

***PROGRESS REPORT
OF THE FACULTY OF PHARMACY
FOR THE YEAR 2010***



Progress report of the Faculty of Pharmacy for the year 2010

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- *Books and chapters of books*
- *Scientific and professional articles*
- *Invited lectures*
- *Lectures and presentations at conferences*
- *General scientific publications*
- *Important treatises and reports*
- *Patents*
- *Student books*
- *Other publications*

FOREWORD

Dear readers. Thank you for reading the Progress Report of the Faculty of Pharmacy for the year 2010.

The year 2010 was extremely successful for the Faculty of Pharmacy in all areas. It was marked by important shifts in the pedagogical area, as we started implementing a completely new university study programme Cosmetology, which received plenty of interest from students already in its first year of existence. We continued with simultaneous implementation of some of the courses for two generations of students due to the Bologna reform. This again exposed HR problems and particularly spatial problems, which will remain the Faculty management's main area of operation also in the future.

The end of 2010 passed in the sign of a celebration of the 50th anniversary of the beginning of the entire pharmaceutical study in Slovenia. The celebration was attended by numerous high guests from the profession, academic institutions and the economy. The keynote speakers were the president of the National Assembly of the Republic of Slovenia Pavel Gantar, PhD and the Chancellor of the University of Ljubljana Prof. Radovan Stanislav Pejovnik, PhD. On this opportunity, the Faculty of Pharmacy granted acknowledgments to individuals, companies and institutions, who have made the most significant contributions to the recognisability and international establishment of the Faculty.

At the Faculty of Pharmacy we continued with our strategic orientation towards systematic equipping of our laboratories with the most up-to-date research equipment also in 2010. Several technologically most advanced instruments, such as 400 MHz NMR and microtitre scanner with robotic arm, were installed. In the year 2010 too, we managed to acquire several new European projects and maintain a high level of publishing in top scientific journals, which is reflected in the increased number of our citations. The fact, which must be specially emphasized, is that the level of international student exchanges increased, which is an important indicator of the quality of our

pedagogic work. The teachers at the Faculty of Pharmacy as well should attain such a high level of international mobility!

In spite of increasing pedagogic burdens of teachers and assistants at the Faculty of Pharmacy, we won more awards and acknowledgments in 2010 than in any year before. Prof. Samo Kreft, PhD, received the Zois Award for the research work in the field of medicinal plants, plant secondary metabolites, their analytics and biological activity. The Chancellor of the University of Ljubljana granted the title of Professor Emerita to Prof. Jana Lukač Bajalo, PhD. Prof. Borut Štrukelj, PhD, received the Golden Award of the University of Ljubljana for outstanding merits in the field of scientific and pedagogic activity of the University of Ljubljana as well as for strengthening its reputation. Postgraduate students of the Faculty of Pharmacy won five various national and international awards for their PhD theses and their research work, and the researchers at the Faculty of Pharmacy won four awards for innovations in the field of pharmacy. This is only one more proof of the increasing recognition of the Faculty of Pharmacy with its excellent pedagogues, researchers and extremely engaged students at home and abroad.



Prof. Stanislav Gobec, PhD

Dean of the Faculty of Pharmacy

1 PRESENTATION OF THE FACULTY OF PHARMACY

“FROM THE BEGINNING OF PHARMACY IN SLOVENIA TO THE MODERN PHARMACEUTICAL PROFESSION AND SCIENCE”

Drugs and curing diseases have accompanied man throughout his existence. The area of Slovenia saw the education of pharmacists and introduction of the doctrine of quality work in the pharmaceutical profession in as early as the 17th and 18th centuries, with the 1710 introduction of the Pharmaceutical code for the Duchy of Carniola. In the 19th century, most pharmacists from the area of present-day Slovenia studied at the universities of Vienna, Graz and Padova, and later also at the Faculty of Zagreb. The study programme in pharmacy was carried out in the first purpose-built building, which was designed by architect Plečnik in 1921. After the reorganisation of study programmes, the comprehensive study programme in pharmacy was introduced in 1960 at the Faculty of Natural Sciences, comprising also the contents of the laboratory biomedicine. In 1995, after the reorganisation of the Faculty of Natural Sciences and Technology, the independent Faculty of Pharmacy was founded. In 1999, the Faculty of Pharmacy saw the completion of the south wing, and in 2005, the attic of the old part of the building was renovated. All this has resulted in improved conditions for modern pedagogical, scientific and professional work, although it still does not meet all the spatial needs of the Faculty students and personnel.

Besides the premises, programmes are undergoing reforms as well, as monitoring of the modern development is a prerequisite for successful pedagogic, scientific and professional work. The renewed unified master's study programme in Pharmacy, doctoral programme in Biomedicine, the 1st cycle programme in Laboratory Biomedicine and the new 1st cycle programme in Cosmetology and the 2nd cycle Industrial Pharmacy and Laboratory Biomedicine are based on connections of scientific and research work and practical tasks in all areas of the pharmaceutical and biomedical profession and science.

The mission of the Faculty of Pharmacy is as follows:

1. Development, planning and implementation of undergraduate, higher and postgraduate education, training of future professionals for conducting the most demanding scientific, development and professional work in the fields of pharmacy and laboratory medicine.
2. Planning and implementation of scientific research work in the broader context of pharmacy, clinical biochemistry and borderline natural sciences.
3. Care for professional activities in the fields of health and healthcare within the context of pharmaceutical and laboratory activity, carrying out professional and development tasks for the needs of the pharmaceutical industry and government institutions, and promotion of the pharmaceutical profession in the Republic of Slovenia and abroad.

The primary objective of the Faculty of Pharmacy is to develop scientifically and professionally qualified graduates familiar with ethical principles, who independently carry out demanding tasks in pharmacies, the pharmaceutical industry, hospital pharmacies, clinical biochemical and other medical laboratories, in laboratories for control and analyses, research institutions, educational organisations, state bodies, representative offices of foreign pharmaceutical companies, and wherever the work and presence of a pharmacist is required to increase health safety and care. We strive to ensure that the graduates at the Faculty of Pharmacy have equal qualifications to those of graduates of the modern, prominent European faculties of pharmacy.

ORGANISATION OF THE FACULTY OF PHARMACY

The Faculty of Pharmacy comprises six Chairs. All Chairs participate in the pedagogical process and are involved in the formation and discovery of new active substances or drug forms or in the discovery and valuation of disease markers within their research work.

Active substances or drugs can be developed in many ways: by isolation of the substance from natural sources, mostly medicinal herbs or parts of animal tissues; by means of the latest biotechnological methods, where the knowledge of molecular genetics and recombinant DNA technology are used; or by synthesis of new substances.

The Chair of Pharmaceutical Chemistry

At the Chair of Pharmaceutical Chemistry, molecules of new active substances are prepared on the basis of validated targets. New molecules are designed by using modern computer-assisted methods based on the structure of their binding site. This is followed by multi-stage chemical synthesis, which yields the desired compounds. We are currently preparing new enzyme inhibitors that are involved in the process of blood coagulation, compounds that inhibit the biosynthesis of a bacterial cell wall and compound with antitumor action. The prepared molecules are biologically evaluated and their properties are optimised on the basis of the relation between their structure and action.

The Chair of Pharmaceutical Biology

The Chair of Pharmaceutical Biology is engaged in the research of drugs of natural origin. It develops methods of analysis and quality verification of medicinal herbs and determined how to grow and where to gather top-quality medicinal herbs. By studying biological efficacy of active substances in herbs and fungi that are not yet used for therapeutic purposes, it also searches for promising new drugs.

With the development of the techniques of genetic engineering came better possibilities for acquiring new active substances of recombinant origin. For the investigation of medicinal herbs as well as for recombinant drugs, i.e. proteins that are completely identical to human ones even though they were produced in fermentors, we use modern techniques of pharmaceutical biotechnology. Molecule biological techniques, such as biological combinatorial libraries are used for searching new chemical structures with a desired therapeutic effect. Using the methods of molecular and cellular biology we also research the molecular mechanisms of the development and progression of cancer, antitumor immune response, atherosclerosis, obesity, neurodegenerative and other diseases, to identify the most important targets for therapeutic and diagnostic interventions.

The Chair of Clinical Biochemistry

For successful identification of diseases it is essential to know their causes; these are the subject of research at the Chair of Clinical Biochemistry. Clinical Biochemistry determines the causes and consequences of the changed values of substances in the body essential for the organism to function properly. The increased or decreased values predict a change of the physiological condition of the body, which often leads to disease. We study changes in gene structure and expression, which cause the emergence of different proteins or changed quantities of individual proteins and lead towards the development of disease. Once the cause has been determined, we can start a targeted search for new and more efficient drugs or choose the most suitable drug among existing ones. Knowledge of genes that are involved in pathophysiological mechanisms forms the basis for the development of potential genetic drugs. Changes in genes are also responsible for different reactions of patients to a certain drug, so the investigation of these changes has become an important part of the treatment tailored to the individual.

The Chair also works in pharmacogenomics. This is a field where genome-related knowledge is used in different segments of pharmaceutical science. In tumorigenesis and apoptosis, we use genetic technologies

to search for answers to questions as to why a certain cell becomes malign, and which of the molecules in the process of transformation into a tumour cell could be the target for a new drug. A great deal of our work focuses on the research of molecular mechanisms of cell death.

Our research activity is also carried out backwards, i.e. from a known drug to the human being. We can predict how a patient will accept a drug by means of genetic code analysis.

Laboratory diagnostics of immune-mediated diseases and hypersensitivity is the link between clinical biochemistry and immunology, which is taught at the Chair, while research in this field focuses on molecular bases of autoimmunity.

The Chair of Biopharmacy and Pharmacokinetics

Developing a biologically active molecule (substance) does not yet mean that a drug was found. The substance must be delivered with a proper dosage and speed to the site of action of the body (tissue, organ, organ system), where the connection to the enzyme or receptor activates the effect (e.g. a fall in blood pressure, a fall in cholesterol, prevention of an asthmatic attack). For this purpose, the substance is built into the delivery system with which we control the speed of processes that are responsible for the start, the intensity and the duration of the effect. If there is a delivery system, for example an oral sustained-release tablet, we must ensure that the process of the release in the alimentary canal enables the highest level of absorption into the main blood system. The substance should undergo minimal decomposition along the way so that most of it reaches the site of action from where it would be released as slowly as possible. For this purpose we have developed laboratory techniques by means of which we:

- Build substances into delivery systems such as microcapsules, microspheres,
- Research the release of substances from delivery systems,
- Research the absorption of substances from the alimentary canal, and
- Research the distribution and decomposition of substances in the body.

Research at the level of laboratory experiments is urgently needed, since it is the only way to define the effect of biological and technological factors on the above mentioned processes.

When enough data is gathered, we mathematically describe the above mentioned processes and with computer-aided methods predict the concentration and effects of substances in different organisms. The latter depend on the dosage, type of delivery system, delivery method (e.g. ingestion, vein injection, inhalation into the lungs, genetic predispositions and the function of secretory organs such as kidneys and liver. In this way, less burden is placed on test animals and humans in different phases of drug development and testing, final results are more quickly reached and we also get directions for performing new laboratory experiments.

Our research is the key to the transformation of a substance into a drug, which must provide the best action with minimum side effects.

The Chair of Pharmaceutical Technology

The Chair of Pharmaceutical Technology carries out pedagogical and research work in the field of design, production and evaluation of dosage forms. This field deals with building a synthesised substance with known pharmacodynamic properties into a dosage form. By choosing appropriate excipients and technological procedure, we produce a dosage form with desired properties.

More specifically, the Chair of Pharmaceutical Technology studies physical and chemical properties of substances and excipients, develops solid dosage forms (i.e. granules, pellets, tablets), semi-solid and liquid pharmaceutical dispersion systems (macro- and micro-emulsions; gels) and new dosage forms with sustained release for targeted treatment (liposomes, nanoparticles and nanocapsules). Nanotechnology techniques are the main new additions to the Chair.

The Chair of Social Pharmacy

At the Chair of Social Pharmacy, we study the effect of substances on modern man and society. We mainly deal with drug control after drugs are placed on the market or reach a patient. We use research methods of natural sciences, which are often intertwined with sociological ones. In pharmacoepidemiology, we monitor drug safety and efficacy on a large number of people – in a certain population, and in pharmacoconomics we examine the costs of drug use. We are particularly interested in the research of pharmaceutical activities in pharmacies. With pharmaceutical care programmes, which are first valued by our research teams, we try to improve the quality of patient's life. To do this, we use modern information communication methods. At the Chair of Social Pharmacy, we also study the characteristics of national and international laws that regulate drugs and the pharmaceutical profession. In this way, we actively contribute to the creation of new legislation and introduction of the highest standards in everyday practice.

The Faculty of Pharmacy therefore combines the most modern approaches of pedagogical and scientific research work. The new developments, which high-tech, modern faculties introduce in higher education institutions and top research laboratories, are reflected in the development strategy of the Faculty of Pharmacy in Ljubljana. We believe that the work of the Faculty of Pharmacy is an important factor in the creation of new knowledge and education of modern experts in the field of pharmacy, industrial pharmacy, regulatory bodies, in distribution systems and representation offices of foreign pharmaceutical companies, as well as in basic and applied research and education. The work and achievements of the Faculty of Pharmacy at the University of Ljubljana over the last years put us on a par with the most modern higher education institutions in the European Community and wider region. "Let science win – Scientia vincet!"

2 THE FACULTY OF PHARMACY IN 2010

The Faculty of Pharmacy educates future experts qualified for work and management of sustainable development in the fields of pharmacy and clinical biochemistry. It is registered for the following activities:

- Education at undergraduate and postgraduate levels,
- Basic, applied and developmental research in the field of natural science and technology,
- Professional participation, technical testing, analysis, technical support, etc.

The seat of the Faculty is at Aškerčeva cesta 7, telephone number: +386 1 47 69 500 and fax number: +386 1 42 58 031. E-mail: tajnistvo@ffa.uni-lj.si, registration number: 1626973, and VAT number: SI 11690682.

As a member of the University of Ljubljana, the Faculty of Pharmacy has its official website at: <http://www.ffa.uni-lj.si>.

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THE BODIES OF THE FACULTY

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Boards and Commissions:

Administrative Board

Chairman: Prof. Janko Kos, PhD

Habilitation Board

Chairwoman: Assoc. Prof. Marija Bogataj, PhD

Construction Board

Chairwoman: Prof. Julijana Kristl, PhD

Equipment Committee

Chairman: Prof. Janko Kos, PhD

Committee for Prešeren Awards and other awards

Chairman: Prof. Albin Kristl, PhD

Education Commission

Chairman: Prof. Borut Božič, PhD

Scientific Research Committee

Chairman: Prof. Janko Kos, PhD

Quality Committee

Chairman: Assoc. Prof. Vojko Kmetec, PhD

International Cooperation Committee

Chairwoman: Assoc. Prof. I. Mlinarič Raščan, PhD

Committee for Education Acknowledgment

Chairman: Prof. Borut Božič, PhD

Computer Commission

Chairwoman: Tanja Gregorič

STUDY PROGRAMMES

As regards the study at the Faculty of Pharmacy, 2010 was marked by the transfer from the old to new Bologna study programmes, by simultaneous implementation of some of the courses for two generations of students, searching for rooms intended for lectures attended by students of the senior or joint years, and facing problems in the introduction of new study programmes, as well as adjustments of contents or implementations of individual groups of Bologna programme courses.

In the academic year 2009/10, the Faculty of Pharmacy implemented the following:

a) Undergraduate study programmes

- Undergraduate study programme in Pharmacy,
- Higher professional study programme in Laboratory Biomedicine,
- Unified master's study programme in Pharmacy,
- Undergraduate study programme in Laboratory Biomedicine.

b) Postgraduate study programmes

- Postgraduate master's study programme in Industrial Pharmacy,
- Postgraduate master's study programme in Laboratory Biomedicine,
- Interdisciplinary doctoral study programme in Biomedicine,
- Postgraduate programme in Biomedicine to receive the title Master of Science in Pharmaceutical Sciences; or postgraduate programme to receive the title Doctor of Philosophy on the fields of Pharmacy and Clinical Biochemistry,
- Specialist postgraduate study in the field of pharmacy together with the Chamber of Pharmacy and the Ministry of Health of the Republic of Slovenia,
- Specialist study of clinical biochemistry.

