



Dear readers,

today we are opening the door for an insight into the world of Pharmacy, to show you – may you be a prospective student, research partner or supporter – the uniqueness of this discipline, as well as to mark the position of our faculty in the education and research field. Each medicine and its formulation into the appropriate pharmaceutical form is built on a lot of knowledge, energy, new ideas, time and finances. The sum of efforts brings an effective and safe drug. Knowledge and experience in research lead to the science behind drugs development, including the fate of drug in the body. The time spent in research will engulf a whole life dedicated to helping others.

Pharmacy encompasses a whole range of knowledge on drugs – starting from design, synthesis, quality control, through drug formulation, safe storage, up to pharmacodynamics and pharmacovigilance. These branches deal with mechanism of action, adverse effects, interactions, legislation, and post-marketing surveillance of drugs. Another issue is the monitoring of the drug in the organism called pharmacokinetics, which puts focus on the route of administration, the metabolism, and elimination of drugs from the organism. Pharmacy also includes pharmacoconomics that deals with the economic aspects of drug therapies.

The following 16 pages shall put together a puzzle picture of our faculty while introducing our functional departments and their focus on education and research. It should be noted that the faculty is involved in cooperation with all relevant inland and many international institutions, it is part of the association of European pharmaceutical faculties and it runs international exchange programs as well as complete English language study program. We believe this form of presentation will attract new students to our faculty and show possibilities and potential of both academic and scientific cooperation.



"The goal is to ensure that the drug is effective and safe."

Prof. PharmDr. Pavel Mučaji, PhD.
Dean

CONTACTS

Comenius University in Bratislava
Faculty of Pharmacy
Odbojárov 10
832 32 Bratislava
Dean's Office: +421-2-50 117 101
Study Department: +421-2-50 117 146
www.fpharm.uniba.sk



Bachelor study program Medical and diagnostic devices

This is a three-years program. The graduate has adequate knowledge about physical, chemical and technological properties of materials and finished product of medical devices, has knowledge on their production and quality assessment. The graduate is responsible for providing and distribution of medical and diagnostic devices, has knowledge on their function and use and can provide professional information to patients.

Graduates will find career opportunities in specialized hospital departments and in other health facilities. Furthermore, e. g., in central sterilization departments, specialized stores and dispensaries of healthcare devices, distribution companies and in other business entities in the field of medical devices manufacturing and distribution.



Master study program Pharmacy

This is a five-years program. Its graduate, a pharmacist, is an original medicine specialist and has a deep knowledge on the fate of drug in the body, its effects, as well as on health and social aspects of drug use. He is a specialist in pharmaceutical technology, in pharmaceutical, chemical, biological methods of pharmaceutical and medicinal preparations testing, as well as in methods of registration and marketing of medicinal products. Pharmacists are involved in monitoring and management of patient healthcare and therapy.

Graduates of pharmacy will find broad career opportunities in retail and hospital pharmacies, medical centres, drug quality control institutes, in clinical pharmacy, clinical biochemistry, sanitation agencies, in pharmaceutical industry, in pharmaceutical companies and drug distribution, as well as in research and health education and at universities.



Doctoral study (PhD.)

The Accreditation Commission at the Slovak Ministry of Education has approved doctoral study programs at the Faculty of Pharmacy in Bratislava – Pharmaceutical Chemistry, Pharmacology, Pharmacognosy and Clinical Pharmacy – in which it is possible to obtain the academic title "*philosophiae doctor*" (PhD.):

Pharmaceutical Chemistry – study of relationships between the chemical structure, physicochemical properties, and biological activity, for the use on new, more advantageous, synthetic drugs design and projection;

Pharmacology – studies of drug effects on living organism, drug structure-activity relationships, drug interactions, side effects, studies in the field of molecular pharmacology and drugs therapeutic use, pharmacodynamics, pharmacokinetics, pharmacogenomics, drug toxicology and pharmacogenetics;

Pharmacognosy – studies on medicinal plants active substances, their isolation and identification, monitoring and targeted influence of natural substances biosynthetic pathways, evidence-based medicine in the field of natural drugs;

Clinical Pharmacy – studies in the interdisciplinary health care study field that helps optimize drug therapy, increase the quality, effectiveness and safety of used medicines, and leads to savings in the overall cost of pharmacotherapy.





"Things do not need to be afraid of, they just need to be understood."

Prof. RNDr. Peter Mikuš, PhD.
Head of Department

Our international partners: Faculty of Pharmacy, Charles University, Hradec Králové; Faculty of Pharmacy, VFU, Brno; Consiglio Nazionale Delle Ricerche, Istituto di Cromatografia, Roma; Faculty of Pharmacy Kuwait; Department of Gastroenterology & Hepatology, Erasmus Medical Center, Rotterdam; LEPABE, Faculdade de Engenharia, Universidade do Porto, Porto; Institute of Organic Chemistry and Biochemistry, Academy of Sciences of the Czech Republic, Prague; Neurofarba Department, Section of Pharmaceutical and Nutraceutical Sciences, University of Florence

Analytical Evaluation of Clinical Sample Profiles and Markers in Relation to the Optimization of Thiopurine Therapy of Inflammatory Bowel Diseases

Prof. RNDr. Peter Mikuš, PhD.; mikus@fpharm.uniba.sk

Monitoring of the course of therapy of inflammatory bowel diseases (IBD) through an activity assessment of important enzymes involved in the thiopurine metabolism as well as through the levels of pharmacodynamically active thiopurine metabolites seems to be a perspective way for the IBD therapy optimization. The aim of the present project is the development of new reference LC-UV/MS analytical methods and their advanced multidimensional hyphenations implemented clinically in the therapeutic monitoring of thiopurines including their co-medications with biopharmaceutics.

New Approaches in the Analytical Evaluation of the Drugs, Their Biodegradation Products and Metabolic Markers in Biological Matrices in Relation to the Therapy Optimization of the Inflammatory Bowel Diseases

PharmDr. Katarína Maráková, PhD., and Mgr. Michal Hanko; marakova@fpharm.uniba.sk, hanko11@uniba.sk

Nowadays in the clinical IBD monitoring, there is a lack of simple and reliable alternatives to the sophisticated and expensive HPLC-MS methods, which could be easily available and applicable in the routine clinical laboratories. Therefore, the aim of the present project is the development of innovative analytical approaches based on electromigration and electrochemical principles offering an effective solution for the selected electrochemically active and ionisable drugs as well as exogenous and endogenous metabolites relevant for the IBD therapy optimization.



