Foreign medical students at our workplace

Content

2025 – Exchange research study stay within the Erasmus

In February 2025, **Yijun Dong**, a fifth-year general medicine student at the China Academy of Chinese Medical Sciences or Peking Union Medical University (Dongcheng, Beijing), completed an Erasmus stay at our Institute of Medical and Clinical Biochemistry.

Fig. 1: International student Yijun with RNDr. Ivana Špaková, PhD.

Yijun joined the work in the cultivation laboratory under the guidance of RNDr. Ivana Špaková, PhD., who explained the principles of precise work with cell cultures to her (Fig. 1). Yijun actively participated in subculturing as well as in experiments designed for specific cell lines, which served both as a model system for her studies and as an independent verification of our department's previous findings.

Additionally, Yijun presented the results she obtained in her scientific research conducted in collaboration with the Department of Neurosurgery at Peking Union Medical University Hospital (Fig. 2).

Fig. 2: Yijun presenting her research findings

2024 – Exchange stay within the Erasmus program

In addition to the summer holidays, many students decided to complete an internship abroad, and this year was no exception for our Department of Medical and Clinical Biochemistry when two general medicine students visited us in August as part of the Erasmus program. We welcomed **Mai Nagy Nasr Helal**, a fifth-year general medicine student at the Faculty of Medicine of Zagazig University, located in Zagazig (Egypt), and **Cáudia Ribeiro**, a second-year general medicine student studying at the Beira Interior University Faculty of Health Sciences, located in Covilhã (Portugal).

Mai and Cláudia were welcomed and introduced to the issues we deal with at our department by RNDr. Zuzana Badovská, PhD. Then, the students worked on a project to determine the cell-specific DNA-intercalation potential of newly designed therapeutic substances under the guidance of RNDr. Ivany Špaková, PhD. Students actively involved them in laboratory work in the culture laboratory, where they became familiar with precise work with cell cultures (Fig. 1). With our doctoral student, Mgr. Petr Artimovič isolated nucleic acids from the cell cultures they had grown. The female medical students were also introduced to gene analysis using reverse PCR and qRT-PCR and learned to evaluate the measured data. They also actively participated in fluorescence analyzes in cooperation with doc. RNDr. Lukáš Smolko, PhD. In the clinical laboratories of Medirex, a.s. they had the opportunity to learn the routine operation of the clinical application of biochemical methods and their evaluation procedures in diagnosing various pathologies (Fig. 2).