The study programmes are interdisciplinary. They are implemented by teachers and other employees of the Faculty of Pharmacy, together with teachers from other faculties of the University of Ljubljana: Faculty of Chemistry and Chemical Technology, Faculty of Medicine, Faculty of Mathematics and Physics, and Faculty of Health Sciences as specified in the lectures list for the academic year 2009/10. In economy-related subjects, economy experts participate in the programme as visiting lecturers. A part of the Drug Analysis and Control curriculum involves habilitation assistants from the Public Agency for Medicinal Products and Medical Devices.

In the academic year 2009/10, there were 1,194 students enrolled in the undergraduate programme: 374 students in the unified masters study programme in pharmacy (Year 1 and 2), 621 in the undergraduate study programme in pharmacy, 117 in the undergraduate study programme in laboratory biomedicine (Year 1 and 2), 82 in the higher professional study programme in laboratory biomedicine; 53 students were enrolled in the postgraduate masters programme in industrial pharmacy (Year 1 and 2), 44 students in the postgraduate masters programme in laboratory biomedicine (Year 1), 75 in the interdisciplinary doctoral study programme Biomedicine (Year 1, 2 and 3), and 29 in the postgraduate scientific study programme Biomedicine (Year 1, 2 and 3). The total number of enrolled students in all the programmes was 1,395. The number of enrolled students from 2004 to 2009 is presented in Graph 1, and the number in the academic year 2009/10 in Graph 2.

The increasing trend of the total number of students since 2004, and an introduction of the method of selection in all study programmes are reflected also in the spatial need and consequently in course schedules, which are often not in accordance with students' wishes. The Faculty needs lecture rooms for all students of an individual year of the Unified master's study programme in Pharmacy (170-200 students), as well as several smaller lecture rooms. By hiring premises outside of the Faculty, we are looking for solutions that would not significantly decrease the quality and effectiveness of the study.

In the autumn 2010 (the academic year 2010/11), we started with the new Bologna university study programme in Cosmetology with 45 students enrolled, and we implemented the following study programmes: Unified master's study programme in Pharmacy (Years 1, 2, and 3) with 547 students, and 448 students were enrolled in the University study programme in Pharmacy (Years 4 and 5, and candidates for graduation), 152 students in the University study programme in Laboratory Biomedicine (Years 1, 2, and 3), 41 students in the Higher professional study programme in Laboratory Biomedicine (candidates for graduation), 62 students in the Postgraduate master's study programme in Industrial Pharmacy (Years 1, 2, and candidates for graduation) and 83 students in the Postgraduate master's study programme in Laboratory Biomedicine (Years 1 and 2). Within the study of Biomedicine, Doctoral study programme of Biomedicine – 3rd cycle (Years 1, 2, and 3, and candidates for graduation) was implemented with 101 students.

New (Bologna) programmes	No. of students 2010/11
Unified masters study programme in Pharmacy 5+0 (Years 1, 2, and 3)	547
2nd cycle Master's study programme in Industrial Pharmacy (Years 1, 2, and candidates for graduation)	62
2nd cycle Master's study programme in Laboratory Biomedicine +2 (Years 1 and 2)	83
1st cycle University study programme in Laboratory Biomedicine 3+ (Years 1, 2, and 3)	152
1st cycle University study programme in Cosmetology 3+ (Year 1)	45
Biomedicine – University doctoral programme (3rd cycle) (Years 1, 2, and 3, and candidates for graduation)	101

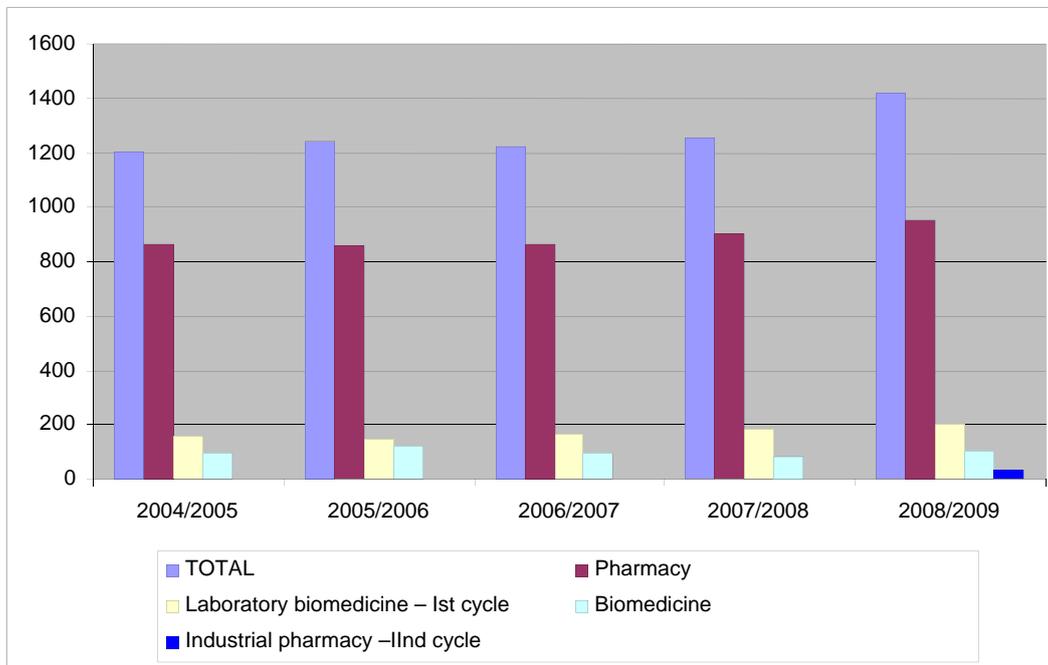
Old programmes	No. of students 2010/11
University study of Pharmacy (Years 4 and 5, and candidates for graduation)	448
Higher professional study programme in Laboratory Biomedicine (candidates for graduation)	41

Within the specialist study implementation in cooperation with the Slovene Chamber of Pharmacy, we carried out the specialist study in the areas of Medicinals design, Medicinals testing, Clinical Pharmacy, Apothecary pharmacy and Pharmacognosy. Moreover, the Slovenian Chamber of Laboratory Medicine has passed a decision that students specialising in Clinical Biochemistry should attend courses of the 3rd cycle of Clinical Biochemistry and Laboratory Biomedicine.

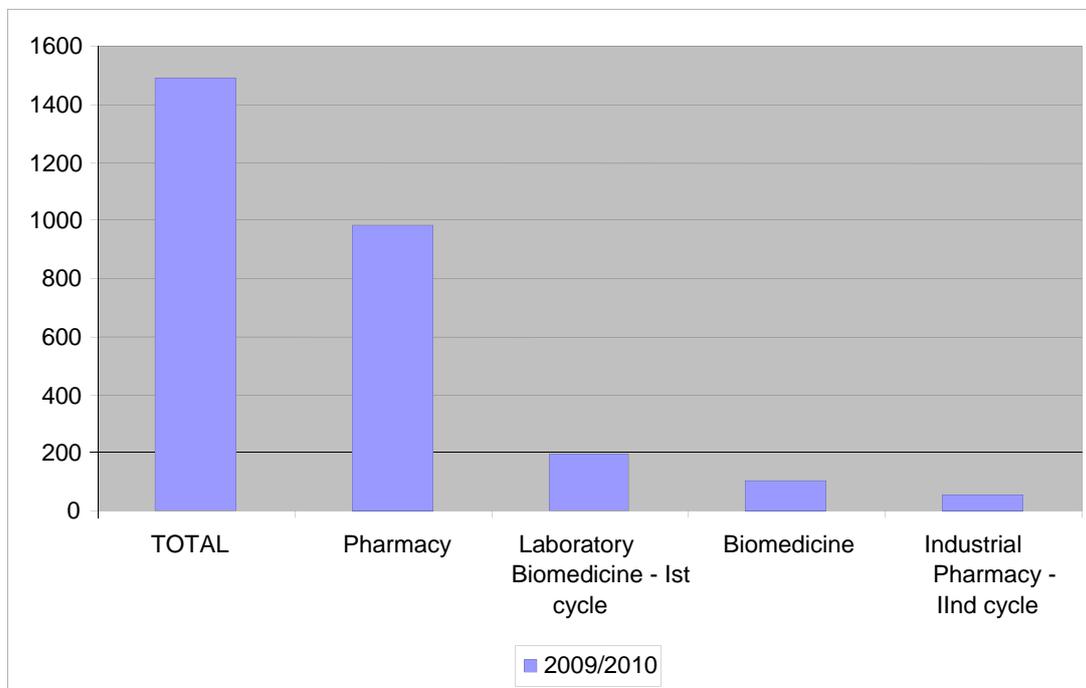
Specialist study programmes	No. of students 2010/11
Specialist study programme in Medicinals Design	1
Specialist study programme in Clinical Pharmacy	11
Specialist study programme in Apothecary Pharmacy	1
Specialist study programme in Medicinals Testing	1
Specialist study programme in Pharmacognosy	1
Specialist study programme in Clinical Biochemistry	5

Based on the analysis of the average duration of study until graduation (6 years and 9 months at the University study of Pharmacy and 5 years and 3 months at the Higher professional study of Laboratory

Biomedicine) we can see that most students took advantage of their legal right to repeat one year of study. The above data refer to the old programmes, as the first generation of the Bologna programme students are currently in the 3rd year of study. Despite the length of the study, which we doubt will get any shorter with the current legal possibilities the students have, we can be satisfied with the transition of the generation among individual years of study, as the transition from year one to year two exceeds 90% in some programmes. The merits for this are attributed both to students as well as teachers.



Graph 1: Presentation of the number of students by study programmes between the years 2004 and 2009.



Graph 2: Presentation of the number of students enrolled in the University undergraduate study of Pharmacy, Higher professional study in Laboratory Biomedicine, and postgraduate study

BOLOGNA REFORM OF STUDY PROGRAMMES AT THE FACULTY OF PHARMACY

The FFA has devoted its recent attention to the renewal and preparation (independently or in collaboration with other faculties at the University of Ljubljana) of study programmes on all three levels in line with European directives and Bologna guidelines. We started implementing the programmes under the Bologna reform or new programmes already in 2008/09, and the old programmes are being implemented only in the final years of studies. In the autumn 2010 (the academic year 2010/11) the Faculty of Pharmacy enrolled students in the following study programmes:

To finish the studies under the previous system:

- Harmonised study programme Pharmacy (10 semesters): Years 4 and 5 and candidates for graduation.
- Higher professional study of Laboratory Biomedicine: candidates for graduation.

New study programmes – Bologna system:

- Uniform master's study of Pharmacy (1st and 2nd cycle, 300 ECTS): Year 1, 2 and 3.
- University study programme in Laboratory Biomedicine (1st cycle, 180 ECTS): Year 1, 2 and 3.
- University study programme in Cosmetology (1st cycle, 180 ECTS): Year 1.
- Master's study programme in Industrial Pharmacy (2nd cycle, 120 ECTS): Year 1, 2 and candidates for graduation.
- Master's study programme in Laboratory Biomedicine (2nd cycle, 120 ECTS): Year 1 and 2.
- Doctoral study programme in Biomedicine, specialisation in Pharmacy, Clinical Biochemistry and Laboratory Biomedicine and Toxicology (3rd cycle, 180 ECTS): Year 1, 2 and 3, and candidates for graduation.

In addition, we prepared for accreditation a unified master's study programme of 4 members of the University of Ljubljana, Toxicology (2nd cycle, 120 ECTS), the enrolment into which we expect for one of the following years.

UNIFORM MASTER'S STUDY PROGRAMME IN PHARMACY

In recent years, the **university study programme in Pharmacy** faced two major changes – harmonisation and the Bologna reform. As Slovenia became a member of the EU on 1 May 2004 and one of the accession requirements was to uniform the study of regulated professions – the pharmacist profession being one of them – the Faculty of Pharmacy had to harmonise the study programme in Pharmacy in compliance with the requirements of the industry directive 2005/36/EC (formerly 85/432/EEC). The main change is that the study has been extended from 9 to 10 semesters due to the inclusion of a 6-month practical training in the curriculum, which substitutes the existing traineeship. At the same time, the list of existing electives was extended. **Harmonised university programme in Pharmacy** is being carried out; in the academic year 2008/09, the first generation of students already had access to practical training within the framework of the study. This is a transitional period until the introduction of the Bologna programme, which started being implemented with the enrolment of the first generation into Year 1 in the academic year 2008/09. Following many discussions in recent years, we came to a uniform decision that the only acceptable model of study for the pharmacist profession with qualifications in the EU is 5 + 0. This means that the undergraduate and master's degrees will merge into a uniform programme that corresponds to 300 ECTS, which enables direct enrolment in doctoral study. In 2007, the programme was checked and accredited by the Council for Higher Education as the **Uniform master's study programme in Pharmacy**, and the Faculty of Pharmacy launched the first-time enrolment procedure in the academic year 2008/09.

The programme has the right combination of pharmaceutical, natural science, medical and other subjects to generate students that are qualified to perform professional jobs and tasks in any pharmaceutical segment; at the same time it forms a solid footing for doctoral study and is open for lifelong professional training.

The method of course selection was included in the study already during the harmonisation of the programme, and it was extended to three levels in the unified master's study: alternative courses, selectives offered by the Faculty, including a selection of the area of Master's thesis creation, and general selectiveness within the University. Selectives are offered in such spectre that covers all standard areas of narrow specialisations, and follow the trends of professional developments. At the same time, we take care that the quality of teaching does not drop due to a high dispersion of students. Higher selectiveness is limited with time and spatial possibilities, as we are unable to make the study schedule in the way that would enable students to choose any combination of selectives.

Secondary school students show big interest in the Unified master's study programme in Pharmacy, since 204 of them applied for 160 available places in the academic year 2010/11 without considering the parallel enrolments and enrolments of foreign students.

UNIVERSITY PROGRAMME IN LABORATORY BIOMEDICINE

After 12 years, the **Higher professional study programme in Laboratory Biomedicine** has been revised according to the Bologna reform. Adjusted to the 2nd cycle study, the programme includes the possibility of electives and offers a high degree of cohesion among individual subjects. The programme was revised in line with the 3 + 2 concept, with both cycles already being accredited and carried out.

On the one hand, the **1st cycle university programme in Laboratory Biomedicine** (180 ECTS, 6 semesters) combines a high-level orientation towards practical technological knowledge and skills, and on the other hand it enables students to learn about scientific research and biomedicine. Our goal is to increase the prospects for these university graduates to find employment in biomedical research institutions. Such research is very common and because of increased concern for our health and higher quality of life, we expect there to be even more. At the same time we wish to enable top students to easily continue their education at second and third cycles and specialisation.

Selectives are available in the third year when students are already familiar not only with the basis of natural science, but also with broader areas of laboratory medicine. Selectiveness is enabled in three ways: through courses offered by the Faculty of Pharmacy, through the list of recommended courses of other study programmes at the Faculty of Pharmacy or within the University of Ljubljana, and general selectiveness.

Interest for this type of study has been big so far, and the reform and possibility of the second cycle has significantly increased the interest among secondary school students, since 52 of them applied to 40 available places in the academic year 2010/11.