Development of New Ligands and Their Metal Complexes as Potential Radiopharmaceuticals in Nuclear Medicine

Prof. RNDr. Peter Mikuš, PhD.; mikus@fpharm.uniba.sk

The topic includes the development of a potential radiopharmaceutical from its projection, through the synthesis, to its structural analysis. It proceeds by a study of its biological activity and bio-distribution in the organism. After yielding required biological characteristics, the drug is ready to the formulation in a proper dosage form, pre-clinical and clinical proofs, and implementation into the clinical practice. The attention is currently paid to the cell hypoxia and its modulation by new human carbonic anhydrase inhibitors structurally based on triazine(alkyl) aminobenzenesulphonamides substituted by amino acids and peptides.

Synthesis and Evaluation of Organic Compounds Based on Benzenesulphonamides as Potential CA Inhibitors

PharmDr. Mária Bodnár Mikulová; mikulova43@uniba.sk

Project deals with the synthesis, isolation, characterisation, and evaluation of inhibition activity of new benzenesulphonamide derivatives as potential selective inhibitors of tumour-associated carbonic anhydrase (CA) isoforms. The human isoforms hCAIX and hCAXII show their elevated expression in the cancer cells induced by the hypoxia. The suppression of processes in tumour micro-environment can be achieved by the inhibition of their activity, therefore they became a very promising target for the therapy, immunotherapy, and the imaging of hypoxic tissues. Some of the prepared derivatives show nanomolar inhibition activity with significant inhibition selectivity toward hCAIX.

Design of the Structure-Activity Relationship by Regression QSAR Analysis of the Data

RNDr. Jozef Motyčka; motycka1@uniba.sk

The project is focused on the study of qualitative structure-activity relationship (QSAR) between the characteristics linked with the structural modifications within homology series of sulphanilamide derivatives and their metal complexes on one side and their inhibition activity against carbonic anhydrase IX (CA IX) on the other side. Beside the calculations and summarisation of the physical-chemical characteristics (so called descriptors) for series of the structurally related compounds derived from sulphanilamide and their corresponding inhibition activities, we use the mathematical apparatus of the basic statistical and regression analysis for the identification of descriptors having a significant effect on the CA IX inhibition. After a successful validation of the selected regression model, it is possible to utilise its outputs for the proposal of a new structure of sulphanilamide inhibitor with an enhanced inhibition activity.

Chemical modification of natural compounds with antimicrobial and antineoplastic activities

Assoc. Prof. PharmDr. Miloš Lukáč, PhD.; lukac@fpharm.uniba.sk

Research is aimed to chemical modification of natural compounds with antimicrobial and antineoplastic compounds. The compounds are represented by polyphenols (hydroxycinnamic acids, marchantins) and triterpenes (betulinol) which are modified to mitochondria-targeted triphenylphosphonium-based compounds. The modification of compounds with phosphonium cation increases biological activities in comparison with unmodified natural compounds.

Development of novel metallo complexes with antineoplastic activity

Natália Miklášová, PhD.; miklasova@fpharm.uniba.sk

New heavy metal complexes (Pd, Ru, Ir) of curcumin derivatives are synthesized, and biologically tested in vitro on human cancer cell. Pd complexes exhibited a selective cytotoxic activity, generating the apoptosis and the inhibition of the tumors growth. In scope of the topic, the novel ligands are prepared for copper(II) complexes with the antiradical, chemoprotective, anticancer and antibacterial activities.

Synthesis of homochiral amphiphilic ammonium salts and study of their aggregation, solubilization, gelation and antimicrobial properties

RNDr. Roman Mikláš, PhD.; miklas@fpharm.uniba.sk

We synthesize a homologous series of homochiral amphiphilic quaternary ammonium salts derived from D-camphor-10-sulfonic acid, (1R,3S)-camphoric acid and (R,R)-cyclohexane-1,2-diamine respectively. We test their antimicrobial activity, aggregation and solubilization of selected drug types. Chiral ammonium salts are also perspective gelators.

Silver nanoparticles stabilised with surface-active agents – preparation, physicochemical properties, antimicrobial and antiviral effect

Assoc. Prof. Ing. Martin Pisárčik, CSc.; pisarcik@fpharm.uniba.sk

Silver nanoparticles show potent antibacterial, antiviral and antifungal activity, even against multiresistant pathogens. The objective of this research is to synthesize silver nanoparticles and to stabilise them with cationic surfactants with variable molecular structure. The novel nanoparticles are stable over longer periods of time, have small size and high positive surface charge as well as show significant biological activity.



"Some will find the way how, others will be looking for excuses."

Assoc. Prof. PharmDr. Jindra Valentová, PhD.
Head of Department

Identification and analysis of new prohibited psychotropic drugs and other abused compounds

Assoc. Prof. PharmDr. Jindra Valentová, PhD.; valentova@fpharm.uniba.sk

Project is focused on development of the methods for analysis of abused psychoactive drugs using chromatographic methods combined with mass detection (LC-MS/MS, HRMS). Attention is paid to design drugs of the amphetamines and synthetic cannabinoids as well as to the new type of hormonal preparations of prohibited substances in sport. The developed methods are used for forensic expertise and anti-doping controls. The project is part of the Centre for Excellence in Security Research supported by the European Structural Funds.



"To plan future means to create the presence."
(Antoine de Saint-Exupéry).

Assoc. Prof. PharmDr. Marek Obložinský, PhD.
Head of Department

Pedagogical activity and the most important research themes/projects:

The Department consists of two Sections (Section of Biochemistry and Molecular Biology, Section of Microbiology, Immunology and Hygiene) with 24 people (teachers, PhD-students, technical staff). Within the framework of pedagogical activities, we primarily provide education for students in the field of biochemical and molecular-biological disciplines, as well as in the field of microbiology, immunology and hygiene. The department currently provides education of 9 courses in Master study programme (equivalent in Slovak and English), and 4 courses in Bachelor study programme.

