is a scientific event held every autumn, organized by the Department of Experimental Endocrinology of the Center of Biosciences SAV in collaboration with the University of Veterinary Medicine and Pharmacy and the Faculty of Science of Pavol Jozef Šafárik University in Košice. The aim of the event is to provide doctoral students in Košice with an opportunity to gain experience presenting their results in both written and oral form.

The 16th edition of this event took place on **November 11–12, 2021**. The accepted contributions were published in a peer-reviewed proceedings book. Due to the epidemiological situation, oral presentations were held virtually via Microsoft Teams. From the Department of Medical and Clinical Biochemistry, Faculty of Medicine, Pavol Jozef Šafárik University, seven doctoral students participated with topics related to their doctoral research:

- Mgr. **Michaela Abrahamovská**: Molecular changes in angiogenesis of female reproductive organs
- Mgr. **Katarína Kalinová**: MicroRNAs in infertility research
- Mgr. **Zuzana Klepcová**: Diagnostic potential of non-coding RNAs from culture medium in the IVF process
- RNDr. **Petra Lamancová**: ERBB2 amplicon in infertility research
- Mgr. **Marko Morávek**: Isolation and quantification of exosomes from mesenchymal stem cells from fetal membranes
- Mgr. **Monika Švecová**: Can 3D fluorescence spectroscopy detect gynecological inflammatory disease?
- Mgr. **Ivana Večurkovská**: Matrix metalloproteinases through the lens of two different methodological approaches

Each doctoral student had 10 minutes to present their results, followed by a 5-minute discussion, with questions from the committee and other seminar participants. Our doctoral students performed excellently. They prepared engaging presentations and responded promptly to questions. The committee selected 9 presentations from all participants as the best. From these 9 places, our department secured 3, thanks to Mgr. **Katarína Kalinová**, Mgr. **Zuzana Klepcová**, and Mgr. **Ivana Večurkovská**, who won valuable prizes. Most importantly, all the young doctoral students gained valuable experience from the seminar.