MASTER'S PROGRAMME IN LABORATORY BIOMEDICINE

The **2nd cycle master's study programme in Laboratory Biomedicine** is a completely new 2-year study programme, with 120 ECTS credits. The programme's main objective is to educate top-quality experts (Masters in Laboratory Biomedicine) in different fields of laboratory medicine, who will enable to quickly adapt to many changes and new challenges in the field of medical diagnostics of human biological material. After finishing the study, Masters in Laboratory Biomedicine will be qualified for individual professional work in medical laboratories and will fill the existing gap in medical professions of the existing university education. They will at the same time be qualified for material research and will be able to critically monitor the use of new technologies in practice. In the academic year 2010/11, 41 students enrolled in the first year, and there were 42 students in the second year, as some of the students joined the full-time studies after finishing two courses of lifelong learning in Laboratory Medicine. Since almost all students are employed, the full-time study courses are carried out in the afternoons and on Saturdays.

MASTER'S PROGRAMME IN INDUSTRIAL PHARMACY

Master's study programme in Industrial Pharmacy is a completely new 2-year (4 semesters) study programme corresponding to 120 credit points. The professional title received by graduates is Master in Industrial Pharmacy. The main objective of the master's programme is that graduates of natural science (chemical, biotechnical, biotechnological, etc.) and technical programmes (mechanical engineering, electrotechnology, etc.) receive proper 2nd cycle education after the finished 1st cycle of the Bologna programme for work in the pharmaceutical industry, in the field of drug production.

Postgraduate master's programme and the curriculum were both developed on the basis of working experience in Slovenia and abroad and projected development of national and international pharmaceutical industries. The programme includes lectures by Slovenian and foreign professors and industry experts, interactive obtaining of theoretic knowledge in the industrial environment, case studies, individual and teamwork, and innovative solutions to cases in question.

The interest for this study programme is relatively big, as 25 full-time students applied for 32 full-time and 8 extra-curricular positions available. Since students come from different environments, the partial modular method appeared the most rational implementation of the programme. In the winter semester, we carried out two compulsory courses – pharmaceutical chemistry and pharmaceutical technology – in forms of modules, and all the offered selectives. Within both courses, students also visited the Krka pharmaceutical company in Novo Mesto, where they visited the Notol production plant and the Kilolab chemical synthesis plant.

UNIVERSITY UNDERGRADUATE STUDY PROGRAMME IN COSMETOLOGY

The 1st cycle university programme in Cosmetology is a brand new 3-year programme, with 180 ECTS credits. The proposed study programme in cosmetology is the first of its kind in Slovenia. Its main aim is to train experts in the field of cosmetology science. In addition to basic knowledge of natural science, the programme also offers in-depth knowledge of professional science of cosmetology; knowledge of organic and synthesis materials as ingredients of cosmetic products, their design, formation and development, approaches to security and efficiency evaluation, use of proper analytical methods, control, marketing and advertising of cosmetic products. With a multitude of electives, the programme expands the knowledge of natural science and professional science of cosmetology, complements service activities in the sense of care and keeping the body healthy, way of living and diet as the cosmetic profession dictates and offers additional skills of sociological science that go hand in hand with the cosmetic profession such as communication science, foreign language, psychology of perception, marketing and advertising aspects, etc. The programme creates experts qualified to work in the cosmetic industry, regulatory and inspection services, in representation offices for cosmetic companies as well as consulting and marketing of cosmetic products in different institutions.

During the first enrolment application procedure for the academic year 2010/11, 67 secondary school graduates applied to 40 available places.

DOCTORAL STUDY OF BIOMEDICINE

The postgraduate study programme in Biomedicine was renewed in compliance with the Bologna guidelines already three years ago. It is now a 3-year programme and corresponds to 180 ECTS. It only includes the doctoral study, as the master study of Biomedicine no longer exists. **The 3rd cycle doctoral study programme in Biomedicine** was introduced in the academic year 2007/08. It is implemented within the University of Ljubljana, and the Faculty of Pharmacy is responsible for the areas of Pharmacy, Clinical Biochemistry and Laboratory Biomedicine and Toxicology. In 2009, we adopted new rules on doctorate studies, which were adapted to a new (shorter) third cycle study programme and increased involvement of researchers in the global research sphere (group announcements of results in scientific journals and the use of articles for doctorate degree).

PERSONNEL AND PREMISES AT THE FACULTY OF PHARMACY IN 2010

As at 1 January 2010, the Faculty of Pharmacy employed 93 permanent pedagogical and scientific staff (4 with 20% employment and 2 with 10 percent employment) or professional secretarial and technical staff, 29 young researchers and assistants employed for the duration of their training or study to obtain a master's or doctor's degree, carrying out assistant work with a part-time norm, and 7 researchers with a fixed-term employment on research projects.

The permanent staff includes:

- 32 university teachers (11 Prof., 10 Assoc. Prof. and 10 Assist. Prof.),
- 2 university teachers with a 20% employment (Prof.),
- 2 senior scientific workers (Assoc. Prof.) with a 20% employment and a 10% employment, respectively,
- 26 assistants, 5 with the title Assistant Professor,
- 2 assistants with a 20% employment and a 10% employment, respectively,
- 1 PE teacher,
- 14 technical staff,
- 1 librarian,
- 10 professional and secretarial staff, and
- 4 technical staff (maintenance workers and reception staff).

The number of students at the Faculty of Pharmacy increases each year. Moreover, we started implementing new study programmes. In 2000, the Faculty of Pharmacy expanded its premises with the construction of the new south wing and now covers over 5,500 square metres. The results of the Faculty of Pharmacy inspection, conducted by PROPLUS d.o.o., show that the Faculty needs another 6 small lecture rooms, one large tiered lecture hall, 14 laboratories, 39 cabinets and additional space for the library. This means that the Faculty lacks around 45 % of required space.

3 SIGNIFICANT EVENTS IN 2010

THE 50th ANNIVERSARY OF COMPREHENSIVE STUDY OF PHARMACY IN SLOVENIA

The ceremony at the 50th anniversary of comprehensive study of pharmacy in Slovenia was held on 2 December 2010. The ceremony was attended by the President of the National Assembly of the Republic of Slovenia, Pavel Gantar, PhD, the Chancellor of the University of Ljubljana, Prof. Radovan Stanislav Pejovnik, PhD, and many distinguished guests, representatives of business community and institutions.



The guests were welcomed by the Dean of the Faculty of Pharmacy, Prof. Stanislav Gobec, PhD, who emphasized that today the Faculty of Pharmacy offers attractive, up-to-date and in-depth study programmes, which only the best students are enrolled in, and besides, the results of research work are the proof of a high level expertise of employees both in the area of theoretical and applied researches which are reflected in more than 100 articles and 2,000 citations published each year. With over 50 patents granted for inventions, the Faculty of Pharmacy significantly influences the quality and vitality of our pharmaceutical industry and pharmaceutical profession. The Chancellor of the University of Ljubljana, Prof. Radovan Stanislav Pejovnik, PhD, underlined a great number of awards and acknowledgments granted to the employees and students of the Faculty of Pharmacy, as well as good cooperation with the business sector, which can be the best example to follow by other faculties.



The ceremony at the 50th anniversary of comprehensive study of pharmacy in Slovenia was graced by the presence of the President of the National Assembly of the Republic of Slovenia, Pavel Gantar, PhD. In his solemn speech he emphasized that the primary task of the Faculty is to furnish future specialists with the highest level of pharmaceutical knowledge so that they will be able to respond critically to broader social issues while being always aware of ethical principles and responsibility imposed by their profession.

By granting acknowledgments, the Faculty of Pharmacy rendered thanks to individuals, companies and institutions for their contribution to the recognition and international acceptance of the Faculty of Pharmacy as well as to their cooperation in the professional field. The acknowledgment for the development of the Faculty of Pharmacy and its study programmes was granted to two long-time co-workers of the Faculty Prof. Jana Lukač Bajalo, PhD, and Prof. Slavko Pečar, PhD. The acknowledgment granted to the biggest two pharmaceutical companies in Slovenia, Krka d.d. and Lek d.d., for their support in the development of the Faculty of Pharmacy and for their cooperation in the professional field was in the name of Krka d.d. accepted by Mr Jože Colarič, President of the Management Board and Chief Executive, and in the name of Lek d.d. by Mr Vojmir Urlep, MSc, President of the Management Board. The acknowledgment for cooperation in the professional field and contribution to the recognition of the Faculty of Pharmacy was in the name of the Slovenian Pharmaceutical Society accepted by its President Gašper Marc, PhD. The acknowledgment for their contribution to the recognition of the Faculty of Pharmacy by organizing several activities in Slovenia and abroad as well as by implementing projects, such as: Consulting patients (Svetovanje bolnikom), Medical team (Zdravstveni tim), LeciKlarna, International Summer Camp, etc. was granted to four student organizations (Student Council of the Faculty of Pharmacy, Student Organization of the Faculty of Pharmacy, Student Section of the Slovenian Pharmaceutical Society and Slovenian Pharmaceutical Student Association).



At the 50th anniversary of comprehensive study of pharmacy in Slovenia, the Faculty of Pharmacy at the University of Ljubljana published the Proceedings.



SCIENTIFIC SYMPOSIUM DEDICATED TO PROF. JANA LUKAČ BAJALO, PhD

On retirement of the long-time Head of the Chair of Clinical Biochemistry, **Prof. Jana Lukač Bajalo, PhD, BSc in Chemistry, Spec. in Med. Biochem.**, the Chair of Clinical Biochemistry of the Faculty of Pharmacy organized a scientific symposium on Wednesday, 10 February 2010.

Agenda of Scientific Symposium:

- 13.00-13.30 Career track of Prof. Jana Lukač Bajalo, PhD
Janja Marc, University of Ljubljana, Faculty of Pharmacy
- 13.30-14.00 The clock and appetite; the relation between chronobiology and intestinal function
Wim Hekkens, Medical Faculty, University of Leiden
- 14.00-14.30 From Kraljevica to Krk
Ciril Kržišnik, Paediatric Clinic, University Medical Centre Ljubljana
- 14.30-15.00 Break
- 15.00-15.30 Extracellular nucleic acids
Darko Černe, University of Ljubljana, Faculty of Pharmacy
- 15.30-16.00 Models of inflammatory bowel diseases study
Borut Božič, University of Ljubljana, Faculty of Pharmacy
- 16.00-16.20 Closing word
Jana Lukač Bajalo, University of Ljubljana, Faculty of Pharmacy



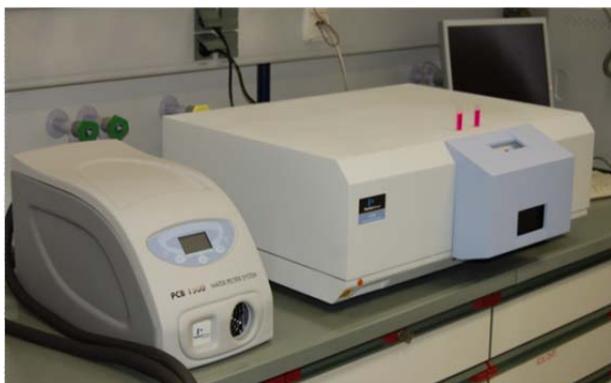
SOLEMN OPENING OF 400 MHz SPECTROMETER OPERATION

A new 400 MHz spectrometer was delivered and installed in December 2010.

Solemn opening of the operation of the new 400 MHz NMR instrument at the Faculty of Pharmacy at the University of Ljubljana, took place on December 1, 2010 during the Week of the University. The Chair of Pharmaceutical Chemistry and the whole Faculty of Pharmacy acquired a powerful tool for performing research work, which will also enhance the quality of the undergraduate education.



PURCHASE OF NEW FLUOROMETER APPARATUS

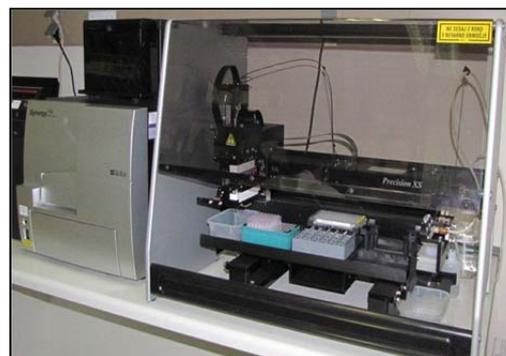


A new fluorometer became operational in December 2010. By purchasing this apparatus, the Chair of Pharmaceutical Chemistry contributed to the enhancement of the quality of study programmes as the apparatus has been included in practical work, and besides, the apparatus represents an efficient support to the development of new fluorescent markers. The purchase of this apparatus has completed the set of spectrometers from UV to radio waves range.

PURCHASE OF NEW SCANNER

A joint investment of the Faculty of Pharmacy and the Chair of Pharmaceutical Chemistry was a new scanner with robotic arm, which eliminates bottlenecks in the performance of biologic evaluation of compounds.

The Synergy (BioTek) scanner combines two optical systems, monochromator and filters providing thus the highest possible flexibility in detecting absorbance, fluorescence and luminescence. This is a universal device, which allows a wide range of different applications on all types of microtitre plates. It is mostly used for several enzyme tests when new enzyme inhibitors are searched for, in which case the change of the activity of enzymes is detected as the change of fluorescence or absorbance.



FUNCTIONAL PROFESSIONAL TRAININGS IN 2010

Postgraduate training for pharmacists:

DIETARY SUPPLEMENTS II, Minerals and Vitamins

Like in previous years, the Faculty of Pharmacy organized a postgraduate training in pharmacy also in the year 2010. More than 200 participants attended the training, which took place in June. The topic was selected on the basis of the questionnaires filled at the training organized in 2006 and the interviews with the participants of previous seminars, and in cooperation with the Slovene Chamber of Pharmacies and the Slovenian Pharmaceutical Society harmonized with the postgraduate trainings plan.

Various dietary supplements are our important companions in everyday life. Producers and distributors constantly bombard us with information about the benefits of various preparations through media and otherwise. In such a flood of information it is difficult or even impossible to find some objective information on the needs and benefits of taking such preparations. Lecturers from the Faculty of Pharmacy and a distinguished guest from the Faculty of Biotechnology supported by an expert from the field of pharmacy tackled this issue. Based on information published in various publications, clinical study cases and recommendations, they presented a real view of dietary supplements. Since the field of dietary supplements is extremely extensive, the training in 2009 focused on the groups of minerals and vitamins only. It was agreed that other groups of "ingredients" contained in dietary supplements would be presented during the training, which will be organized in 2010.

Lecturers provided the following data for each representative of dietary supplements:

- recommended daily doses
- food sources (effect of various diets)
- needs in various pathological conditions
- mechanisms of action, LADME concept
- consulting in pharmacies

Since both trainings were well accepted by the public, the employees of the Faculty of Pharmacy frequently appeared in media to highlight the issue of dietary supplements.



AWARDS AND ACKNOWLEDGMENTS TO CO-WORKERS

Prof. Samo Kreft, PhD – winner of the prestigious Zois Distinction



The Ministry of Higher Education, Science and Technology organized the ceremony on presentation of the Zois Awards and Distinctions and the Puh Award on November 23, 2010. The Committee of the Republic of Slovenia for Zois Award, Zois Distinction, Ambassador of Science of RS Award and Puh Award chaired by academician Prof. Tadej Bajd, PhD, decided to grant in 2010 one Zois Award for lifetime achievement, three Zois Awards for advanced scientific and development achievements, five Zois Distinctions for top scientific and development achievements, and one Puh Award for inventions, development achievements and use of scientific findings in implementing new inventions into business practice.

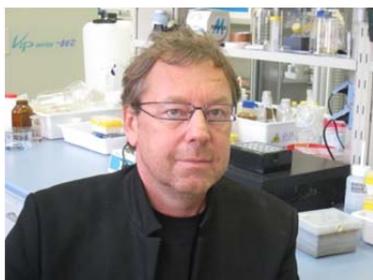
Prof. Samo Kreft, PhD, is the winner of the prestigious Zois Distinction for research work in the field of medicinal plants, plant secondary metabolites, their analytics and biological activity. Together with colleagues he combines a wide range of methods from analytical chemistry, systemic botany, plant morphology, statistics, mathematical modelling, molecular and cellular biology, physiology to clinical researches. He discovered that the content of flavonoid rutin is increasing in correlation to the altitude above sea level of growth. He investigated the possibility of preparing antioxidants from various inexpensive sources, which is very important for the pharmaceutical industry. After researching antioxidants, waxes, sterols and phototoxic substances in buckwheat, he found out that at least ten components are responsible for buckwheat's aroma. When researching chlorophyll-like metabolites of pumpkin seed oil, he explored their structure, content and the background of dichromatic colours.