The scientific and research activities of the department are focused on:

- Enzymes of the signal transduction processes and their regulative mechanisms in the relation to the biosynthesis of therapeutically active compounds in plants.
Assoc. Prof. PharmDr. Marek Obložinský, PhD.; oblozinsky@fpharm.uniba.sk
- Cholinergic receptors, adaptive mechanisms. Enzymes of the cholinergic system in the process of pathogenesis of lipid metabolism associated with inflammation. Control of macrophage activation in the obesity state with PPARs.
PharmDr. Katarína Šišková, PhD.; siskova@fpharm.uniba.sk

- Testing of potential antioxidant active compounds with the utilization of model enzymes. Study of the structure of the enzymes active sites in the view of clarifying the inhibition mechanisms by new molecules of potentially therapeutically active compounds in the inflammation process.
Assoc. Prof. PharmDr. Marek Obložinský, PhD.; oblozinsky@fpharm.uniba.sk
- Interaction of the biocide effects of newly prepared compounds with microorganisms cells. Immunomodulatory, antioxidant and antimicrobial effects of microorganisms, natural and synthetic compounds after their action on healthy blood cells and after the stress load.
Assoc. Prof. Mgr. Martina Hříčka Dubníčková, PhD.; dubnickova@fpharm.uniba.sk
- Biological and genetic characterization of potentially probiotic microorganisms. Selection of new probiotic microorganisms for use in human and/or veterinary practice. Characterization of the biochemical and molecular biological properties, the study of the antimicrobial activity and the determination of immunomodulatory potential.
Assoc. Prof. Mgr. Andrea Bilková, PhD.; bilkova@fpharm.uniba.sk

The up-to-date projects and the most important results of the last two years:

In 2018 several teams of the department have prepared concepts of new projects that we would like to look into. They relate to the areas of mechanisms of lactobacilli action on the formation and development of non-alcoholic fatty liver disease at molecular level, as well as on the field of inflammation progress (the experimental model of non-specific inflammatory bowel diseases) and the possibility of its influence by probiotic candidates of the genus *Lactobacillus*. We hope that we will be able to obtain the financial support that would reflect on the progress of scientific and research development of the department and of the faculty.

To important publications of the department belongs the textbook of the authors' collective Mlynářčík D., Májeková H., Dubníčková M.: Pharmaceutical microbiology (2017, Press UK).

The department actively collaborates with workplaces in Germany (Institute for Biochemistry/Biotechnology, Martin-Luther-University Halle-Wittenberg, Halle/Saale) and in Russia (Radiobiological Laboratory, Joint Institute for Nuclear Research, Dubna).



"When people are born to live, they should try hard to enjoy their lives and when they try hard and succeed, they should be themselves and not pretend to be someone else, as it happens in many cases."

(Jan Werich, 1906-1980)

- Czech actor, writer, screenwriter, vocalist)

Prof. PharmDr. Josef Jampilek, Ph.D.
Head of Department

The Department of Pharmaceutical Chemistry publishes the collection of scientific papers *Advances in Medicinal Chemistry*

Each third year, the Department of Pharmaceutical Chemistry organizes the international conference "Drug Synthesis and Analysis". In 2017, the 46th EuroCongress on Drug Synthesis and Analysis (ECDSA-2017) was held <https://sites.google.com/site/cfph2017/conference-book>

Synthesis and biological evaluation of original N-aryl-/N-phenylpiperazine compounds

Assoc. Prof. PharmDr. Ivan Malík, PhD.; malik@fpharm.uniba.sk

The subject of the project is design, synthesis and biological evaluation of original N-aryl-/N-phenylpiperazine compounds containing a variably substituted lipophilic and salt-forming part. The selection of suitable substituents in the alkaline fragment of synthesized molecules is based on the principles of the Topliss operational scheme. Research is also focused on the optimization of the synthesis of intermediate products and target compounds. The antimicrobial and antioxidative effects of final synthesized N-aryl-/N-phenylpiperazines are evaluated.

Design and SAR of ring-substituted hydroxy(aza)naftalene analogs

Prof. PharmDr. Josef Jampilek, Ph.D.; josef.jampilek@uniba.sk

Ring-substituted hydroxy(aza)naftalene analogs and derivatives are prepared using microwave synthesis and green-chemistry approaches and subjected to extensive biological screening mainly as new anti-invasive drugs and compounds able to influence membrane transport systems. Subsequently, structure-activity relationships are investigated using multi-dimensional QSAR and molecular modeling methods.

In silico study of pharmacophore groups

PharmDr. Vladimír Garaj, PhD.; RNDr. Mája Polakovičová, PhD.;
garaj@fpharm.uniba.sk; maja.polakovicova@uniba.sk

Within the computer-aided drug design laboratory, *ab initio* calculations of metalloenzymes and QSAR of potential cancerostatics and antituberculosis drugs are carried out. In addition, molecular modeling and computer-aided design of potential cardiovascular system drugs, metalloproteinase inhibitors and GPCR ligands as well as QSAR calculations of antimicrobially effective compounds are provided. The laboratory uses Schrödinger suite software, Gaussian, Codessa and other programs for statistical calculations and molecular modeling.

Research of surface-active compounds

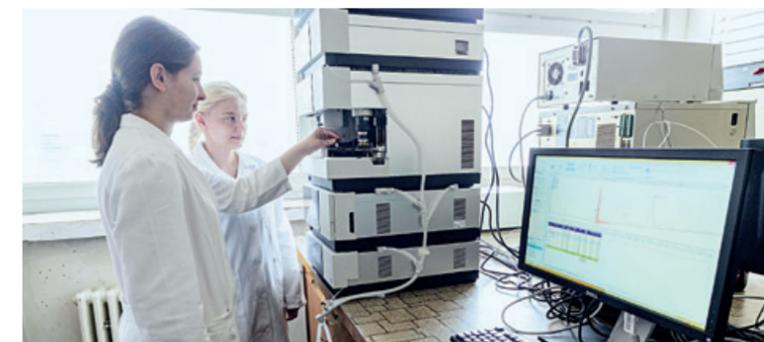
Assoc. Prof. Mgr. Fils Andriamainty, PhD.; andriamainty@fpharm.uniba.sk

The surface activity of newly synthesized compounds that is connected with their mechanism of action and affects pharmacokinetic properties is evaluated. Besides, their ability to form micelles (critical micellar concentration and thermodynamic aspects are determined), complexes and other adducts with drugs and transport through membranes are evaluated.

Study of physicochemical properties of drugs

PharmDr. Iva Kapustíková, PhD.; kapustikova@fpharm.uniba.sk

The physicochemical profile of newly synthesized compounds, including their lipophilicity, solubility and ionizability, is evaluated. Besides, compounds are evaluated in terms of their decomposition due to the influence of environment and enzymes. The project is also oriented on cooperation with the pharmaceutical production sector.



Analytical evaluation of the stability of drugs and finished dosage forms

Assoc. Prof. PharmDr. Miroslava Šykorová, PhD.;
sykorova1@uniba.sk

Within the project, analytical evaluation of the stability of APIs and finished dosage forms and validation of analytical methods in accordance with the EMA or FDA requirements is carried out. The project is oriented on cooperation with the pharmaceutical production sector.



Prof. PharmDr. Ján Klímas, PhD., MPH
Head of Department

"Essential to research success is neither outstanding scholarship, nor exceptional intelligence, but rather motivation and commitment." – Julius Axelrod (1912–2004), pharmacologist, Nobel Laureate, has developed treatments for the relief of pain and depression.