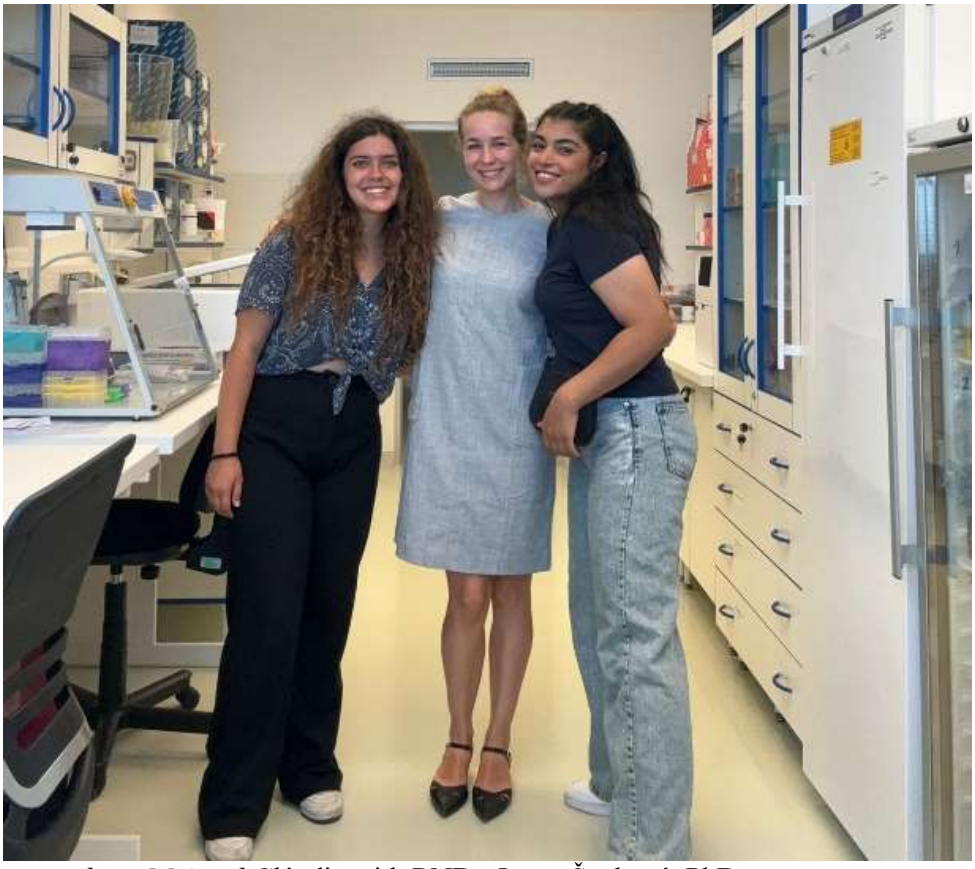

Fig. 1: Foreigner students Mai and Cláudia with RNDr. Ivana Špaková, PhD.

Fig. 2: Students in clinical laboratory MEDIREX, a.s. with MUDr. Renáta Lenártová, PhD. and Mgr. Peter Artimovič

2023 – Research stay within the IMSA program

It has already become a good practice that in the summer our team is enriched by students within the International Medical Students Associations **(**IMSA) program, and this year was no different. In August 2023, we welcomed **Cai-Ti Li** (**Talia**), a third-year general medicine student at Mackay Medical College, Department of medicine in New Taipei City on Taiwan, and fourth-year general medicine student **Eleanna Kallikurdi**, studying at Aristotle University of Thessaloniki, Faculty of Health Sciences, Medicine School in Greece to our workplace.

Taila and Eleana started their month at our workplace under the guidance of Assoc. Prof. RNDr. Vladimíra Tomečková, PhD. introduced them to the workplaces of the Faculty of Medicine, where they greatly appreciated the interactive teaching in the Center for Simulator and Virtual Medicine UPJŠ LF. Together with the associate professor, they collected tears from patients, which will later be used in research work. For the next three weeks, under the guidance of RNDr. Ivana Špaková, PhD. and they became familiar with various laboratory techniques used in clinical-biochemical laboratories.

The medical students were actively involved in laboratory work in the cell culture laboratory, where they learned about precise work with cell cultures, growing "their own cells" in 2D as well

as 3D models. They used the grown cell cultures to isolate nucleic acids, which they isolated separately and determined the gene expression strength of selected inflammatory genes using reverse PCR and qRT-PCR. In addition to the skills in the laboratory, they learned to evaluate the measured data and draw from them the meaning and conclusions for the established hypothesis (Fig. 1a/b).

In the clinical laboratories of Medirex, a.s. they had the opportunity to get to know the routine operation of the clinical application of biochemical methods and their evaluation procedures in the diagnosis of various pathologies (Fig. 1c).


Fig. 1a


Fig. 1b

Fig. 1a/b: The students at work in the laboratories of the Department


Fig. 1c

Fig. 1c: Medical students in the clinical laboratory MEDIREX, a.s. with MUDr. Renáta Lenártová, PhD.

2023 – Exchange stay within the Erasmus program

As part of the Erasmus program, the medical students from Chile came to spend a month on a foreign continent, traveled 17 hours by plane, and saw the world a little differently. In January 2023, we welcomed **Constanza Doren Ilabaca**, a fifth-year general medicine student at the Andrés Bello Medical University, located in the capital city of Santiago, and **Javier Ferreira**, a fourth-year general medicine student, studying at the Finis Terrae Medical University, located in Providencia.