The Chancellor of the University of Ljubljana granted the title "Professor Emerita" to Prof. Jana Lukač Bajalo, PhD



The Chancellor of the University of Ljubljana, Prof. Radovan Stanislav Pejovnik, PhD, granted the title "Professor Emerita" to the retired professor of the Faculty of Pharmacy, Prof. Jana Lukač Bajalo, PhD, on 2 December 2010.

Golden Award of the University of Ljubljana granted to Prof. Borut Štrukelj, PhD



At the ceremony of the University Senate in Ljubljana, the Golden Award was granted to Prof. Borut Štrukelj, PhD, for exceptional merits in the development of scientific and pedagogic activity of the University of Ljubljana and for strengthening the reputation of the University. The Golden Award is a high recognition of the University of Ljubljana for a long-time work of Prof. Borut Štrukelj, PhD, at the Faculty of Pharmacy as well as in Slovenian and foreign professional associations.

Pregl Award granted to Zala Jevnikar, PhD

Zala Jevnikar, PhD, is the winner of the prestigious Pregl Award 2010 for an outstanding doctoral thesis titled *Cathepsin X Affects T Lymphocyte Migrations and Morphology Through Integrin Regulation*. The Award was granted by the National Institute of Chemistry Slovenia at the solemn ceremony held on 7 December 2010. In the framework of her doctoral thesis, Zala Jevnikar, PhD, discovered a new method to regulate the adhesion molecule of LFA-1 integrin, which participates in the migration of leukocytes and which is a therapeutic target for controlling the immune response. She proved the crucial role of cysteine carboxyl peptidase - cathepsin X, which cleaves the cytoplasmic tail of the LFA-1 integrin $\beta 2$ subunit and induces conformational changes of the receptor and the increase of intermediate affinity of cytoskeleton proteins, talin and α -actinin-1 binding to the receptor's cytoplasmic tail. She proved the importance of this mechanism for migration and morphology of T lymphocytes. By understanding the LFA-1 integrin regulation, we will be able to control the processes which are essential for successful immune response and for designing molecules of novel drugs which can regulate these processes.



Director of the National Institute of Chemistry Slovenia, Prof. Janko Jamnik, PhD, grants the Pregl Award of the Institute to Zala Jevnikar, PhD, for her outstanding doctoral thesis (photo: Jernej Stare)

Researcher Andreja Kovač, PhD – the 2nd best PhD Award 2010



Andreja Kovač, PhD, who completed her PhD from the Chair of Pharmaceutical Chemistry at the Faculty of Pharmacy at the University of Ljubljana in 2009, won the 2nd PhD Award in the field of genomic investigation of pathogenic microorganisms to humans for the doctoral thesis titled *Discovery of New Inhibitors of Bacterial Ligases by Virtual Screening and Synthesis of Substrate Analogues*. She applied her thesis upon the invitation for "PhD Award 2010" which is held every year for the researchers from partner countries Austria, Finland, France, Israel, Hungary, Germany, Portugal, Slovenia and Spain by PathoGenoMics.

Assist. Prof. Nataša Obermajer, PhD – winner of the JOŽEF STEFAN Golden Emblem

At the end of March each year when the anniversary of Jožef Stefan's birth is celebrated, the Jožef Stefan Institute organizes the Stefan Days. The purpose of this traditional event is to honour the memory of the famous Slovenian physicist and to popularise science. During Stefan Days the Institute grants the JSI Golden Emblems to the most outstanding doctoral theses in the field of natural and mathematical, technical, medical and biotechnological sciences.



On Wednesday, 24 March 2010, for the 18th consecutive year, the Jožef Stefan Institute granted the JSI Golden Emblem with which it wants to encourage young people to even greater commitment in the scientific and research field and to invite responsible people in the business sector to utilize this knowledge as efficiently as possible.

The JSI Golden Emblem is awarded to the authors of the best doctoral theses in Slovenia and abroad in the field of natural and mathematical, technical and life sciences in the last three years.

One of the winners of the Golden Emblem is Assist. Prof. Nataša Obermajer, PhD, for her doctoral thesis titled *Mechanism of Action and Role of Cathepsin X Inhibition in Immune Response Regulation*.

Assist. Matjaž Ravnikar – winner of the Award for contribution to sustainable development of society



On July 12, 2010 the Slovene Human Resources Development and Scholarship Fund granted the award for contribution to sustainable society to Matjaž Ravnikar for his thesis with granted patent titled *Genetically Modified Food Grade Microorganisms for Treatment of Inflammatory Bowel Disease*.

Assist. Tihomir Tomašič – winner of the scholarship of the World Federation of Scientists



In 2010, Tihomir Tomašič acquired a one-year scholarship of the World Federation of Scientists at the Slovenian Science Foundation for the research titled *Computer-Aided Drug Design, Synthesis and Biological Evaluation of Novel Inhibitors of Bacterial Mur Ligases*, which is substantively related to planetary emergency “Health”.

Chancellor Award for Best Innovation 2010

Upon the proposal of the Ljubljana University Incubator the Chancellor of the University of Ljubljana granted for the first time also three Chancellor Awards for the Best Innovation 2010.

The 2nd place and cash prize amounting to 2,000 euros received: Aleš Berlec, PhD, Matjaž Ravnikar, MSc, Mojca Lunder, PhD, and Boris Čeh, PhD, under the supervision of Borut Štrukelj, PhD. A recombinant probiotic for treating chronic inflammatory bowel diseases, a product of a team of young scientists, represents a completely new and innovative method for treating the mentioned disease, and in comparison with the most efficient existing therapies, it provides lots of potential advantages. The Commission was not convinced only by the team standing behind this innovation, but also by the market potential of this innovation and its influence.

Researchers at the Faculty of Pharmacy and Jožef Stefan Institute received the Golden Award of the Chamber of Commerce and Industry of Slovenia

On 27 May 2010, the Chamber of Commerce and Industry of Slovenia granted 36 awards and diplomas, of which 8 golden, 11 silver, 5 bronze awards and 12 diplomas.

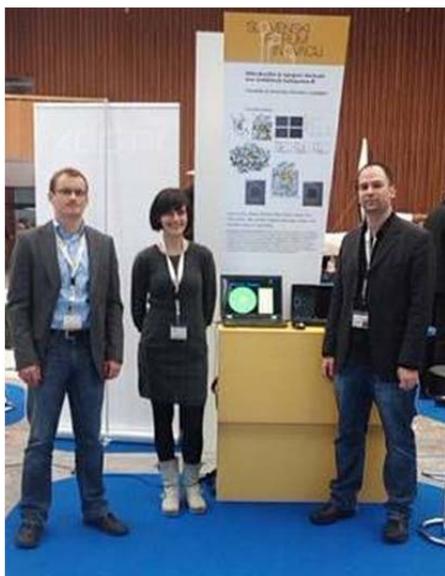
Prof. Borut Štrukelj, PhD, (Faculty of Pharmacy), Assist. Prof. Mojca Lunder, PhD, (Faculty of Pharmacy), Matjaž Ravnikar (Faculty of Pharmacy) and Assist. Aleš Berlec, PhD, (Jožef Stefan Institute) received the Golden Award of the Chamber of Commerce and Industry of Slovenia for their innovation titled *Development of Recombinant Probiotics for Treating Chronic Inflammatory Bowel Diseases* at the Inovativnost 2010 fair, which took place on May 17 and 18 at the Ljubljana Exhibition and Convention Centre at which more than 100 home and foreign innovations were presented.

Innovations for Economy Award

The 3rd International Technology Transfer Conference organized by the Jožef Stefan Institute in cooperation with the National Institute of Chemistry Slovenia, National Institute of Biology, University of Nova Gorica, University of Ljubljana and with the support of the Slovenian Technology Agency, Slovenian Research Agency, Public Agency of the Republic of Slovenia for Entrepreneurship and Foreign Investments, YEAR and University of Maribor was held on October 7 and 8, 2010 in Ljubljana and Maribor. International experts in the field of technology transfer from recognized institutions, such as MIT, CERN, EPFL, University of Copenhagen, London School of Business, EIF, etc. presented their experiences. At this conference the commission consisting of six foreign experts granted awards for innovations for economy.

The winners who shared the 4th place are: Jožef Stefan Institute – B2 (Aleš Berlec, Matjaž Ravnikar – Faculty of Pharmacy, Mojca Lunder – Faculty of Pharmacy, Boris Čeh, Borut Štrukelj – Faculty of Pharmacy). On the 2nd day of the conference the Association of Technology Transfer Professionals was founded.

Presentation of Innovations of the Researchers of the Faculty of Pharmacy at the 5th Slovenian Innovation Forum



Among 176 applications the innovation titled Nitroxolin and its Derivatives as Inhibitors of Cathepsin B was selected for being presented at the 5th Slovenian Innovation Forum, which was held on 2 and 3 December 2010 at the Ljubljana Exhibition and Convention Centre. In its group, the innovation was awarded with the 4th place. The authors of the innovation are Bojana Mirković, Samo Turk, Izidor Sosič, Zala Jevnikar, Nataša Obermajer, Stanislav Gobec and Janko Kos from the Faculty of Pharmacy, and Miha Renko and Dušan Turk from the Jožef Stefan Institute. By using virtual screening, enzyme kinetics, X-ray crystal structure and biological tests, the authors discovered that nitroxolin, an established antibiotic for treating urinary infections, is a selective and reversible inhibitor of cathepsin B and inhibits invasiveness of tumour cells. The innovation has been protected with the Slovenian and international patent application.

THE WEEK OF THE UNIVERSITY OF LJUBLJANA AT THE FACULTY OF PHARMACY

NEWLY ELECTED PROFESSORS OF THE UNIVERSITY OF LJUBLJANA IN 2010

Prof. Borut Božič, PhD, MSc in Pharmacy, Spec. in Med. Biochemistry, Professor of Clinical Biochemistry and Laboratory Biomedicine



He was born in Vipava in 1959. In 1978 he graduated from the Gimnazija Poljane (grammar school) with honours and enrolled in the Department of Pharmacy at the Faculty of Natural Sciences and Technology at the University of Ljubljana, Department of Pharmacy where he graduated in 1984. During military service he perfected his knowledge at the Military Medical Academy in Belgrade, Yugoslavia and in a pharmacy in Zadar.

In 1987 he started to work in the Laboratory of Immunology of Rheumatism at the Department of Rheumatology of the University Medical Center Ljubljana as a junior researcher. In 1990 he completed the master's degree in the field of the basics of medicine - immunology at the Faculty of Medicine at the University of Ljubljana, and in 1994 the PhD thesis in the field of clinical immunology. In 2000 he passed a specialist examination in clinical chemistry at the Ministry of Health and acquired the internationally recognized title of the European specialist in clinical chemistry and laboratory medicine. In 2008 he passed the examination for the medical laboratory auditor at the Slovenian Institute of Quality and Metrology.

For 8 months in the period from 1989 to 1992 he carried out a part of researches in the field of molecular bases of systemic autoimmune diseases (ribonucleoprotein particles as auto-antigenes) at the University of Nijmegen (Netherlands), and in 2002 he improved his knowledge in immunoserology at Euroimmune in Luebeck (Germany). He was invited to the Faculty of Pharmacy and Biochemistry of Zagreb (Croatia)(2006), to the King's College University of London (United Kingdom) (2007) where he perfected his knowledge in the field of mucous immunity, and to the Faculty of Medicine of Rijeka (Croatia)(2008).

His research work has been mainly tied to the research group of the Department of Rheumatology at the University Medical Centre Ljubljana where he was full-time employed from 1987 to 2006, and additionally employed later. A core theme is the study of the mechanisms of occurrence and development of autoimmune disorders with focus on a detailed specificity and affinity of antibodies, antigen identification and intermolecular interactions in the immune system, as well as clinical applicability of immunoserological tests. Over the last years he has explored the changes of the specificity of antibodies resulting from their posttranslational (oxidation) modifications, and at the Faculty of Pharmacy he has oriented to the study of (auto)immune bases of celiac disease. The results of his research and professional work have been presented in more than 50 articles and more than 120 papers or abstracts of which 34 articles have been published in journals with the SCI impact factor and 12 articles in top 10% of journals in their field (rheumatology, immunology, clinical chemistry and laboratory diagnostics). He is the author and co-author of chapters published in 6 monographs and the editor of the Code of deontology in laboratory medicine.

In 2001 he was additionally employed at the Faculty of Pharmacy and in 2006 he was full-time employed as Assistant Professor (since 1997), Associate Professor (since 2004) and Full Professor (since 2010). He was the acting Head of the Chair (2006-2007), Coordinator of the Laboratory biomedicine programme (2006-2010), Chairman of the Academic Council (from 2007 until now) and the Vice-Dean for Education (from 2007 until now). In the pedagogic area he was an active teacher in study programmes on all three levels of the Faculty of Pharmacy, Faculty of Medicine and Faculty of Biotechnology of the University of Ljubljana: Laboratory Biomedicine (1st and 2nd cycle), Pharmacy (university and uniform master's study programme), Microbiology (undergraduate), Biomedicine (doctoral), Biological and Biotechnological Sciences (doctoral). He has cooperated in the preparation and accreditation of the 1st and 2nd cycle study programmes in laboratory medicine and uniform programme in pharmacy. He lectures on subjects in the field of clinical

biochemistry, immunology, autoimmunity, laboratory methods, algorithms in laboratory diagnostics, clinical researches, legislation in the field of medical laboratories. He was the supervisor in more than 65 graduate thesis, 4 master thesis, two specialisations, two direct transfers to PhD and in one PhD thesis.

On the professional field he has been for the 3rd decade active already in the field of quality assurance in laboratory medicine from the preparation of legal grounds to professional guidelines and supervisions: Expanded Professional Board for Laboratory Diagnostics (member from 1996 until now, Vice-president in 2004, President in 2005), Chamber of Laboratory Medicine (President of the Chamber from 1996 to 2006, Chairman of the Committee for professional issues from 2006 until now, member of the commissions for specializations and for the register), working group of the Ministry of Health to draw up the Rules on Laboratory Medicine (President from 2002 to 2004), coordination group of the Ministry of Health for the implementation of the Rules on Laboratory Medicine, external member of the Program group for the field of healthcare, social services, pharmaceuticals and cosmetics (from 2000 to 2003).

In 1990 he received the Scholarship Award from the European League Against Rheumatism (EULAR), and in 2007 the scholarship of the Slovenian Science Foundation.

Prof. Stanislav Gobec, PhD, MSc in Pharmacy, Professor of Pharmaceutical Chemistry



He was born in January 1970 in Murska Sobota. After graduating from secondary school and completing his military service, he enrolled in 1989 in the Department of Pharmacy at the Faculty of Natural Sciences and Technology at the University of Ljubljana. He graduated in 1994, and immediately after graduation, he enrolled in the postgraduate study of biomedicine at the Faculty of Pharmacy where he was also employed.

As a scholarship holder of the Ministry of Higher Education, Science and Technology, he defended the PhD in the field of phosphorous analogues of amino acids and peptides at the end of 1999.

From 1995 to 1999 he was the Assistant for the field of pharmaceutical chemistry and led practical exercises in Pharmaceutical Chemistry 3 and 4. He was elected Assistant Professor in 1999, Associate Professor in 2005, and Full Professor in 2010 for the field of pharmaceutical chemistry.