The Department of Pharmacology and Toxicology publishes every year (since 2006) a collection of scientific papers *Advances in Pharmacology in the Slovak Republic*

Department of Pharmacology and Toxicology organizes annually (since 1996) the Scientific Day of Young Pharmacologists (Annual Lectures in memory of Prof. František Švec MD, DrSc. and Prof. Pavel Švec, DrSc.).

Intervention into tryptophan metabolism as a therapeutic-diagnostic tool in renal aging under both clinical and experimental conditions

Mgr. Peter Vavrínek, PhD.; vavrinek@fpfarm.uniba.sk

Kidney aging is a decrease in renal function and is associated with a higher incidence of terminal stage of kidney disease and low renal transplant performance. Indolamine 2,3-dioxygenase (IDO) is an enzyme that metabolizes tryptophan to kynurenin. The aim of the project is to elucidate the therapeutic and diagnostic potential of tryptophan metabolism in the prevention of ischemia-reperfusion injury of the kidneys and the diagnostic potential in patients after renal transplantation.

Teranostic potential of alternative RAS components in modulation of right ventricular function and dysfunction

Prof. PharmDr. Ján Klímas, PhD., MPH;
jan.klimas@uniba.sk

The idea of renin-angiotensin system (RAS) being a simple cascade leading to angiotensin II formation was challenged during the discovery of new components (angiotensin-converting enzyme 2, angiotensin- (1-7), mass receptor), referred to as alternative RAS. Simple cascade was substituted with conception of regulated net, which is complicated. In the project we are studying an alternative system RAS, which is a promising system with potential for treatment but also for diagnosis of right ventricular function impairment, in particular as a result of pulmonary arterial hypertension.



Dynamics of Cardiac Damage: The role of necroptotic cell death and cardiomyocyte survival

Prof. PharmDr. Adriana Duriš Adameová, PhD.; adameova1@uniba.sk

The development of heart failure is a dynamic process ending with a significantly weakened mechanical function of the heart. At the terminal stage of heart failure due to myocardial infarction, we found higher expression / activation of certain necroptotic proteins in rats, indicating the role of necroptosis in remodeling and myocardial dysfunction. The ambition of the project is to record how necroptotic signaling changes with regard to the development of heart failure and whether it is possible to induce regression of necroptosis at early stages of failure progression.

Ageism - a multi-national, interdisciplinary perspective

Prof. RNDr. Magdaléna Kuželová, CSc.; kuzelova@fpfarm.uniba.sk

The project deals with problems related to demographic change and population aging (ageism). Focused on cooperation and joint team building, the creation of information databases and platforms, the exchange of experience, knowledge, expertise and dissemination of education in this area.

Pharmacological influence of the expression of endothelin cascade components in the model of pulmonary arterial hypertension

Assoc. Prof. PharmDr. Peter Křenek, PhD.; krenek@fpfarm.uniba.sk

We bring new insights into the role of the endothelin system in pulmonary arterial hypertension (PAH). Strong vasoconstrictor and mitogenic endothelin-1 peptide (ET-1) plays a key role in the pathogenesis of this fatal disease. In both endothelial cell and smooth muscle cell cultures of pulmonary arteries as well as in vivo in the monocrotal PAH model in rats we investigate the effect of drugs on ET-1 expression, we examine cascades that could be used to regulate ET-1 with drugs or combinations thereof.

Department of Organisation and Management in Pharmacy consists of two sections - Section of Social Pharmacy and Section of Retail Pharmacy. Currently it deals with the following scientific projects:

Project EUnetHTA Joint Action 3 (2016 - 2020)

Assoc. Prof. PharmDr. Tomáš Tesař, PhD., MPH, MBA, MSc. (HTA); tesar@fpfarm.uniba.sk

Department of Organisation and Management in Pharmacy, Faculty of Pharmacy, Comenius University in Bratislava is involved in the project EUnetHTA Joint Action 3 (2016 - 2020). The project aims to define and implement a sustainable model for the scientific and technical cooperation on Health Technology Assessment (HTA) in Europe. The collaboration consists of 81 organisations from 29 countries.

More information: <https://www.eunetha.eu/ja3-archive/>

Pharmaceutical clinical study evaluating the effectiveness of mHealth interventions on improving medication adherence of older hypertensive patients in Slovakia (SPPA clinical study)

PharmDr. Zuzana Haramiová, PhD.; haramiova@fpfarm.uniba.sk

The SPPA study is a pragmatic randomized study assessing the effectiveness of SMS reminders of medication intake on improving older patients' adherence involving 300 hypertensive patients. Adherence was assessed using the MMAS-8 scale, allowing identification of intentional vs. unintentional non-adherence, and pill count. After 3 months, 88.4% patients were adherent in the intervention group whereas only 53.0% in the control group ($\chi^2=43.0$, $p<0.001$). Furthermore, patients in the control group had a 4.06 times higher risk (95% CI = 2.51-6.55) of being non-adherent compared to patients in the intervention group showing that mHealth pharmaceutical services may improve patient's adherence at low additional costs.

Partner Institution of the International Research Interdisciplinary School (IRIS)

PharmDr. Zuzana Haramiová, PhD.; haramiova@fpfarm.uniba.sk

International Research Interdisciplinary School (IRIS) is a workshop-based research course originating from an educational program of the Duke University. It trains clinical and academic professionals from around the world in developing successful research projects. Program of the interactive IRIS workshops focuses on research design, study conduct, ethical aspects of research, analysis, reporting of results and academic publication. Furthermore, it presents a viable forum for building international idea-exchange and networking opportunities.

Advanced Training in Pharmacy Care (ATIP)

Assoc. Prof. PharmDr. Daniela Mináriková, PhD.; minarikova@fpfarm.uniba.sk; More information: www.atip.uniba.sk

Project was introduced at the Faculty of Pharmacy, Comenius University in Bratislava, in 2015. The partners of ATIP are the pharmaceutical company Wörwag Pharma GmbH & Co. KG and the Slovak Pharmaceutical Students' Association. The project is intended for students in the 4th years master degree study. Its aim is the linkage study with practice, interactive education and involving students in the research of pharmaceutical care.



Evaluation of the effectiveness of clinical pharmacist-led interventions in the pharmacotherapy of patients in Slovakia

PharmDr. Zuzana Haramiová, PhD.; haramiova@fpfarm.uniba.sk

The project evaluates the effectiveness of interventions led by clinical pharmacists in the rationalization of patients' pharmacotherapy at the Clinic of Vascular Surgery at the National Institute for Cardiovascular Diseases in Bratislava. The primary goal is to assess the effectiveness of medication review of hospitalized patients focusing on the rate of potential risk identification and acceptance of proposed changes. Other evaluated interventions of clinical pharmacists also include the control of biochemical parameters, identification of high-risk patients and medication reconciliation.