During their stay, students became familiar with various laboratory techniques used in clinical-biochemical laboratories. Constanza and Javier worked for a whole month under the guidance of RNDr. Ivana Špaková, PhD. They have been actively involved in laboratory work in the cell culture laboratory, where they became familiar with precise work with cell cultures. They became skilled with gene analysis using reverse PCR and qRT-PCR and learned to evaluate the measured data (Fig. 1a). They also participated in ELISA analyses in cooperation with doctoral students of our institute, Mgr. Zuzana Klepcová, Mgr. Michaela Abrahamovská, and Mgr. Peter Artimovič.

In the clinical laboratories of Medirex, a.s., they had the opportunity to get to know the routine operation of the clinical application of biochemical methods and their evaluation procedures in the diagnosis of various pathologies (Fig. 1b).

Our guests also had the opportunity to try interactive teaching at the Center for Simulator and Virtual Medicine of UPJŠ LF, where in addition to CRP and blood sampling, they also tried using a sonograph, or drilling teeth.

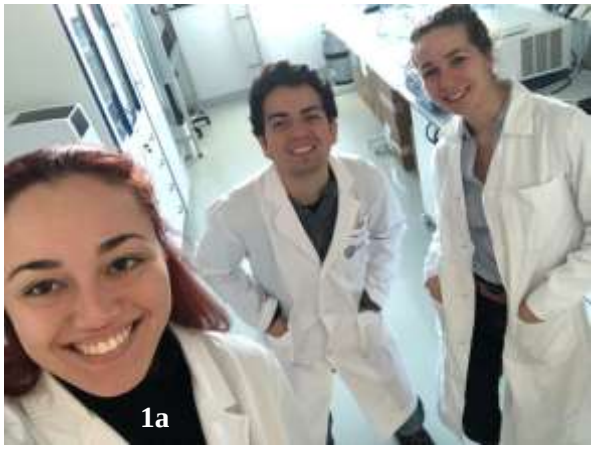

Figure 1a: The students working with RNDr. Ivana Špaková, PhD., and 1b: in the MEDIREX, a.s. clinical laboratory. with MUDr. Renáta Lenártová, PhD., and student coordinator of Erasmus programme Laura Tomečková (on the right)

2022 – Exchange stay within the Erasmus program

Today, it is no longer the case that if you want to experience an international environment, you have to travel abroad. In July 2022, our Institute of Medical and Clinical Biochemistry welcomed two foreign medical students. **Molka Hatit** arrived from the second largest city of Tunisia, where she is studying in the fourth year at the Faculty of Medicine of the University of Sfax. **Miguel Acuña Reveles** came to us from Mexico and is a 5th year student at Universidad Autónoma de Zacatecas Francisco García Salinas. During their stay, they had the opportunity to go through various laboratory methodologies, evaluate patient results and also visit the clinical laboratory MEDIREX, a.s.

They worked under supervising doc. Ing. Katarína Dubayová, PhD. Work was focused primarily on 3D fluorescence spectrophotometry and its application in the diagnosis of several malignancies and inflammatory diseases. During the analyses, they also collaborated with doctoral students of our institute, including Mgr. Zuzka Klepcová, Mgr. Ivana Večurkovská and Mgr. Monika Švecová (Fig. 1).. Students analyzed the proteins using different methodologies, such as SDS-PAGE, ELISA too. They had the opportunity to try RNA isolation and its subsequent transcription into cDNA, as well as the qRT-PCR reaction and its interpretation. In the MEDIREX laboratories, they had the opportunity to see the clinical application of different methodologies and the analysis of various pathologies (Fig. 2).

Fig. 1 The students working in the fluorescence laboratory together with doc. Ing. Katarína Dubayová, PhD. and PhD student Mgr. Monika Švecová.

Fig. 2 The students in the MEDIREX clinical laboratory with MUDr. Renáta Lenártová, PhD. and PhD student Mgr. Monika Švecová