In the university study of Pharmacy he gives lectures on the subjects *Pharmaceutical Chemistry 4, Obtaining Eutomeric Ingredients by Synthesis and Biosynthesis*, and *Dietary Supplements*, and in the university programme of Laboratory Medicine he gives lectures on the subject *Introduction to Biomedical Analytics*. In the master's study programme Industrial Pharmacy, he gives lectures on the subject Design of Novel Ingredients, and in the university postgraduate study of Biomedicine he gives lectures on the subject Design and Synthesis of Enzyme Inhibitors.

In the professional field he is engaged in the structure-based design, synthesis and evaluation of low molecular enzyme inhibitors. Soon after completing his PhD, he began with researches in the field of discovering bacterial cell wall biosynthesis inhibitors as potential antimicrobial agents. In this field he actively cooperates with international partners from the University of Paris, University of Leeds, University of Liege and University of Warwick. He has been invited to these universities several times, and he stayed for the longest time at the Laboratory of bacterial cell wall and antibiotics at the University of Paris-South. In the period between 2005 and 2010 he coordinated at the Faculty of Pharmacy the important project within the EU Sixth Framework Programme in the field of discovery of novel antibacterial agents EUR-INTAFAR (Inhibition of new targets for fighting antibiotic resistance). The development of novel inhibitors of the bacterial peptidoglycan biosynthesis enzymes MurD and identification of 3D structure of several enzyme-inhibitor complexes are considered the most important achievements of the project. In 2011 he is

going to coordinate the ORCHID project (Open Collaborative Model for Tuberculosis Lead Optimisation) within the European Commission Seventh Programme. In the field of discovering novel antitumour agents he is also engaged in the development of enzyme inhibitors involved in the steroid hormones metabolism.

Over the last years he has been intensively introducing the methods of computer-aided design of healing ingredients and the methods of biochemical evaluation of enzyme inhibitors. In co-authorship he published over 60 articles in international journals with impact factor and two monographs in a renowned encyclopaedic publication *Houben-Weyl Science of Synthesis*. So far, his works have been directly cited more than 250 times. He is co-author of several international patent applications resulting from intensive cooperation with the Slovenian pharmaceutical industry. He led bilateral projects with partners from France, Great Britain and Serbia. At international scientific conferences he held five keynote lectures. He has been supervisor or co-supervisor of 57 graduate thesis and 6 PhD theses.

In the period from 2000 to 2005 he was a member of the Commission for drawing up a national supplement to the European Pharmacopoeia, and from 2003 to 2005 a member of the Council of the Institute of Pharmacy. In the period from 2005 to 2007 he was the Assistant Dean of the Faculty of Pharmacy for the scientific research field, and since October 2007, he has been performing the function of the Dean of the Faculty of Pharmacy and of the University Senate member. During that time the Faculty of Pharmacy has successfully accredited and started to implement revised and new study programmes, acquired several important European projects, renovated laboratories of the Faculty and started to invest systematically in large research equipment.

Prof. SAMO KREFT, PhD, MSc in Pharmacy, Professor of Pharmaceutical Biology



He was born on March 1972 in Ljubljana. In the secondary school he attended botanical, mathematical and photographic circles and participated in competitions in mathematics, physics and chemistry. In 1990 he enrolled in the study of pharmacy at the Faculty of Pharmacy at the then University of Edvard Kardelj in Ljubljana. He graduated in 1994. Parallel with the study of pharmacy, he attended lectures at the Department of Biology where he also passed few examinations.

In 1995 he was employed at the Chair of Pharmaceutical Biology at the Faculty of Pharmacy where he led practical exercises in pharmacognosy. In 1997 he completed military service in the 18th battalion of radiological, chemical and biological defence of the Slovenian Armed Forces. He earned PhD in 1999. He was elected Assistant for the field of pharmaceutical biology in 1997, Assistant Professor in 2000, Associate Professor in 2005 and Professor in 2010.

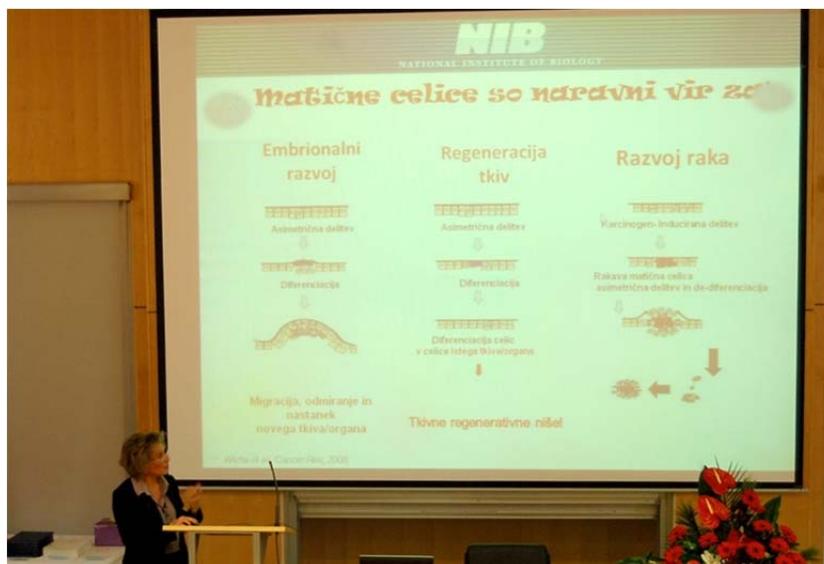
His research work is mainly focused on the analysis of active ingredients in medicinal plants and development of analytical methods for these purposes. Among analytical methods he focused to capillary electrophoresis. As to plants, he mainly researched St John's wort, purple coneflower, willow herbs and buckwheat. Another part of his research work is focused on the search for novel biologically active agents in the nature by testing a large number of random samples (screening). He published the results of his work in 57 original scientific articles and 3 patents.

In the framework of the study of pharmacy he gives lectures on subjects Pharmaceutical Biology with Genetics, Dietary Supplements, Drugs in Alternative Medicine. He also gives lectures on plant biochemistry to the students of biology at the Faculty of Biotechnology and the students of biochemistry at the Faculty of Chemistry and Chemical Technology. In the last 10 years, since he has been holding the title of a teacher, he has been supervisor of 91 and co-supervisor of 5 graduate theses, supervisor of 2 and co-supervisor of 1 master thesis and supervisor of 3 and co-supervisor of 2 PhD thesis. In 2006 he wrote a high school textbook on genetics and evolution, which has been already reprinted 3 times.

Prof. Samo Kreft, PhD, performs professional functions also at the European Medicines Agency in London (member of the Committee on Herbal Medicinal Products) at the Slovenian Medicines Agency (Vice-Chairman of the Commission on Medicines II). In addition to scientific articles, he wrote over 70 popular and professional articles in journals Proteus, Farmaceutski vestnik, Herbika, Delo&Dom, Zdravje and Kvardabra as well as in the Encyclopaedia of Slovenia. Since 1987, he has been a member of the Slovenian Natural History Society, in the period from 1999 to 2005 he was a member of the Executive Committee of the Society and its Secretary. He has been a member of the Slovenian Pharmaceutical Society since 1991. Since the founding general meeting in 1998, he has been a member of the Slovenian Natural History Society.

RESEARCH DAY AT THE FACULTY OF PHARMACY

In the framework the Week of the University in Ljubljana, the Faculty of Pharmacy organized a Research Day on December 1, 2010. The event included a scientific symposium and solemn presentation of the Faculty Prešeren Awards, acknowledgments and commendations to the best students of the Faculty of Pharmacy, and for the second time, also of the Dean Awards to junior researchers for top science achievements in the previous year. The honourable speaker was Prof. Tamara Lah Turnšek, PhD.



Lectures of junior researchers – winners of Awards for the best achievements in science in the previous year at the Faculty of Pharmacy followed. The scientific achievements which were presented had been selected from among the scientific achievements published in the previous academic year in publications with impact factor 4.0 at least or in publications with impact factor in top 5% in specific research field and of which junior researchers were first authors.

The following junior researchers won the Awards for the year 2010:

Jože Kastelic for the research work titled: Fluconazole Crystals with Dicarboxylic Acids, published in the Crystal Growth and Design journal.

Karmen Teskač Plajnšek for the research work titled: Response of Keratinocytes on the Long-Term Exposure to Nanoparticles of TiO₂ and ZnO, published in the Small journal.

Zoran Trošt, PhD for the research work titled: Determination of Osteoporosis-Related Genes in Primary Cultures of Human Osteoblasts by Using Microarray Technology, published in the Bone journal.

Nace Zidar for the research work titled: Discovery of Novel 5-Benzyliden-Rhodanine and 5-Benzyliden-Thyazolidine-2,4-Dione MurD Inhibitors, published in Journal of Medicinal Chemistry.

5-

UNIVERSITY PREŠEREN AWARDS FOR 2010

The Prešeren Award of the University of Ljubljana for 2010 was granted to Gregor Lorbek, the graduate of the Faculty of Pharmacy, for his paper titled Determination of the Impact of S-Adenosyl Methionine on Activity of Thiopurine-S-Methyltransferase in Erythrocytes of Healthy Subjects, written under the supervision of Assist. Prof. Nataša Karas Kuželički, PhD, MSc in Pharmacy, and co-supervision of Assist. Miha Milek, PhD, MSc in Pharmacy.

Presentation of Prize-winner:

Gregor Lorbek was born on February 8, 1985 in Maribor. After finishing primary school in Slovenska Bistrica, he continued education at the II. gimnazija Maribor (grammar school) where he successfully graduated in 2004. In the same year he enrolled in the Faculty of Pharmacy at the University of Ljubljana and on 21 June 2010 graduated with honours. During his study he participated in two one-month student exchange programs within the International Pharmaceutical Student's Federation in Finland and Latvia.

He continues with his research activity as a postgraduate student of the 1st year of biomedicine and as a junior researcher at the Centre for Functional Genomics and Biochips at the Institute of Biochemistry at the Faculty of Medicine at the University of Ljubljana under the supervision of Prof. Damjana Rozman, PhD.

At the time of the Award presentation, he was completing his three-month research work at the Institute of Biochemistry of the Faculty of Medicine in Leipzig in Germany where he researched the role of one of enzymes in the cholesterol synthesis pathway in liver.

Presentation of Paper:

In his awarded paper the author researches the impact of S-adenosyl methionine on activity of thiopurine-S-methyltransferase in erythrocytes of healthy subjects.

The mentioned enzyme deactivates healing ingredients of thiopurine, which is used to treat leukaemia. In some patients, the enzyme genetic polymorphisms induce the decrease in the enzyme activity the result of which is lower deactivation of thiopurines and, possibly, the occurrence of life-threatening side effects. Genotyping of mutated parts of enzymes is a relatively simple and fast pharmacogenetic test to determine optimal therapy for individual patients. However, the use of this test in clinical practice is restricted by the fact that the correlation between genotype and actual activity of thiopurine-S-methyltransferase is not perfect. In previous researches, S-adenosyl methionine, which is a co-substrate for thiopurine-S-methyltransferase and stabilizes its native structure, was found a potential candidate, which might affect the enzyme activity.

In his paper the author proves the impact of S-adenosyl methionine on the activity of thiopurine-S-methyltransferase. He assumes that posttranslational regulation of the enzyme activity occurs through binding of S-adenosyl methionine, the result of which is stabilization of enzyme. The research indicates that S-adenosyl methionine or polymorphisms in genes involved in its biosynthesis might be new biological markers for individualization of the treatment with thiopurines.

FACULTY PREŠEREN AWARDS FOR THE YEAR 2010

Prešeren awards for individual research work were conferred to:

Katarina Bolko for:

MICROCAPSULES WITH SELF-MICROEMULSIFYING CORE: OPTIMIZATION OF SHELL-FORMING PHASE

Supervisor: Prof. Mirjana Gašperlin, PhD

Tilen Kranjc for:

EXPRESSION OF INTERLEUKIN 6 IS MODULATED BY PROSTAGLANDINE EP4 RECEPTOR

Supervisor: Assoc. Prof. Irena Mlinarič Raščan, PhD

Staša Kosler and Andreja Jelenko for:

TAXONOMY AND IMMUNOMODULATORY ACTIVITY OF MEDICINAL MUSHROOMS LAETIPORUS
SULPHUREUS AND FOMES FOMENTARIUS

Supervisor: Prof. Borut Štrukelj, PhD

Co-supervisor: Nataša Radić, PhD

Maja Medar for:

IDENTIFICATION OF CYP1B1 AND COMT PROTEINS PRESENCE IN ENDOMETRIAL CHANCER

Supervisor: Prof. Janko Kos, PhD

Co-supervisor: Assoc. Prof. Tea Lanišnik Rižner, PhD

Mitja Pišlar for:

DEVELOPMENT AND EVALUATION OF MATHEMATICAL MODEL OF TARGET-MEDIATED PHARMACOKINETICS
AND ITS APPROXIMATIONS

Supervisor: Assist. Prof. Iztok Grabnar, PhD

Co-supervisor: Assist. Igor Locatelli, PhD

ACKNOWLEDGMENTS OF THE FACULTY OF PHARMACY

The 10th presentation of acknowledgments of the Faculty of Pharmacy took place in 2010.

FACULTY ACKNOWLEDGMENTS are given to students with an uninterrupted course of study and an average mark of 8.5 or higher in all study requirements (excluding dissertation) in the period of one year after completing the full-time study programme. Failing marks are also calculated in the average mark.

The faculty acknowledgment comprises a diploma (plaque) and a material prize.

Acknowledgments were awarded to:

▪ UNIVERSITY STUDY OF PHARMACY

1. BARTOL MAJA
2. BOŽNAR POLONA
3. BREZOVNIK URŠKA
4. CVIKL MAJA
5. ČESEN MARJETA
6. ČURIČ MATEJA
7. FORTUNA ANDREJA
8. GERMOVNIK TEJA
9. GRDEŠIČ PETER
10. GRŽELJ JASNA
11. KEJŽAR ANJA
12. LORBEC GREGOR
13. MLINARIČ BARBARA
14. MUHIČ MARKO
15. MURŠAK VESNA
16. PELIPENKO JAN
17. PETEREC ANDREJA
18. PLANINC NINA
19. TRČEK JANJA
20. TROŠT NUŠA
21. UDIR TJAŠA
22. URNAUT SARA
23. ZALETEL ANJA

▪ ACKNOWLEDGMENTS TO HIGHER PROFESSIONAL STUDY OF LABORATORY BIOMEDICINE

1. KIKELJ NEŽA

COMMENDATIONS OF THE FACULTY OF PHARMACY

In 2010, the Faculty of Pharmacy held the 10th presentation of commendations.

FACULTY COMMENDATIONS are awarded to the best students of the year – Unified master's study programme in Pharmacy, University study programme in Pharmacy, University study in Laboratory Biomedicine, Higher professional study programme of Laboratory Biomedicine, Postgraduate master's study of Industrial Pharmacy, and Postgraduate master's study of Laboratory Biomedicine. Eligibility criteria are uninterrupted course of study and an average mark of 8.5 or higher for all study requirements in a given year, regardless of the requirements for proceeding to the next year. Any failing marks are also calculated in the average mark.

The faculty commendation is presented in the form of a diploma (plaque).