"The system in our action helps us restore order in the patient's body."

Assoc. Prof. PharmDr. Tomáš Tesař, PhD., MPH, MBA, MSc. (HTA)
Head of Department

The Department through its teachers actively cooperates with Slovak Pharmaceutical Society in organization of professional conferences (Pharmaceutical Days) not only by organizing, but also by active contribution of professional lectures and posters since 1991. Since 2011 the Department together with publishing house Solen manages the content of professional journal "Practical Pharmacy" for pharmaceutical practice. The journal is indexed in the Bibliographia Medica Slovaca (BMS) and citations are processed in CibaMed.



Prof. Ing. Milan Nagy, CSc.
Head of Department

Every encounter with people I think about them: "Where have they been so far and why have we not met yet?" or: "Where have they been so far and why did they not stay there?"
(Max Raabe)

Four members of academic staff are in editorial board of the journal "Liečivé rastliny/Léčivé rostliny" ("Medicinal Plants")

Department of Pharmacognosy and Botany organizes the "Symposium on Medicinal Plants and Natural Drugs" with international participation from academic departments, producers and processors of medicinal plants and producers of phytoremedies and food supplements.

Diabetes mellitus 2 influencing by plant metabolites

Prof. PharmDr. Pavel Mučaji, PhD.; mucaji@fpfarm.uniba.sk

The aim of the project is to monitor the influence of extracts of selected plants and their content on some important factors in the etiopathogenesis of type 2 diabetes and to explain the positive effects of these plants. The effect of extracts and isolates on the dipeptidyl peptidase IV and aldose reductase enzyme will be assessed as well as on the HUVEC cell line the effect on the dipeptidyl peptidase IV expression and the effect on the formation and secretion of glucagon-like peptide 1 in cell cultures of CaCo2 cells.

Potential of plant metabolites for the treatment of rheumatoid arthritis

Assoc. Prof. PharmDr. Szilvia Czigle, PhD.; czigle@fpfarm.uniba.sk

The main focus of the project is the study of the therapeutic potential of plant metabolites for the treatment of rheumatoid arthritis, especially for combination therapy with methotrexate. A model of adjuvant arthritis (AA) induced in Lewis rats is used. The development of AA and its pharmacological influence is characterized by parameters describing immunological, oxidative and inflammatory processes. Evaluated substances are administered in a preventive-therapeutic and therapeutic setting. The subchronic model AA is supplemented with an acute model of carrageenan-induced inflammation. The effectiveness of selected substances is also verified on the collagen model of arthritis.

Study of interactions between plant metabolites and their interactions with drugs

Prof. Ing. Milan Nagy, CSc.; nagy@fpfarm.uniba.sk

The observed biological activities of plant extracts are always the result of the interaction of their individual components with the given test model. The aim of the project is therefore *in vitro*, *ex vivo* and *in silico* study of model plant metabolites mixtures or mixtures of plant metabolite with drugs, respectively. The results of the experiment subsequently are correlated with its predicted reaction / metabolic mechanism and structures of the tested plant metabolites. Attention is also paid to the influencing of binding properties of albumin, the most important transport protein for xenobiotics.

Novel antimicrobial plant secondary metabolites

PharmDr. Silvia Bittner Fialová, PhD.; fialova@fpfarm.uniba.sk

Injudicious and unnecessary use of antibiotics leads to the increasing resistance to antimicrobial drugs. One of possible solutions is to search for the new active substances. The aim of the project is to validate antimicrobial activities of medicinal plants and their secondary metabolites, and at the same time to eliminate their toxic and irritating effect on the human cells *in vitro*. The result of this project should be a selection of natural substances and their mixtures and a consequent transformation to new antimicrobially active products with potential use in the local application form for the treatment of skin and burn wounds infections, and in the prevention and treatment of root canals infections of devital teeth and periradicular tissues.

(Phyto)estrogens influence on wound healing

RNDr. Peter Gál, PhD.; gal@fpfarm.uniba.sk

Decreased level of estrogens in women represents one of the major factors responsible for many age-related biological events including poor wound healing. Previously, it has been shown that estrogen replacement therapy is able to improve as well as worsen the wound healing process. The exact underlying mechanism of the role of estrogens and estrogen receptors in tissue repair and regeneration is still poorly understood. In this research project, therefore, the effect of estrogens and selected phytoestrogens on different wound healing models is investigated in ovariectomized rats *in vivo*. In addition, the influence of estrogens and selected phytoestrogens on cells (fibroblasts, keratinocytes, endothelial cells) involved in wound healing will be investigated *in vitro*.



Lipid mesophases in target drugs delivery

Prof. RNDr. Daniela Uhríková, CSc.; Mgr. Norbert Kučerka, DrSc.; kucerka1@uniba.sk

The aim of the project is physico-chemical study of phospholipid based nanocarriers as potential delivery vectors of drugs, focusing on nucleic acids. Nanocarriers from phospholipids and/or glycerol monooleate and pH responsive amphiphiles are designed with the aim to follow stimuli responsive drug release induced by pH changes and/or temperature. The structure and stimuli induced (pH, temperature) structural polymorphisms is studied using synchrotron small-angle X-ray diffraction. The binding capacity of nanocarriers for NA is followed by spectral methods (UV-VIS, uorescence). Transfection efficiency *in vitro* is tested for nanocarriers at selected composition.

Biophysical study of the interaction of amphiphilic antimicrobial substances with model membrane

Assoc. Prof. Ing. Vladimír Frečer, DrSc.; Assoc. Prof. RNDr. Jana Gallová, CSc.; gallova1@uniba.sk

The project is composed of two parts: Molecular design of new molecules with antimicrobial properties derived from natural peptides. Characterization of structure-activity relationships based on the calculated molecular descriptors and antimicrobial mechanism of action of cationic amphiphilic peptides are keystone for proposed new antimicrobial peptidomimetics. Parallel experimental approach follows interactions of longchains amphiphiles and commercially available antimicrobial peptides with model membranes, focusing to their permeability and solubilization. Models of membranes mimic composition of bacterial membranes as well as membranes of mammalian cells.

Fluorescence spectroscopy, turbidimetry, neutron scattering and X-ray diffraction are applied experimental methods.

