



Scientific research activity of doctoral students

Active participation at scientific conferences and seminars

Content

2024	1
Young Oncologists Competition 2024.....	1
Spring school of doctoral students 2024	2
Student Scientific International Conference GenICa.....	3
Interactive conference of young scientists 2024	5
Young Scientist's Forum and 48th FEBS 2024 Congress.....	6
15th Congress of the Slovak Society of Clinical Biochemistry	7
International Medical Doctoral Conference 2024.....	8
2023.....	8
98. Physiological days	8
Spring school of doctoral students 2023	9
Young Scientist's Forum and 47th FEBS 2023 Congress.....	10
Interactive conference of young scientists 2023	11
Summer data school 2023	12
Small New World 2.0 Conference	13
CSAC 2023	14
Conference MEFANET 2023	14
University of Miskolc Student Scientific Conference 2023	16
2022.....	17
Young Scientist's Forum and Biochemistry Global Summit	17
Spring school of doctoral students 2022	18
Aurora CDS Training Event	19
2021	20
Brno Oncological Days.....	20
Doctoral Student Seminar in Memory of Academician Bod'a	21

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 the field of 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 years of age. 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.



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

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 for mutual communication and knowledge sharing in the field of oncology. The doctoral students had the chance to hear many significant scientific contributions, meet other PhD candidates working in oncology, and establish new connections.

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 provided participants with the opportunity to address important topics related to 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.



Research results presentation

Department of Medical and Clinical Biochemistry



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



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

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.

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 part of 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.



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

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 contributed to strengthening 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.



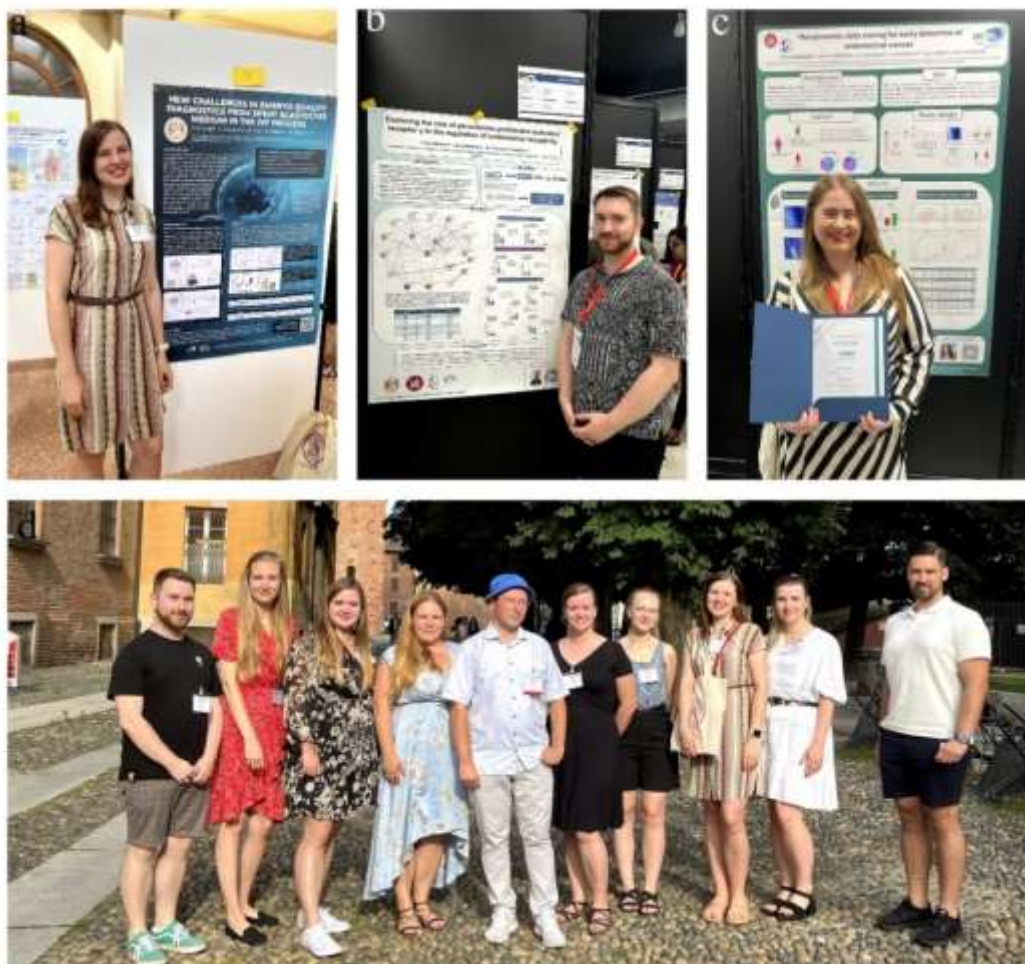
Awards for outstanding contributions by Ivana Večurkovská and Monika Švecová