Commendations were awarded to:

▪ UNIFIED MASTER'S STUDY PROGRAMME IN PHARMACY

1ST YEAR, 2009/10

1. BELAK MIHA
2. BOŽIČ KLEMEN
3. BRCAR TJAŠA
4. BUNC MARKO
5. COLJA IVA
6. COTMAN ANDREJ EMANUEL
7. ČOTAR URŠKA
8. DOMINKOVIĆ NIKOLA
9. DROBNIČ LUCIJA
10. GARTNAR MANA
11. GORNIK TJAŠA
12. GRAŠIČ SABINA
13. GUČEK ZALA
14. HOČEVAR KELI
15. HOMEK KRISTINA
16. HROVAT ROK
17. JANEŽIČ MATEJ
18. KACIN KRISTINA
19. KOCJAN METKA
20. KOLARIČ ANJA
21. KOTAR ANITA
22. LUZNAR EVA
23. MIRTIČ JANJA
24. MUHIČ NEŽA
25. PERČIČ ŠPELA
26. PIŠEK NATAŠA
27. POKLUKAR GAŠPER
28. POLAK HANA
29. PRIKERŽNIK MARCEL
30. REDENŠEK SARA
31. REPAS JERNEJ
32. SENIČAR TANJA
33. STANČEV SARA
34. TEMOVA ŽANE
35. TRAMPUŽ MARKO
36. TRKOV KATARINA

▪ **UNIFIED MASTER'S STUDY PROGRAMME IN PHARMACY**

2ND YEAR, 2009/10

1. BOŽIČ SARA
2. BREZNIK BARBARA
3. EINFALT TOMAŽ
4. GASPARINI MARIŠA
5. GAŠPERLIN MARUŠA
6. HROVAT KLEMEN
7. HUDOBREZNIK TANJA
8. HUMAR POLONA
9. JANC TADEJA
10. KNEZ DAMIJAN
11. KREGAR SABINA
12. LUŽAR KATJA
13. MAKOVEC TILEN
14. MIHORKO ANDREJ
15. REISMAN KATJA
16. RUS JASNA
17. SUŠNIK MAJA
18. TRATNIK VESNA
19. ZUPANČIČ ŠPELA
20. ŽIBERNA TJAŠA

▪ **UNIVERSITY STUDY OF PHARMACY**

3RD YEAR, 2009/10

1. CESAR BLANKA
2. ČERNE ANA
3. JERAJ ŽIGA
4. KLANČAR ANITA
5. KOPAČ JANEZ
6. KOS ŠPELA
7. KRAMARIČ VALERIJA
8. MANDIČ JELENA
9. MITROVIČ ANA
10. VIDOVIČ SARA
11. ZINRAJH DAVID

▪ **UNIVERSITY STUDY OF PHARMACY**

4TH YEAR, 2009/10

1. ADAMIČ TANJA
2. AHAČIČ NATAŠA
3. BARTOL URŠA
4. BEVC KATARINA
5. HAJŠEK DAVID
6. JANEŽIČ SANDRA
7. JURINČIČ VALENTINA
8. KEČEK KAJA
9. KORITNIK NIKA
10. MILOŽIČ ALEKSANDER
11. PIHLER BRIGITA
12. PLEŠEC LUKA
13. RUGELJ NEŽA
14. URLEP ŽIGA

▪ **UNIVERSITY STUDY OF PHARMACY**

5TH YEAR, 2009/10

1. BARTOL MAJA
2. BOŽNAR POLONA
3. BREZOVNIK URŠKA
4. ČESEN MARJETA
5. ČURIČ MATEJA
6. FORTUNA ANDREJA
7. GERMOVNIK TEJA
8. GRDEŠIČ PETER
9. GRŽELJ JASNA
10. KEJŽAR ANJA
11. KOPRIVNIK SANDRA
12. KOVAČ LEA
13. KOZAN RENATA
14. LEBEN URŠKA
15. LENARDIČ ANJA
16. LOŽAR KATJA
17. MLINARIČ BARBARA
18. MUHIČ BLAŽ
19. MUHIČ MARKO
20. OZMEC JANJA
21. PAL TJAŠA
22. PAVLIN MOJCA
23. PELIPENKO JAN
24. PLANINC NINA
25. STARIN MIRJAM
26. ŠTAVAR BOJANA
27. TOMC ANA
28. TRČEK JANJA
29. TROŠT NUŠA
30. UDIR TJAŠA
31. VIŽIN TJAŠA
32. ZAJC SAŠA
33. ZALETEL ANJA

▪ **UNIVERSITY STUDY OF LABORATORY BIOMEDICINE (1st cycle)**

1ST YEAR, 2009/10

1. KLUN JURKA
2. KOKALJ KATARINA
3. OBREZA TAMARA
4. PERC KATJA
5. SVETIČIČ ŠPELA
6. ŠVIGELJ ANJA
7. ULAGA BLANKA
8. ZUPANČIČ MOJCA

- **UNIVERSITY STUDY OF LABORATORY BIOMEDICINE (1st cycle)**
 - 2nd YEAR, 2009/10**
 1. KERŠ ANJA
 2. KOS ŠPELA
 3. MITROVIĆ SANJA
 4. PODPADEC MATEJA
 5. PRISTOVŠEK NUŠA
 6. SAJKO SARA
 7. TROGAR URŠKA

- **HIGHER PROFESSIONAL STUDY PROGRAMME IN LABORATORY BIOMEDICINE**
 - 3rd YEAR, 2009/10**
 1. KUMPERŠČAK MONIKA
 2. MALAVAŠIČ TINA
 3. MERJAK MAŠA

- **POSTGRADUATE MASTER'S STUDY OF INDUSTRIAL PHARMACY**
 - 2nd YEAR, 2009/10**
 1. GORNIK MOJCA
 2. KOŽELJ MARJETA
 3. KUHELJ VESNA
 4. PRERAD RANKA
 5. ŠPORAR ELENA

- **POSTGRADUATE MASTER'S STUDY OF LABORATORY BIOMEDICINE**
 - 1st YEAR, 2009/10**
 1. GAŠPAROVIĆ ADRIJANA
 2. GRUDEN KRISTINA
 3. KOŽELJ MATEJA
 4. KUNILLO JAMNIK SABINA
 5. LAH ANTONELA
 6. MENDEZ ANDRIJANA
 7. PRAH KRUMPAK MARJANA
 8. VALH PINTAR RENATA
 9. ŽURAN TINA

KRKA AWARDS FOR STUDENTS IN 2010

Krka Awards for special achievements were conferred to

Žiga Jakopin (supervisor: Marija Sollner Dolenc): Design and synthesis of substituted 1,2,4-oksadiazoles and saccharins as building blocks of potential biologically active compounds, COBISS.SI-ID: 2886257.

Matej Pavli (supervisor: Saša Baumgartner, co-supervisor: Franc Vrečer): Designing, manufacturing and evaluation of modified release matrix tablets based on natural polymers, COBISS.SI-ID: 2886513.

Alenka Zvonar (supervisor: Mirjana Gašperlin): Optimization of technological procedure and evaluation of microcapsules with selfmicroemulsifying core, COBISS.SI-ID: 2886769.

Krka Awards for research work

Bernarda Bevc (supervisor: Aleš Obreza): Slovenian pharmaceutical terminology of excipients, COBISS.SI-ID: 2887793.

Teja Brezovar (supervisor: Julijana Kristl, co-supervisor: Petra Kocbek): Optimization of TiO₂ nanoparticles dispersion preparation and assessment of its safety on keratinocyte cell line, COBISS.SI-ID: 2946673.

Marko Hanželič (supervisor: Stanko Srčič, co-supervisor: Ilija Ilić): Influence of process variables on microparticle size and process yield using spray congealing technology, COBISS.SI-ID: 2888305.

Alenka Jaklič and Jasna Jereb (supervisor: Aleš Mrhar): Evaluation of the behaviour of enteric coated pellets by dissolution/release testing and stereomicroscopy, COBISS.SI-ID: 2888561.

Petra Kos (supervisor: Ksenija Kogej, co-supervisor: Saša Baumgartner): Study of complexes between cationic drug and poly-anionic carrageenans for modified drug release, COBISS.SI-ID: 2888817.

Zala Jevnikar (supervisor: Janko Kos): Cathepsin X affects T cell migration and morphology through integrin regulation, COBISS.SI-ID: 2887537.

Tanja Sever (supervisor: Marija Bogataj): The simulation of gastric emptying of pellets and dissolution study with USP IV apparatus, COBISS.SI-ID: 2889073.

Urban Švajger (supervisor: Matjaž Jeras): Induction of tolerogenic dendritic cells and tegulatory T lymphocytes *in vitro*, COBISS.SI-ID: 2946929.

Anja Zaletel, Katja Ložar (supervisor: Marija Bogataj): Optimisation of conditions for evaluation of theophylline release from cylindrical dosage forms, COBISS.SI-ID: 2889329.

4 INTERNATIONAL COOPERATION IN 2010

In 2010, the Faculty of Pharmacy strengthened its international activities in numerous areas. New bilateral agreements on cooperation and exchange of students and teachers were signed. The number of students of the Faculty of Pharmacy involved in exchanges to abroad as well as foreign students at our Faculty has been increasing, reaching 6% of all students. We signed new forms of cooperation in the CEEPUS network, and actively engaged in many initiatives, such as Pharmine and others. Students of pharmacy successfully organised the IPSF congress, thus unambiguously contributing towards international recognisability of our Faculty abroad. The international cooperation coordinator at the Faculty of Pharmacy is Assoc. Prof. Irena Mlinarič-Raščan, PhD.

Mobility programmes

Student exchange promotion was carried out within the framework of organised lectures to large groups of students, individual interviews and informing students through the Slovenian Pharmaceutical Students' Association. Redesigned and well-maintained website of the Faculty of Pharmacy plays an important role in providing information; the new section called "International Activity" provides complete information as regards the exchanges, both of students and teachers.

The Faculty enables lectures partially carried out in the English language to foreign students, who are in the student exchange programme. English speaking groups are organised at practical lectures, corresponding study literature is provided in English, as well as individual consultations. Written and oral exams are carried out in English. Upon arriving to the Faculty, students are welcomed by the coordinator and the tutoring student who show them around the Faculty, explain the study method, and the extracurricular activities.

ERASMUS

The goal of the Erasmus programme is to contribute to the formation of the European higher education area and increase the academic sphere's contribution to innovative processes. Erasmus, one of the programmes in the Lifelong Learning umbrella programme, meets the needs for education of all formal higher education programme participants, from students to teachers and other staff. The main tool for achieving these goals is the organisation of student, teacher and staff exchanges according to the formal stages of study, which means that the students can finish a part of their full-time study or practical student training in one of the institutions with which the faculty has signed a cooperation agreement.

In 2010, the Faculty of Pharmacy renewed 39 bilateral agreements and it agreed to 74 vacancies for student exchanges, and 45 vacancies for teacher exchanges. The following figure presents the towns of Universities with which the Faculty of Pharmacy has signed the bilateral agreement for ERASMUS exchange.



Presentation of towns where ERASMUS partner faculties, with which the Faculty of Pharmacy collaborates, are located.

Basileus

Basileus (Balkan academic scheme for the internationalisation of learning together with EU universities), a European Commission's project, promotes academic mobility from the countries of the Western Balkans and the EU. The programme is carried out within the Erasmus Mundus External Cooperation Window (EMECW) project, which enables student and teacher exchanges at one of the twelve partner universities. Together with the other eight universities from EU members, students and teachers from the University of Ljubljana have a possibility of exchange at twelve universities from Albania, Bosnia and Herzegovina, Macedonia, Montenegro, Serbia and Kosovo. As part of the Basileus project, our Faculty provided education to one postdoctoral researcher and two students of the postgraduate study of Biomedicine.

CEEPUS

CEEPUS (Central European Exchange Program for University Studies) is a regional programme with the aim to establish and promote student and teacher mobility among the participating countries (Austria, Bulgaria, the Czech Republic, Croatia, Hungary, Poland, Romania, Slovakia, Slovenia, Albania, Macedonia, and Montenegro) and make use of friendly connections and possibilities to form common study programmes. For a number of years, the Faculty of Pharmacy has collaborated in several networks in the areas of pharmaceutical technology and clinical biochemistry. At the moment, we are actively engaged in the CEEPUS II programme entitled *Developing a network for monitoring the impact of environmental and nutritional factors on fertility and neonatal health*, organised by Prof. Marius Alexandru Moga, PhD, from the Transilvania University of Brasov, Romania. The coordinator at the Faculty is Assoc. Prof. Irena Mlinarič-Raščan, PhD.

TEMPUS

The TEMPUS programme is intended to support the modernisation of higher education in the partnering countries of the Eastern Europe, Central Asia, Western Balkans and the Mediterranean, primarily with cooperation projects among universities, financed by the European Union.

The Faculty of Pharmacy is a member of the TEMPUS programme consortium called *Postgraduate Qualification in Pharmacy: The Way Forward*, which is coordinated by the Faculty of Pharmacy at the University of Belgrade in the 2010-2012 period. The goals of the TEMPUS project are: designing concepts for postgraduate study programmes in Serbia, creating a training programme, installing e-learning application platform, and providing new possibilities for professional and scientific collaboration among the faculties of the consortium members, including Universities of Dublin, London, Greenwich, Strathclyde, Novi Sad, Niš and Kragujevac besides the already mentioned ones. The membership of the Faculty of Pharmacy in the project is coordinated by Prof. Stanko Srčić, PhD.

Studies at universities abroad

In the summer semester of the academic year 2009/10, 22 students carried out their study obligations within the university study of Pharmacy at foreign institutions, with which the Faculty of Pharmacy has signed bilateral agreements, and in the winter semester of 2010/11, the number of such students was 25. This year, the student exchange was attended by students of the university study of Laboratory Biomedicine for the first time.

Foreign students at the Faculty of Pharmacy

Within the university study of Pharmacy, 19 foreign students carried out their study obligations at the Faculty of Pharmacy in the summer semester of the academic year 2009/10, and 9 foreign students in the winter semester of the academic year 2010/11. Exchanges were attended also by three students of the university study of Laboratory Biomedicine.

37 students from abroad study full-time at the Faculty of Pharmacy (Table below).

Table: Overview of student exchanges in 2010

Students	TOGETHER	ERASMUS	Basileus	CEEPUS	EPSA practical trainings	IPSF practical trainings	Full-time enrolled students	
							1st, 2nd cycle	3rd cycle
FFA students to abroad	70	47	-	-	5	18	-	-
Foreign students at FFA	83	28	3	3	-	16	26	7

Exchanges of university teachers and researchers. The Faculty of Pharmacy hosted 23 foreign teachers and researchers, while 22 teachers and researchers from the Faculty of Pharmacy attended exchange at foreign universities. Prof. Borut Štrukelj, PhD spent a sabbatical year at the University of Pittsburgh as Fulbright grantee.

The European Association of Faculties of Pharmacy

Being a member of the European Association of Pharmacies, the Faculty of Pharmacy regularly attends annual conferences of the Association, which was in 2010 organised by Prof. Ronsisvalle from the University of Catania. The main topic of the meeting was multidisciplinary and interdisciplinary education and training issues and the role of a pharmacist as a part of a medical team. The question of accreditation or certification of faculties of pharmacy was also raised, as this has (so far) not been implemented due to the regulation of the profession in Europe. Within the framework of the international project called Pharmine (<http://www.pharmine.org/>), the Faculty and its co-workers prepared an overview of education courses for pharmacists in Slovenia, and it also joined the activities for two additional EAFP international projects in the area of pharmacist education in the SE Europe and surroundings. At a separate meeting, vice-deans presented their experience with international student exchanges and with problems as regards the increasing contents of such activities. A part of the meeting was intended also for the EAFO general meeting. Cooperation with EAFP was coordinated by the vice-dean for study issues Prof. Borut Božič, PhD.