Computational design, synthesis, testing and disposition of inhibitors of neuraminidases of influenza A virus as potential antiviral compounds

Assoc. Prof. Ing. Vladimír Frečer, DrSc.; frecer1@uniba.sk

The project proposes to use rational computer-assisted drug design, development of new unique synthetic strategies, activity testing of new analogs in neuraminidase inhibition assays as well as development of drug-delivery systems. Analogs containing phospho and sulfo isosters of the key carboxyl group, stereoisomers and other derivatives of the antiviral drugs: oseltamivir, zanamivir, peramivir a laninamivir approved for treatment of influenza, will be designed to inhibit neuraminidase subtypes N1, N3, N7 and N9 of the influenza A virus. In addition, the research is focused to development of lipid-based drug-delivery systems, which will ensure increased oral bioavailability of the designed inhibitors also for derivatives of antiviralotics that are at present available only by inhalation or intravenous routes.

Promising compounds will be synthesized, tested for inhibitory potency and selected for further pharmaceutical development.



Physico-chemical characteristics and structural changes of pulmonary surfactant and its model systems induced by bacterial endotoxin.

Prof. RNDr. Daniela Uhríková, CSc.; uhrikova1@uniba.sk

The research is under common project with Jessenius Faculty of Medicine CU, "Pulmonary surfactant as a modulator of body's response to endotoxin exposure: effects and mechanisms" (project leader Prof. MUDr. A. Čalkovská, DrSc.).

The aim of the project is to contribute to the understanding of the role of surfactant in the local defensive mechanisms of the lungs namely at its inactivation by endotoxin. Potential use of surfactant as a carrier of drugs with anti-inflammatory, antioxidant or antimicrobial properties directly to the respiratory system is tested as well.



"The roots of education are bitter, but the fruit is sweet."
(Aristotle)

Prof. RNDr. Daniela Uhríková, CSc.
Head of Department

The up-to-date projects and the most important results of the last two years:

The Department is presently involved in four projects supported by granting agencies of Slovakia. Newly supported (in 2018) are two of them: computer-assisted design of new antiviral substances, and topic of pulmonary surfactant. The department is cooperating organization in the latter.



"Everyone is a genius. But if you judge a fish by its ability to climb a tree, it will live its whole life believing that it is stupid."
(Albert Einstein)

RNDr. Klára Gardavská, CSc.
Head of Department

Since the year 1967 the Department of Galenic Pharmacy regularly organizes a scientific conference titled **Technological Days**, in which, besides Slovak and Czech experts, participated also significant foreign experts. An important aspect of the conference is its link to practice, as active participants are not only staff from the university environment but also from the research, development, production areas and staff involved in the quality evaluation of medicines.

Development of Drug Forms Focusing on the Pharmacokinetic and Therapeutic Effects of Drug

Assoc. Prof. RNDr. Zuzana Vitková, PhD.; vitkova1@uniba.sk

These research papers are as follows:

- Perspective drug generations - drug targeting delivery from the point of view of pharmaceutical technology
- Problems of poorly soluble drugs delivery - the role of micellar carriers
- Solution of the generalized task predication of *In vitro* - *In vivo* Correlation (IVIVC)
- *In-silico* experiment in the prediction of pharmacokinetics and the therapeutic effect of the drug

Microparticles and pellets in various formulations containing synthetic and natural excipients

Mgr. Martina Čierna, Prof. PharmDr. Pavel Mučaji, PhD.; cierna20@uniba.sk

The project deals with the formulation of granules, microcapsules and pellets using new excipients of natural nature, e.g. mucilage from the plant *Plantago ovata*. The effect of these excipients on kinetic drug release from the dosage form as well as other potential benefits, e.g. mucoadhesive properties, is studied. Drug formulations contain medications with problematic pharmacokinetics (acyclovir) which could be a solution to long-lasting in the GIT and to achieve this goal can support natural polymers. Research is based on the evaluation of dissolution profiles, the comparison of drug formulations with available formulations on the market, the influence of excipients used on the physical properties and stability of the prepared microparticles and pellets.

Development of topical semi-solid dosage forms

PharmDr. Veronika Šimunková, PhD.; simunkova1@uniba.sk

Research is focused on the development of dermal semi-solid drugs, which study the effect of enhancers on release of guaiazulene from hydrogels and comparison with a commercially available product. Also, it is the development of a mucoadhesive gel containing the spirocyclic dipeptide in combination with selected natural extracts, respectively drugs as well as the study of eye instillations.

Nanodisperse carrier systems in dermal and transdermal applications

PharmDr. Miroslava Špaglová, PhD., PharmDr. Mária Čuchorová, PhD., PharmDr. Lenka Starychová, PhD.; hukelova1@uniba.sk

Research focuses on the preparation and evaluation of nanodispersed carrier systems for heavily soluble drugs (eg terbinafine hydrochloride, indomethacin, tretinoin, minoxidil). It focuses in particular on microemulsion and nanoemulsion in the function of dermal and transdermal drugs to improve permeation of drugs and their passage to target sites at desired concentrations. Various types of polymers, especially chitosan, thermosensitive poloxamers are used in the production of carrier systems to allow for a specific structure with improved bioadhesiveness and stability while improving drug release.

Development of application and drug formulations containing plant extracts

PharmDr. Katarína Bauerová, DrSc., PharmDr. Desana Matusová, PhD., RNDr. Klára Gardavská, PhD., PharmDr. Terézia Haršányová; matusova1@uniba.sk

The project aims to study the effectiveness of plant extracts from olive leaves, *Rhodiola rosea* and *Tribulus terrestris* to reduce markers of inflammation, oxidative stress and cachexia. The aim is to prepare optimal dosage forms suitable for oral and dermal, respectively transdermal applications that is used in preclinical trials to develop effective adjuvant therapy, especially chronic diseases accompanied by inflammation and subsequent cachexia. In addition to the basic qualitative parameters of the pharmaceutical form, attention is paid in particular to the control of release kinetics, increased bioavailability of the biologically active substances and the safety of the administered forms (tinctures, tablets, suspensions and transdermal patches). From biological approaches, an experimental model of arthritis related to biochemical and immunological analysis of anti-inflammatory, antioxidant and anabolic activity is applied. From the point of view of drug technology, the use of enhancers and other excipients in the context of modifying bioavailability and controlling the release of active substances is evaluated. The researchers cooperate with the Department of Pharmacology of Inflammation at the Institute of Experimental Pharmacology and Toxicology of the SAS Center for Experimental Medicine and with foreign academic institutions in Turkey and Bulgaria.