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, a place whose scientific tradition is associated with names like 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 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 an 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 confirms the importance of integrating biochemistry with analytical and computational techniques in addressing 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 with the aim of presenting new knowledge, sharing research findings, and promoting mutual 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



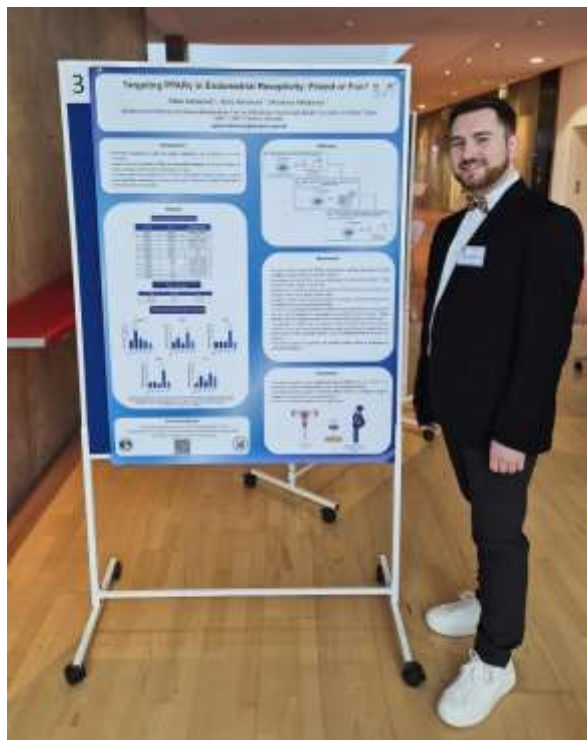
The 15th Congress of the Slovak Society of Clinical Biochemistry



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 the field of 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 the faculty and national grants, **enabling free participation, accommodation, and meals for doctoral students**, 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

98. 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 offering a platform for the presentation of the latest scientific works and research. Among the distinguished participants of the conference was our PhD student Mgr. **Ivana Večurkovská** (fig), who was selected among the doctoral papers for the oral presentation of her thesis entitled "Comparative analysis of colorectal carcinoma using zymography" and was included in the youth competition, which was 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 of 2023**. This event has long supported the advancement of interdisciplinarity, mutual exchange of knowledge, and enhancing the standard of PhD education at our university while taking into consideration global trends. Expert lectures from academic faculty members as well as outside experts were presented at this conference. As part of the scientific program, doctoral students presented the results of their research studies, while each PhD student had 10 minutes for 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 completely different research perspective, as well as a chance to familiarize themselves with current research in various study programs. The opportunity to network with other PhD students in many scientific fields and have fruitful discussions with them was an essential benefit of the Spring School of 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 Scientist's Forum (YSF) conference** took place on **July 6-8, 2023**, in Tours, a very historic and beautiful city between 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 of applicants who are 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.

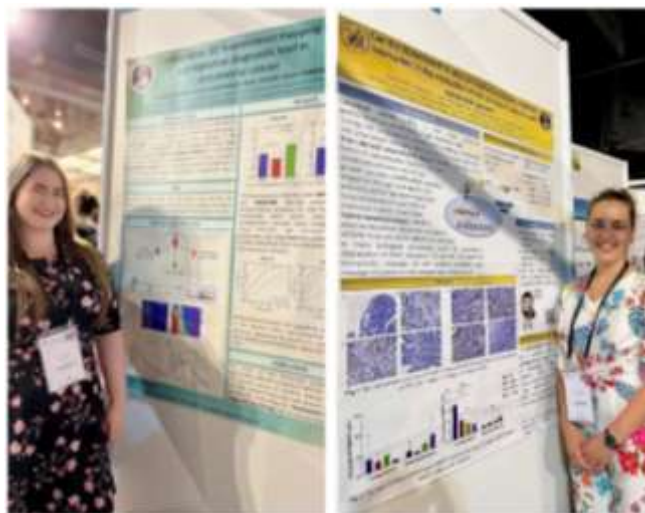


Young Scientist's Forum 2023 a) group photo of YSF participants b) (left) Monika Švecová and Ivana Večurkovská (right) c) dinner in the Tours city center with PhD students

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 was full of inspiring plenary lectures by prominent scientists working in the fields of biochemistry, molecular biology and related life sciences. FEBS congresses aim to be an exemplary interdisciplinary meeting 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 Večurkovská** 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** with the topic "Comparative 3D fluorescence mapping as a prospective diagnostic tool in endometrial cancer". Abstracts of scientific results were included in the peer-reviewed abstract book within the YSF conference and published in the FEBS Open Bio magazine in a supplementary issue within 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 Večurkovská (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 offers scientific dialogue through discussions under each contribution, thus creating space for consultations 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**: [Oxidative stress in endometriosis and endometrial cancer corpus uteri](#)
- Mgr. **Peter Artimovič**: [Oxidative stress in endometriosis and endometrial cancer corpus uteri](#) (co-author)
- 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**: [Perspective of colorectal cancer diagnosis based on spectral fluorescence characteristics of blood serum](#)
- RNDr. **Ivana Večurkovská**: [Perspective of colorectal cancer diagnosis based on spectral fluorescence characteristics of blood serum](#) (co-author)

Throughout the conference, our PhD students participated actively in several discussions of their research findings. All PhDs achieved high scores in the online evaluations, and 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.