LINKING UP WITH FOREIGN HIGHER EDUCATION INSTITUTIONS OR ORGANISATIONS

1. University of Zagreb, Faculty of Pharmacy and Biochemistry: CEEPUS programme
2. Universitaet des Saarlandes, Saarbruecken, Germany/European Community: GALENOS Network
3. University of Bern, Institute of Pathology and University Hospital Basel, Switzerland
4. Università degli Studi di Trieste, Dipartimento di Scienze Farmaceutiche, Trieste, Italia
5. National University of Pharmacy, Kharkov, Ukraine
6. Swiss Federal Institute of Technology (ETH Zürich) and University of Leipzig
7. University of Montenegro, Podgorica, Montenegro
8. Faculty of Pharmacy, Sarajevo, Bosnia and Herzegovina
9. University of Belgrade, Faculty of Pharmacy, Belgrade, Serbia

VISITING TEACHERS AND RESEARCHERS AT THE FACULTY OF PHARMACY

- Prof. Giuseppe Ronsisvalle, PhD, Università degli Studi di Catania, Facoltà di Farmacia, Italy
- Prof. Branko Bugarski, PhD, University of Belgrade, Faculty of Technology and Metallurgy, Serbia
- Prof. Ronald J. Veršič, PhD, Ronald T. Dodge Company, Dayton, Ohio, USA
- Prof. Jukka Rantanen, PhD, Faculty of Pharm. Sciences, Copenhagen, Denmark
- Prof. Margaret Sznitowska, PhD, Faculty of Pharmacy, Gdansk, Poland
- Prof. H. J. Hidde Haisma, PhD, University Groningen, Department of Therapeutic Gene Modulation, Pharmacy, Groningen, the Netherlands
- Prof. Werner Weitschies, Ernst Moritz Arndt Universität, Greifswald, Germany
- Prof. Hans E. Junginger, Faculty of Pharmaceutics, Noreuan University, Germany
- Prof. Aleksander Djordjević, PhD, University of Novi Sad, Serbia
- Assist. Prof. Jelena Antić Stanković, PhD, University of Belgrade, Serbia
- Assist. Verica Manjdović, PhD, University of Belgrade, Faculty of Technology and Metallurgy, Serbia
- Peter Kassa, PhD, University of Szeged, Faculty of Pharmacy, Hungary
- Tamas Sovany, PhD, University of Szeged, Faculty of Pharmacy, Hungary
- Peter Mohr, PhD, Roche Basel, Switzerland
- Peter Matyus, Semmelweis University, Budapest, Hungary
- Alberto Vargas, PhD, Universidad de Granada, Facultad de Farmacia, Granada, Spain
- Marcin Placzek, PhD, Medical University of Gdansk, Poland
- Matthew Bogyo, Stanford University, School of Medicine, Stanford, CA, USA
- Petra Dunkel, Semmelweis University, Budapest, Hungary
- Balazs Balogh, Semmelweis University, Budapest, Hungary
- Milana Zarić, University of Belgrade, Faculty of Technology and Metallurgy, Serbia
- Kitti Papos, University of Szeged, Faculty of Pharmacy, Hungary
- Mariana Seke, University of Novi Sad, Serbia

VISITING PROFESSORS FROM THE FACULTY OF PHARMACY (ON TRAINING) ABROAD

a) Teachers, assistants

- Prof. Stanislav Gobec, PhD, University of Warwick, Great Britain
- Prof. Stanislav Gobec, PhD, University of Leeds, Great Britain
- Prof. Julijana Kristl, PhD, Faculty of Pharmacy, University of Vienna, Austria
- Prof. Julijana Kristl, PhD, Claude Bernard University, Faculty of Pharmacy, Lyon, France
- Prof. Stanko Srčič, PhD, University of Szeged, Hungary
- Assoc. Prof. Marija Bogataj, PhD, Faculty of Pharmacy, Chatenay-Malabry, Paris-Sud University, France
- Assist. Prof. Mitja Kos, PhD, Faculty of Pharmacy, Institute of Social Pharmacy, University of Belgrade, Serbia
- Assist. Prof. Janez Ilaš, PhD, Faculty of Pharmacy, Budapest, Hungary
- Assist. Prof. Iztok Grabnar, PhD, University of Belgrade, Serbia
- Assist. Prof. Lucija Peterlin Mašič, Götteborg/Lund, Sweden
- Assist. Matej Sova, PhD, University of Leeds, Great Britain
- Assist. Rok Frlan, PhD, Université Paris Descartes, Paris, France
- Assist. Igor Locatelli, PhD, University of Trieste, Italy
- Assist. Alenka Zvonar, PhD, University of Belgrade, Serbia
- Assist. Mirjam Gosenca, University of Belgrade, Serbia
- Assist. Alenka Šmid, University of Tartu, Estonian Biocentre, Institute of Molecular and Cell Biology, Tartu, Estonia

b) Researchers

- Assist. Teja Čelhar Kenanova, PhD, Bioinformatics Institute Singapore, Singapore
- Assist. Roman Šink, PhD, Institute de Biologie Structurale, Grenoble, France
- Assist. Zala Jevnikar, PhD, Lausanne, Switzerland
- Assist. Matej Živec, PhD, University of Warwick, Great Britain
- Assist. Veronika Škedelj, Paris-Sud University/Orsay, France

International activities of the Faculty of Pharmacy – teacher and student exchanges in 2010

1. *Teachers exchanges*

- number of visiting Faculty of Pharmacy teachers and co-operators abroad: 9
- Number of visiting teachers and co-operators at the Faculty of Pharmacy: 9

2. *Student exchanges*

2.1 *Socrates/Erasmus exchanges:*

- Number of the Faculty of Pharmacy exchange students abroad: 47
- Number of foreign students at the Faculty of Pharmacy: 28

2.2 *Basileus exchanges:*

- Number of the Faculty of Pharmacy exchange students abroad: 0
- Number of foreign students at the Faculty of Pharmacy: 3

5 SCIENTIFIC, RESEARCH AND PROFESSIONAL ACTIVITIES OF THE FACULTY OF PHARMACY

Research work of the Faculty is divided into three programme groups:

- Pharmaceutical Technology: planning, preparation and valuation of modern delivery systems of active substances, headed by Prof. Aleš Mrhar, PhD, which combines the Chair of Biopharmacy and Pharmacokinetics, the Chair of Pharmaceutical Technology, and the Chair of Social Pharmacy.
- Pharmaceutical Chemistry: planning, synthesis and valuation of active substances, headed by Prof. Danijel Kikelj, PhD, which combines the Chair of Pharmaceutical Chemistry, the Chair of Clinical Biochemistry, and the Chair of Pharmaceutical Biology.
- Pharmaceutical Biotechnology: the human and environment, headed by Prof. Janko Kos, PhD, which combines the Chair of Pharmaceutical Biology, the Chair of Clinical Biochemistry, and the Department of Biotechnology at the Jožef Stefan Institute.

Furthermore, researchers of the Faculty of Pharmacy cooperate on the following research programmes: Experimental biophysics of complex systems (Prof. Milan Valter Schara, PhD), Genes, hormones and personality changes in metabolic disorders (Prof. Janez Preželj, PhD) and System autoimmune diseases (Prof. Blaž Rozman, PhD).

The funds for research work of programme groups within the national programme are provided by the Slovenian Research Agency. Programme groups carry out also fundamental and applied research projects financed by the Slovenian Research Agency, various ministries of the Government of the Republic of Slovenia, domestic or foreign pharmaceutical or other industries, and the European Union.

In 2010, the Faculty of Pharmacy at the University of Ljubljana carried out 10 fundamental research projects, 5 applied research projects, a large number of development and research projects with the economy, 3 bilateral research international projects, and 3 European projects of the 6th and 7th framework programmes.

Basic research projects:

- *Pharmacogenetic approach to research, diagnostics and therapy of leukaemia* (head: Assoc. Prof. Irena Mlinarič Raščan, PhD)
- *Pharmacogenetic Study of Raloxifene Metabolism and Transport* (head: Prof. Aleš Mrhar, PhD)
- *Fungal Cytochromes P450 Involved in Detoxification of Plant Defence Compounds as Targets of New Antifungal Agents* (head: Nada Krašovec, PhD)
- *Non-Destructive JKR Method to Study and Monitor Polymorphisms in Heterogeneous Pharmaceutical Systems* (head: Zvonko Trontelj, PhD, project is being implemented by the University of Ljubljana, the Jožef Stefan Institute and the Jožef Stefan International School)
- *Functional Analysis of Non-Coding RNAs in Parkinson's Disease* (head: Boris Rogelj, PhD)
- *Expression and Functional Analysis of Non-Coding RNAs in Parkinson's Disease* (head: Boris Rogelj, PhD)
- *Protective Pleiotropic Effects of Low Dosages of Renin-Angiotensin System Inhibitors and Statins in Healthy Middle-Aged Population* (head: Mirza Šabovič, PhD)
- *Preparation and Characterization of Fusogenic Colloidal Nanoparticles for Efficient Transfer of Ingredients into Cells* (head: Marjeta Šentjurs, PhD)
- *New Report on State of Knowledge in the Most Developed Societies – 30 Years after Lyotard's Analysis* (head: Mladen Dolar, PhD)
- *Genetic Factors in Osteoporosis* (head: Prof. Janja Marc, PhD)

Applied research projects:

- *New active pharmaceutical ingredients of biotechnological source through bacteriophage presentation* (head: Prof. Borut Štrukelj, PhD)
- *Breast cancer genetics and hormone replacement treatment* (head: Ksenja Geršak, PhD)
- *Cell-free nucleic acids in diagnosis of coronary atherosclerosis* (head: Assoc. Prof. Darko Černe, PhD)
- *Preparation and Evaluation of Stabilized Control Blood for Hemogram and Differential White Blood Cell Count for Haematology Analysers* (head: Milan Skitek, PhD)
- *Slovenian terminology regarding online language resources* (head: Andreja Žele, PhD)

Economy-related projects

In 2010, the Faculty of Pharmacy successfully carried out a range of development and research projects with the following companies: Lek-Sandoz, Krka, Ars Pharmae, Pliva, Polfarma, Pfizer Lux, GSK, Astra Zeneca, Sanofi Aventis, Novo Nordisk, Dade Boering, Fidimed and Brinox.

International projects

By participating in projects within the 6th and 7th framework programmes, the Faculty of Pharmacy has obtained additional funds for research work, while it is at the same time part of the cutting-edge scientific research area in Europe. In 2010, the Faculty was active in three research projects financed by the EU. International cooperation took place also within the framework of three bilateral research projects financed by the Slovenian Research Agency and foreign partners from Poland, Serbia and Hungary.

Integrated EU project of the 6th framework programme EUR-INTAFAR



EUR-INTAFAR project (Inhibition of New Targets for Fighting Antibiotic Resistance) is carried out in cooperation with the Chair of Pharmaceutical Chemistry. There are 16 partners from 6 European countries cooperating on the project: Belgium, France, the Netherlands, Great Britain, Germany and Slovenia. The total value of the project is EUR 11.3. The integrated project coordinator is Prof. Jean-Marie Frère, PhD, from the University of Liege, and the head of the project at the Faculty of Pharmacy at the University of Ljubljana is Prof. Stanislav Gobec, PhD.

Development of bacterial strains that are resistant to one or more antibiotics is becoming a major global health problem. So, discovering new antibacterial substances is one of the most important tasks of pharmacy and related biosciences. In the scope of the EUR-INTAFAR project, we are looking into bacterial peptidoglycan that uses its strength to protect bacteria against outside conditions, helping them to survive. Many known antibiotics, such as penicillins and cephalosporins, already act in the way that they prevent the biosynthesis of bacterial peptidoglycan. The peptidoglycan synthesis includes intracellular, membrane and extracellular enzymes, which represent new and so far unused target sites. With the help of modern medicinal chemistry we are designing compounds that act on these new targets and prevent the biosynthesis of peptidoglycan, causing the destruction of bacteria. This will be used to develop new antibacterial active substances.

Integrated project of the 7th framework programme NANOPHOTO



The 7th framework programme NANOPHOTO (Targeted Nanosystems for Improving Photodynamic Therapy and Diagnosis of Cancer) comprises five research groups from Padova, Ljubljana, Göttingen, Jena and London. The duration of the project is from 2008 to 2011, and its total value is EUR 3.24 million. The co-ordinator of the project is Prof. Elena Reddi PhD, from the University of Padova, and the head of the project at the Faculty of Pharmacy is Prof. Janko Kos, PhD.

The objective of the project is improvement of photodynamic therapy in patients with cancer. For this purpose we develop nanosystems to enable specific delivery of photosensitive substances, particularly meta-tetrahydroxyphenylchlorin (mTHPC), to tumour cells. Ligands, which can recognise overexpressed receptors on tumour cells (folic acid, EGF, antibodies), and those that can prevent the recognition and removal of carriers by the immune system will be conjugated to carriers, such as liposomes, nanoparticles, and polymer nanoparticles. By developing the mentioned systems we will enable the use of photosensitive substances for diagnostic purposes.

The 7th framework programme project MAREX

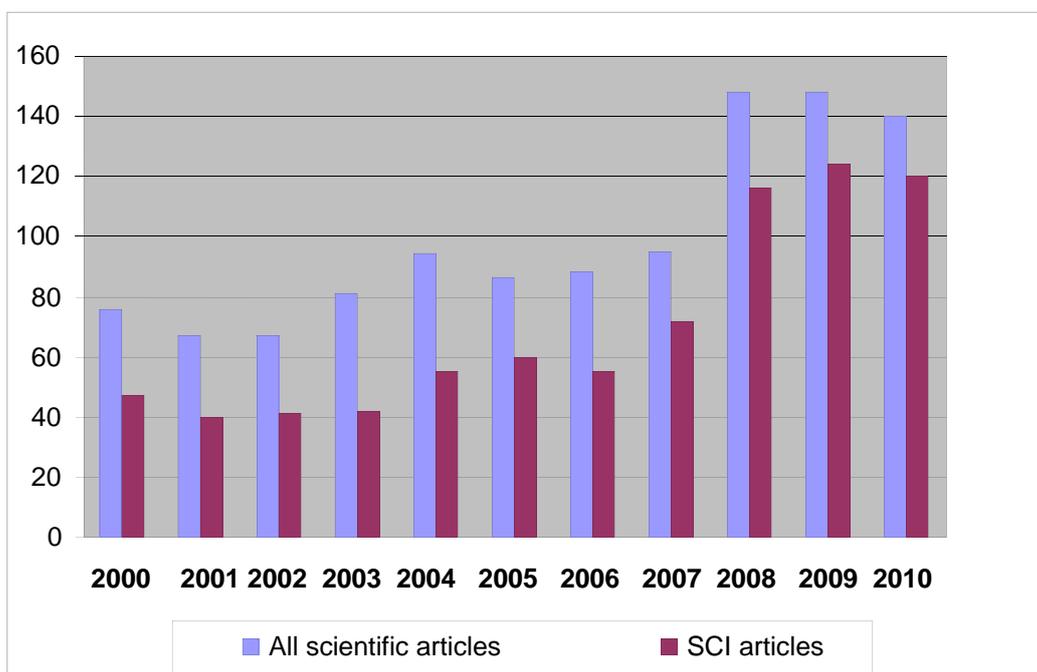


On 1 August 2010, the Faculty of Pharmacy started implementing a 4-year European project of the 7th framework programme entitled *MAREX - Exploring Marine Resources for Bioactive Compounds: From Discovery to Sustainable Production and Industrial Applications*. There are 19 partners from 9 European and 4 non-European countries cooperating on the project, which is co-ordinated by the

Faculty of Pharmacy at the University of Helsinki, and the head of the project at the Faculty of Pharmacy at the University of Ljubljana is Prof. Danijel Kikelj, PhD.