To communicate everywhere, correctly and accurately

The Department of Languages at the Faculty of Pharmacy of Comenius University focuses on providing terminology preparation for students of the Faculty of Pharmacy of Comenius University. It provides Latin-Greek pharmaceutical and medical terminology for pharmacists as a part of the Master's degree in Pharmacy and in the Bachelor's Study Programme in Medical and Diagnostic Devices. In the international study programme, besides the Latin language and academic foreign language preparation, there are also seminars in the Slovak language. Courses of the Slovak language enable international students to learn the basic Slovak terminology of efficient communication in the pharmacy. Academic language preparation is offered in the English and German languages. In 2017, the Department of Languages was accredited to teach the English and German languages for pharmacists in the International Certification Programme UNICert® which enables students to obtain an internationally recognized certificate UNICert® of professional language competence for pharmacists. Students learn specific terminology and gain the necessary language skills for further study and work in the pharmaceutical field. The scientific research activities of the members of the Department concentrate on the terminology research in pharmaceutical and medical lexicology and continuous research on selected topics of classical philology. Another significant area of research deals with didactic-methodological aspects of teaching the foreign language as a means of professional communication. Research results are published in professional studies, university textbooks, teaching materials and scientific monographs. The Department of Languages organises symposiums on the history of medicine and pharmacy with international participation and closely cooperates with domestic and foreign academic and scientific institutions.

Major research themes and projects

- Terminology and naming of medical herbs *PhDr. Tomáš Hamar, PhD.*
- The oldest history of pharmacy: Avicenna *Assoc. Prof. PhDr. Ludmila Ozábalová, PhD.*
- Terminology research on medical literature of late antiquity: Caelius Aurelianus *PhDr. Tomáš Hamar, PhD.*
- Research on Slovak history of pharmacy using Latin written literature *Assoc. Prof. PhDr. Ludmila Ozábalová, PhD. and PhDr. Tomáš Hamar, PhD.*
- Research on lexical blends in professional terminology *Mgr. Ing. Erika Jurišová, PhD.*



"Nil volenti difficile"
(Nothing is impossible for the strong-willed.)

PhDr. Tomáš Hamar, PhD.
Head of Department

The Department organises:

Symposiums on the history of medicine and pharmacy
Workshops focusing on innovation in teaching languages for specific purposes

Our Partners

Department of Languages for Specific Purposes
University of Pécs, Medical School, Hungary
Institute of Foreign Languages
Faculty of Medicine of Comenius University in Bratislava
Department of Classical and Semitic Philology
Faculty of Arts of Comenius University in Bratislava
Department of Language Teaching and International Students,
Sofia University of "St. Kliment Ohridsky" Bulgaria





"Are you running out of breath? ... Go faster"
(Emil Zátopek - four-time Olympic winner in long-distance run)

PaedDr. Martina Tibenská, PhD.
Head of Department

Events organized by the Department

- Tennis tournament (whole-university event)
- Sports Day for students and employees of FaF UK "Moving, Pharmacy" (3-hour aerobics training, table tennis tournament)
- Badminton tournament, futsal tournament, crossfit - competition, biking and hiking

We cooperate

- Department of Health Promotion; Public Health Authority of the Slovak Republic, Bratislava
- Institute of physical educations and sports, University of Veterinary and Pharmaceutical Sciences Brno



Major Project of the Department

Monitoring the somatic, motor and functional indicators of FaF UK students at the beginning of their studies at college and during the first two years of study, it means during the four semesters of the subject "Physical Education".

PaedDr. Martina Tibenská, PhD.; Mgr. Nagyová Lenka, PhD.; Mgr. Dalibor Ludvig, PhD.; Mgr. Michal Tokár, PhD.

Contact: tibenska@fpharm.uniba.sk

Topics of the Department

Motion activity - its realization and impact on health
Mgr. Dalibor Ludvig, PhD.; PaedDr. Martina Tibenská, PhD.
Contact: ludvig@fpharm.uniba.sk

Healthy nutrition - it is importance for the ordinary life and the life of the sporting person
Na projekte pracuje: Mgr. Nagyová Lenka, PhD.; Mgr. Michal Tokár, PhD.
Contact: nagyova@fpharm.uniba.sk

Regeneration, compensation, prevention - methods, realization, integration into ordinary life
Mgr. Michal Tokár, PhD.; Mgr. Nagyová Lenka, PhD.
Contact: tokar@fpharm.uniba.sk



"The path is a goal for the pilgrim and the maze for the wanderer."

Prof. RNDr. Peter Mikuš, PhD.
Director of TAC

The Toxicological and Antidoping Centre FP CU along with the Department of Pharmaceutical Analysis and Nuclear Pharmacy publish irregularly (since 2017) the collection of abstracts and scientific papers "HPLC-MS".

The Toxicological and Antidoping Centre FP CU along with the Department of Pharmaceutical Analysis and Nuclear Pharmacy organise irregularly (since 2017) a scientific meeting "HPLC-MS seminar/workshop".

Development of Advanced Instrumental Methods for Toxicological and Antidoping Analysis

Prof. RNDr. Peter Mikuš, PhD.; mikus@fpharm.uniba.sk

The project is aimed at the development of advanced (mainly multidimensional) methods representing more objective and effective alternative to the established routine methods in toxicological and antidoping analysis. These methods offer benefits of automatization and miniaturization of the analyses and their significant simplification through an integration of several steps of the analytical procedure (namely sample pretreatment, elimination of sample matrix, preconcentration, analysis and detection of separation profiles) in one on-line experiment.

Development of Advanced Instrumental Methods for Pharmaceutical and Biomedical Analysis

PharmDr. Daniel Pecher; pecher1@uniba.sk

The division of high performance separation techniques co-operates, within the grant projects VEGA 1/0463/18 "New approaches in an analytical evaluation of drugs, their biodegradation products and metabolic markers in biological matrices in a relation to the optimization of inflammatory bowel diseases therapy" and APVV-15-0585 "Analytical evaluation of clinical sample profiles and markers in the relation to the optimization of thiopurine therapy of inflammatory bowel diseases", with the St. Michael hospital on the development of new methods based on an on-line hyphenation of high performance separation techniques (HPLC, CE) with DAD and/or tandem mass spectrometry for an early diagnostics and efficient setting of the therapy for the patients suffering from inflammatory bowel diseases (IBD).

Pharmacoproteomics and Pharmacogenomics: Cholinergic Mechanisms in the Heart Physiology

Assoc. Prof. PharmDr. Anna Hrabovská, PhD.; hrabovska@fpharm.uniba.sk

The project is focused on the study of cholinergic system in CNS and the periphery in mouse models with hyper cholinergic conditions. The results of the analyses and implications deepen the current knowledge on non-neuronal cholinergic system in the blood-vessels.

Chemical and Biological Information Systems and Technologies in Pharmacy

PharmDr. Vladimír Garaj, PhD.; garaj@fpharm.uniba.sk

The project is focused on molecular modelling and the study of characteristics of the drugs established in the therapeutic practice as well as new potential drugs. This work is accomplished through the targeted projection, modelling, and the study of ADMET characteristics of new HDAC inhibitors, considered as potential antineoplastics. Other fields, where the research is focused on, are the study of anticoagulants, antithrombotic and antihypertensive agents, and antituberculotics. The main emphasis is placed on the study of relations between the chemical structure and biological activity using the ab initio methods, DFT, molecular anchoring, virtual screening, ADMET predicting, and creating of QSAR models.