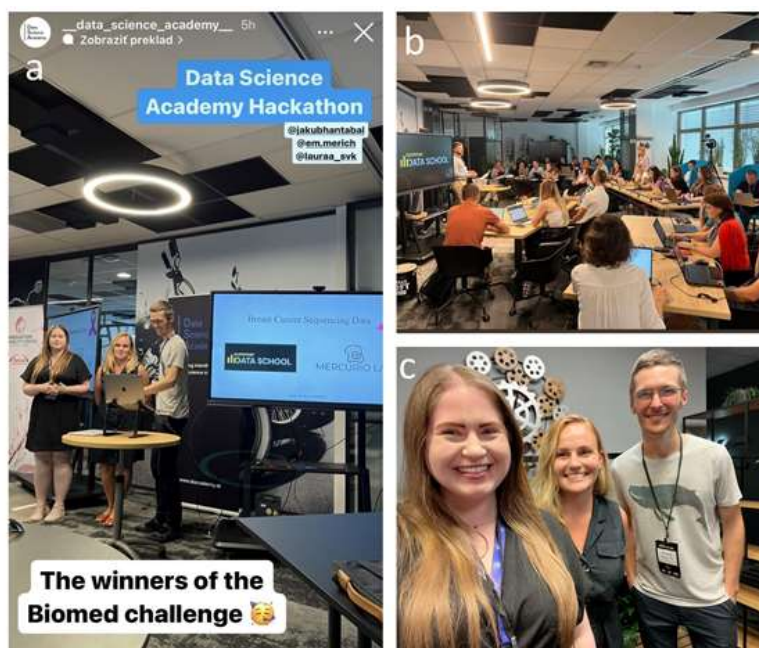


Awards for scientific contributions of Slavomíra Gulová in the biology section for 2022 and Monika Švecová in the biochemistry section for 2023

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 are 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 with real-world as well as biomedical datasets. The fifth day consisted of a Hackathon, during which participants could choose from three different 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 breast cancer sequencing data set. Participating in this event allowed Monika to gain a programming foundation in bioinformatics data analysis, which advances the actual analysis of scientific results in fluorescence metabolomics 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, in which there were a total of 78 posters in various categories. Our doctoral student RNDr. **Marko Morávek** also presented the results of his ongoing research in the category Diversity of EV sources. 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 the presentation by Martin Wolf from the Paracelsus Medical University in Salzburg about his foreign research stay in Stockholm that inspired Marko so much that he contacted Martin after the conference 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 the field of flow cytometry and microfluidics. As part of the professional program, a doctoral student from the Department of Medical and Clinical Biochemistry of UPJŠ LF presented her scientific results in the form of a poster presentation: **Mgr. Eva Kriváková – Role of hyaluronic acid in endometrial receptivity**

The scientific contributions presented were published in the peer-reviewed proceedings of the conference. A huge benefit of the cytometry conference was the potential to make new contacts and have a beneficial discussion 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 poster session of this conference, 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)



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 Večurkovská 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 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 in the production of permanent personalized implants from special materials. This application research has already improved the quality of life of thousands of patients in Slovakia and in many cases saved their lives.



The end of the conference was graced by Dr. Martin Komenda's presentation on the project of 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 sharing knowledge, 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. (Department of Pathological Physiology, UPJŠ). The presentations were evaluated by the entire expert committee, which awarded first, second and third place along with 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 passively participated 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 participated with the contribution "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 of young researchers, offering them 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 caused by 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, which is 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, continuing with mapping the integration of the programme and engaging in a critical discussion on the criteria for selecting a mentor as well as 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 Večurkovská** and Mgr. **Monika Švecová**. Doctoral students presented their ideas about the topics discussed as well as the potential qualities of a mentor and a mentored student at 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.



Mgr. Ivana Večurkovská



Mgr. Katarína Kalinová

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. The students each presented their work in a 10-minute talk in the large conference hall. In addition to gaining up-to-date knowledge from the field of 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 in presenting their results both in 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 organized virtually via the MS Teams platform. 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 as well as other seminar participants. Our doctoral students performed excellently. They prepared engaging presentations and were able to respond promptly to questions. Out of all participants, 9 presentations were selected by the committee 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.