Development of New/Alternative Methods for Quantification of Plant and Animal Metabolites for the Study of Biochemical processes

Assoc. Prof. PharmDr. Marek Obložinský, PhD.; oblozinsky@fpharm.uniba.sk

The project is aimed on the development of new/alternative methods for the quantification of plant and animal metabolites allowing reliable assessment of the mentioned molecules on the subcellular level. The precise quantification is linked with the monitoring of changes of the metabolites in relation to the signal transduced processes in plant and animal cells, especially in the context of regulation mechanisms of the biosynthesis of therapeutically active plant compounds, as well as potential antioxidant compounds in different pathological conditions.



The Faculty Pharmacy



"Just as important as the right medicine is its proper use."

PharmDr. Miroslava Snopková, PhD.
Head of Pharmacy; faf.lekaren@uniba.sk

Our partners

Faculty of Pharmacy, Comenius University in Bratislava
Slovak Chamber of Pharmacists

Latest projects and most important results

- Nineteen seminars have taken place between 2015 and 2018 with nearly 500 attendees.
- FARMAAN@ application for pharmacotherapeutic analyses
- "Who's got the keys from the poison cabinet?" a guide for pharmacists to clinical practice; "handout" for public (instructions to households with the most important information); both in cooperation with Slovak Chamber of Pharmacists



Provides pharmaceutical care for the public, for the ambulatory facilities and for Comenius University workplaces. The pharmacy is a practice workplace of the Faculty of Pharmacy in Bratislava for undergraduate and postgraduate teaching in the field of pharmacy, as well as the teaching workplaces of secondary medical schools for the field of pharmacy technician. The pharmacy continuously performs biochemical measurements, engages in preventive programs and actively promotes environmental enlightenment.

Research

Current projects:

- Evaluation of pharmacological, pharmaceutical and economic indicators of the community pharmacy
- The efficiency of pharmacy management
- Mineral supplements as part of the pharmaceutical care
- Pharmacist's role in the care of polymorbid patients
- Self-medication in Slovakia
- Financial and nonfinancial performance in healthcare

"Pharmaceutical Care" Project

The project purpose is to improve population health and reduce the costs (public health insurance, patients direct payments and indirect costs of health care). We develop standards of pharmaceutical care through pharmacotherapy analysis (in the meaning *Good Pharmacy Practice*) in the field of interaction potential (possible interactions between medicines, food supplements, food and drinks) and in the area of therapeutic duplicity or multiplicity.

"Pharmacy for All" enlightenment project for public

the lecturers are pharmacists and university teachers, medical doctors, invited experts, lawyers, scientists and others

Questions regarding the use, effectiveness and safety of medicines meet everyone during their lives. Unfortunately, often the patient does not have all the necessary information they should know. Or the patient has a lot of information, but it is difficult for him to assess and evaluate them. These aspects may cause clinical problems, because successful treatment is mainly dependent on the proper and right use of medicines.



Patients are turning to the general, naive and often dangerous web portals, or to the information spread by non-educated friends. The solution to this problem is the communication of proper, professional and understandable information through professionals. This project offers (from November 2015) a possibility to ask any questions concerning medicines and pharmaceuticals, to learn something new about pharmaceuticals.

Pharmacotherapy analyses according to the physician requirements

Comprehensive provision of pharmaceutical care through direct physician-to-pharmacist collaboration. Pharmacists play a very important role in ensuring optimal pharmacotherapy of patients and they can contribute to increasing the safety of therapy. In cooperation with other healthcare providers (physicians) pharmacists can create conditions for rational pharmacotherapy for the patients.

The University Pharmacy



"Professional care to relieve patients from difficulties."

PharmDr. Tatiana Geročová, PhD.
Head of Pharmacy

Our Partners

The pharmacy cooperates with several medical facilities in the delivery of medicines and medical devices to the facilities (the ambulance of doctors in the Ružinovska polyclinic, Center for Drug Addiction Treatment, VESELY Eye Clinic, Eye Center Dr. Böhma, Eye Center Excelens, TeamPrevent Santé, Regional Public Health Service Bratislava).

Latest projects and the most important results

Based on the submitted submissions, suppliers of medicines and medical aids were also provided by the Slovak Hydrometeorological Institute and Water Management, a state enterprise. The pharmacy is actively involved in various educational projects for the benefit of patients, such as From Heart to Heart, IPL Support, and the Hellenic Chamber of Commerce (Interaction of Drug) projects

In the university pharmacy, students from the Faculty of Pharmacy of the Comenius University, from slovak and foreign study programmes of Faculty of Pharmacy, teachers from faculty are Assoc. Prof. Magdaléna Fulmeková, CSc., PharmDr. Ľubica Lehocká, PhD. and PharmDr. Lucia Masaryková, PhD.

Contact:

The University Pharmacy, Faculty of Pharmacy, CU
Ružínkovská 12A, 821 01 Bratislava,
univerzita@ulfafuk.sk

Return people to health

University pharmacy of the Faculty of Pharmacy is a science and pedagogical workplace integrated into the teaching base of the Faculty of Pharmacy of the Comenius University focused on the comprehensive provision of medical care to residents and healthcare facilities. The aim of the University Pharmacy is to provide medical care at the highest possible level.

The emphasis is therefore on:

- For expenditure on the cost of each drug and medical device,
- Information and consultancy services relating to the sale of prescription-free medicines and medical devices, dietetic foods, nutritional supplements and cosmetics with regard to the safety and justification of pharmacotherapy,
- Information and counseling on the prevention and control of the treatment of civilization diseases such as diabetes, hypercholesterolaemia, high blood pressure, overweight and obesity that contribute to treatment by measuring physical and biochemical parameters (blood glucose, cholesterol and triglycerides, pressure) in the part of the outpatient clinic,
- Ensure the optimal spectrum and quantity of commonly prescribed drugs and medical devices,
- For the preparation of all types of prescribed personal preparations, and everything for a 24-hour continuous pharmacy operation throughout the year.

Team: PharmDr. Tatiana Geročová, PhD., Mgr. Petra Jakubiaková, Mgr. Katarína Gazdíkovej, Mgr. Eduard Huorka, PharmDr. Anna Michniaková, Mgr. Helena Palkovičová, Mgr. Juliana Tóthová, PharmDr. Lenka Trenčianska, PharmDr. Peter Stanko, PharmDr. Ludmila Strašitáková, PharmDr. Marcela Špringerová