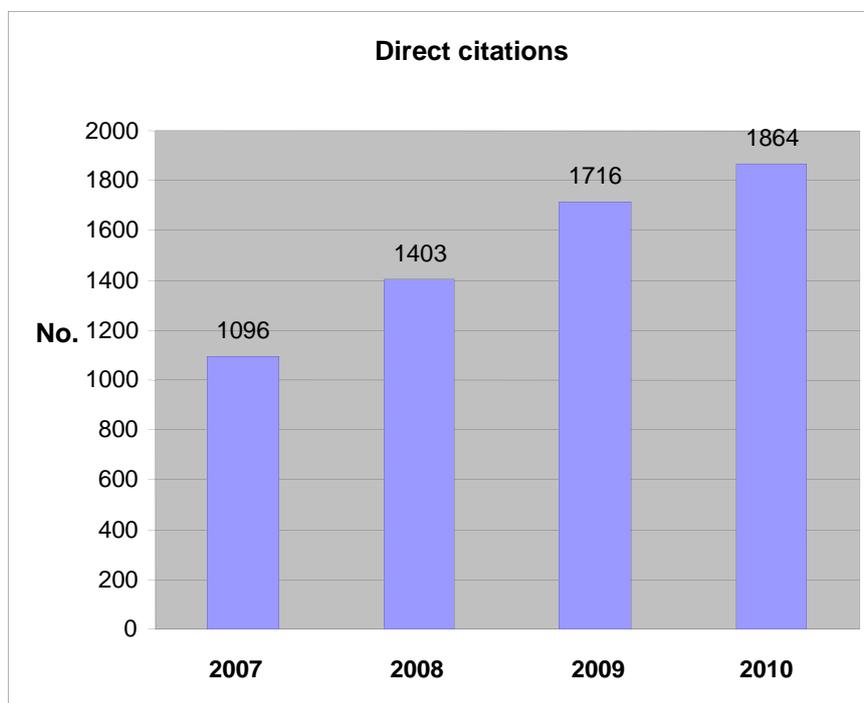
Overview of published works

The quality of scientific and professional achievements is evident from the number of publications, reputation among the international scientific and professional public and by the level of usability by the economic and other partners. In 2010, researchers of the Faculty of Pharmacy published a total of 140 reviewed articles: 120 in journals with an impact factor (SCI). The number of publications is comparable to the previous year, and in 2010, the number of articles in journals with the impact factor above 5.0 was five.



Number dynamics of all reviewed publications in SCI journals in the period from 2000 to 2010.

The number of citations from published works also represent a relevant research benchmark. In 2010, researchers of the Faculty of Pharmacy recorded 1,864 direct citations (without self-citations), representing a 9 percent growth compared to the previous year.



Number of all direct citations recorded by researchers of the Faculty of Pharmacy in the last four years.

In 2010, the Faculty of Pharmacy received resources for the work of 13.5 full-time researchers (FTE) from the Slovenian Research Agency through programmes and projects. The number of publications and citations to received resources per full-time researcher in 2010 is presented in the following table, showing that the resources were used very efficiently.

Table: Presentation of scientific articles and citations for resources per full-time researcher (FTE)

Resources for full-time researchers (FTE)	Number of all scientific articles/FTE	Number of scientific articles in journals with the impact factor/FTE	Number of direct citations/FTE
13.5	10.4	8.9	138.1

Cooperation of the Faculty of Pharmacy in different bodies

The teachers of the Faculty of Pharmacy sit on the following committees:

Agency for Medicinal Products and Medical Devices of the RS – Drug committee I:

- Prof. Danijel Kikelj, PhD
- Prof. Aleš Krbavčič, PhD
- Prof. Aleš Mrhar, PhD
- Prof. Marija Sollner Dolenc, PhD

Agency for Medicinal Products and Medical Devices of the RS – Drug committee II:

- Prof. Mirjana Gašperlin, PhD
- Prof. Aleš Krbavčič, PhD
- Prof. Samo Kreft, PhD
- Prof. Joško Osredkar, PhD
- Assist. Prof. Damjan Janeš, PhD
- Assist. Prof. Andrej Umek, PhD

Agency for Medicinal Products and Medical Devices of the RS – Veterinary committee:

- Prof. Stanko Srčič, PhD (expert in pharm. technology)
- Assist. Prof. Lucija Peterlin Mašič, PhD (expert in pharm. chemistry)

Agency for Medicinal Products and Medical Devices of the RS – Clinical trials committee:

- Assist. Prof. Mitja Kos, PhD

Agency for Medicinal Products and Medical Devices of the RS – Drugs committee for preparation of opinions for determining outstanding higher allowed prices of drugs:

- Assist. Marko Obradovič, PhD (Deputy Chairman)
- Assist. Prof. Mitja Kos, PhD

Pharmacopoeia committee:

- Prof. Borut Štrukelj, PhD
- Prof. Jelka Šmid-Korbar, PhD

Commission for Preparing Formularium Slovenicum within the European Pharmacopoeia:

- Prof. Jelka Šmid Korbar, PhD (Chairwoman)
- Prof. Mirjana Gašperlin, PhD (Vice-Chairwoman)
- Assoc. Prof. Aleš Obreza, PhD
- Assoc. Prof. Franc Vrečer, PhD

Committee on Herbal Medicinal Products, EMEA:

- Prof. Samo Kreft, PhD

Working Group for Biotechnological Drugs, EMEA:

- Prof. Borut Štrukelj, PhD

Committee for Medicinal Products for Veterinary Use, EMEA:

- Prof. Stanko Srčič, PhD

Working Group for Preparation of Herbal Monographies

- Assist. Prof. Damjan Janeš, PhD

Pathobiology Group of the European Organisation for Research and Treatment of Cancer (EORTC):

- Prof. Janko Kos, PhD

Biological Drugs Group within the European Pharmacopoeia in Strasbourg:

- prof. Borut Štrukelj, PhD

Slovenian Research Agency – Professional Board of Biotechnical Science:

- Prof. Janko Kos, PhD

Slovenian Research Agency – Professional Board of Interdisciplinary Research:

- Prof. Borut Štrukelj, PhD

Slovenian Research Agency – Scientific Board of Natural and Mathematic Science:

- Prof. Julijana Kristl, PhD

Slovenian Research Agency – Professional Board of Natural Sciences:

- Prof. Danijel Kikelj, PhD

Professional Board of the Slovenian Science Foundation:

- Prof. Franc Vrečer, PhD

The Slovenian Science Foundation Board:

- Assoc. Prof. Franc Vrečer, PhD

Krka Awards Council:

- Assoc. Prof. Franc Vrečer, PhD

Slovenian Academy of Science and Arts – Slovenian Dictionary of Pharmaceutical Terminology:

- Prof. Mirjana Gašperlin, PhD
- Assoc. Prof. Aleš Obreza, PhD

The Institute of Slovenian Language – Department of Dictionaries of Terminology:

- Prof. Mirjana Gašperlin, PhD

National Anti-Doping Committee:

- Prof. Joško Osredkar, PhD (Chairman)

Cooperation of the University of Ljubljana – the Faculty of Pharmacy in the bodies of the Ministry of Health

Health Council:

- Assist. Prof. Mitja Kos, PhD

Drugs Committee

- Prof. Borut Štrukelj, PhD

Expanded Professional Board of Pharmaceutical Services:

- Prof. Mirjana Gašperlin, PhD (Chairwoman)
- Prof. Aleš Mrhar, PhD
- Assoc. Prof. Aleš Obreza, PhD

Chemicals Office:

- Prof. Mirjana Gašperlin, PhD (Committee for Cosmetic Products-Related Expert Issues)
- Assist. Bojan Doljak, PhD

Expanded Professional Board of Laboratory Diagnostics:

- Prof. Janja Marc, PhD (Chairwoman)
- Prof. Borut Božič, PhD
- Prof. Jana Lukač Bajalo, PhD

6 STUDENT PROGRESS REPORT FOR 2010

Pharmacist Month

The 5th Pharmacist Month took place at the beginning of the academic year 2010/11. In October and November, we welcomed first-year students and made their first days of study interesting. It all started on 1 October at Prešeren Square as part of the event called Acceptance for freshmen of the University of Ljubljana, where students of the Faculty of Pharmacy presented our Faculty at a stand, got to know some of the freshmen and gave them advice as regards the study. The event was later moved to the Faculty. The entire October and November were full of many dynamic and intensive activities as part of the project. In the Faculty hall, there was an information stand, the Book Fair took place (new and second-hand books), and all students became familiarised with extracurricular activities (flyers and presentation). Also held were the Mobility Day, where students were presented with possibilities for study, exchanges and practical training abroad, any a range of other international events, and the *Evening of Professional Practical Trainings*, where students were presented with possibilities of carrying out professional practical trainings abroad. The Pharmacist Month also included the following activities:

- distribution of information folders with various materials (Spatula, introduction of extracurricular activities at the Faculty of Pharmacy, Ffarmakopeja, old term papers and exams, important information, etc.)
- incentive weekend
- working weekend
- evening panel discussions
- issuing of Ffarmakopeja
- issuing of the Spatula newsletter
- bowling
- welcome parties
- Mobility day
- Evening of professional practical trainings

Organisation of the 56th World Congress of the International Pharmaceutical Students' Federation (IPSF)

This is the biggest project of students made so far. The preparations started a half a year before the congress in Romania in 2008, where we were selected. Following this congress, members of the organisational panel, which comprised over 40 members and was divided in several subgroups (sponsors, professional, social, PR, logistics, registrations, Post Congress Tour), actively started with their work, which was carried out regularly. We met every 14 days at meetings, where each group reported on the progress. The most intensive work was carried out in June and July 2010. The congress was organised in a high quality manner and received many praises.

Evening panel discussions

Students, the Faculty, sponsors and other professional workers have expressed the need for evening panel discussions on different topics. The discussions all have one thing in common: they represent additional extracurricular education familiarising students with lifelong learning, which is particularly important in the pharmaceutical profession.

In 2010, we held evening panel discussions on the following topics:

- Modern recommendations for pneumonia treatment
- Hair care
- Tuberculosis
- Diabetes
- Pain
- Allergic rhinitis

We kept track of the attendance at evening panel discussions, just like in the previous year. At the end of the academic year, students with sufficient attendance percentage receive a certificate for year-round additional extracurricular education.

Spatula – numbers 50, 51, and 52

Spatula is a periodical and the only gazette of the students of pharmacy. Articles are generally published in the Slovenian language, but if written by foreigners, they are published in English.

Regular gazette sections are:

- Editorial
- Professional articles
- Interview
- Evening panel discussions
- Presentation of the pharmaceutical activity in Slovenia
- Information on the study of pharmacy abroad
- Laboratory Biomedicine corner
- News from pharmacy
- Travelogue
- Report on extracurricular activities
- Sudoku
- Pharmacoscope

Patient consultation

The project is recognised among pharmacy students as well as in the wider pharmaceutical sphere. An individual competition is divided into two stages. The first consists of a lecture about a disease and a lecture about a drug. The second part is a competition and takes place directly at the pharmacy. The competition involved treatment of an imaginary patient. Practical application of theory performance communication with the patient and general impression were graded. This competition is therefore suitable for freshmen and final-year students alike.

The project was carried out in three stages: two semi-finals and the finals. The topics of competitions were Hair care, Modern recommendations for pneumonia treatment, and Allergic rhinitis. The first four competitors from each qualifying round met in the finals to compete for attractive prizes, such as participation in the international summer camp of pharmacists and the IPSF congress.

For every competition, a booklet with abstracts of lectures and instructions for the competition was published. Two copies of the booklets are kept at the library of the Faculty of Pharmacy.

Volunteer work at the Faculty of Pharmacy

Student volunteers have been active also in 2010. In March we collected clothes for homeless. We continuously help the Clinic for persons without health insurance. December saw out bazaar, which was carried out perfectly. This year we raised contributions and sent them to Uganda together with one of our students.

World Diabetes Day and World Antibiotics Day

14 November is the World Diabetes Day as declared by the World Health Organisation (WHO). In 2010, students were actively involved, for the fourth successive time, in the organisation and staging of diabetes-related events that take place across Slovenia on this day.

In the week from 15 to 19 November we organised one workshop and public campaign. We placed stands and informed the public about safe use of antibiotics and diabetes. At the same time we also made a survey about familiarisation with diabetes and antibiotics. The results were presented in Spatula.

IPSF Student Exchange Programme

Student exchange programme (SEP) within the IPSF is a programme of international professional trainings for pharmacy students. Aimed to promote the mobility among students of pharmacy at the global level, it offers 1-3 months long professional trainings in all areas of the pharmaceutical profession. Students can thus complete their professional training in general and hospital pharmacies, the industry or in the area of research at Faculties or institutes in over 50 countries.

In 2010, 16 students from abroad (the US, Ghana, Portugal, Serbia, Germany, Peru, Lithuania and Malta) carried out practical training in Ljubljana, Maribor and Kranj between June and September. Three students carried out the training at the Chair of Pharmaceutical Technology, and two at the Chair of Pharmaceutical Biology.

Students of the Faculty of Pharmacy showed increased interest in practical trainings abroad in 2010. Last year, 18 students of the Faculty of Pharmacy left for a one month practical training abroad – Spain, the Netherlands, Latvia, Portugal, Turkey, Peru, Ghana and Indonesia.

Other projects in 2010

- ***Information Days and the event called Informativa***
- ***Ffarmakopeja*** – This monthly information bulletin, with a print run of 700 copies, is aimed at informing the FFA students about Faculty activities.
- ***Mailing lists*** – for up-to-date information on Faculty activities for FFA students.
- ***Posters, information flyers about projects underway***
- ***Website*** – websites are very diverse and dynamic, offering students up-to-date information about activities at the Faculty of Pharmacy as well as study literature.
- ***Professional and training trip to Belgrade*** – A short trip abroad (November) for sightseeing and fun, and a visit to the pharmaceutical industry (Hemofarm) or pharmaceutical museums. The primary purpose is to promote student mobility and socialising with colleagues.
- ***Christmas trip to Vienna*** – in the Christmas time, we again went to a trip to a large nearby city. We visited the main city's sights of interest and the Christmas Fair. This trip was attended by 204 students.
- ***Skiing on Osojščica*** – This time, the pharmaceutical skiing was held on Osojščica in March 2010.
- ***Hiking to Komna***
- ***Bowling competition***
- ***Go-cart competition***
- ***Paintball***
- ***Collaboration on projects 'Medimedo' and 'Virus' (Slovenian Medical Students' International Committee)***

Participation in projects

- ***EPSA Annual Congress (Krakow, Poland, April 2010)***

The congress of the European Pharmaceutical Students' Association is a professional, legislative and social event. EPSA requires that its member organisations delegate two official delegates to the General Assembly. Their role is to establish contacts with organisations and represent the views of the Slovenian pharmacy students. They present the association's activities in the past year, often also our system of study, to colleagues from Europe.

Other participants of the congress are engaged in the professional part of the programme, where a topical subject is discussed. Attendance at lectures represents a part of the requirement a student must fulfil to receive Lifelong Learning Certificate - LLC). The congress also includes dynamic social activities.

- ***EPSA Summer University (Burgas, Bulgaria, July 2010)***

The event is a professional and social gathering, giving students a chance to learn more about the chosen topic and make new contacts with foreign professors and colleagues. The Summer University is yet another EPSA event aiming to increase mobility and expand the knowledge of pharmacy students.

The EPSA is also the first opportunity for newly elected members of the EPSA Team. Members of the EPSA committees and subcommittees convene throughout the year to develop new ideas and define guidelines for the future.

- ***56th IPSF Congress (Ljubljana, August 2010)***

The annual congress is a legislative meeting of the IPSF Federation and attendance is compulsory for all its members. By attending general assemblies, workshops about strategic planning and regional meetings, the Slovenian Pharmaceutical Student's Association is involved in the decision-making process regarding the Federation's activities, supporting the views and interests of the Slovenian pharmacy students.

The congress is an opportunity for us to communicate with the IPSF executive committee and present the association's activities; furthermore, we actively cooperated in the implementation of this year's professional programme. The congress programme also includes a meeting of student exchange programme coordinators, promotion of professional training in Slovenia, and establishing personal contact with the coordinators, which will facilitate the organisation of practical training in the year to come.

Because of the duration limit of the congress and parallel programme of workshops, the congress requires the attendance of two official delegates. One takes the role of a contact person and the other of a practical training coordinator. The 56th congress was attended, besides the two delegates, by 22 students of the Faculty of Pharmacy (members of the Slovenian Pharmaceutical Student's Association).

This year, the congress was held in Slovenia, and was organised by the Slovenian Pharmaceutical Student's Association. The organisational committee comprised 40 members of Slovenian Pharmaceutical Student's Association.

- ***EPSA Autumn Assembly (Helsinki, Finland, October 2010)***

The EPSA Autumn Assembly is also a legislative, professional and social event. It includes the EPSA General Assembly (compulsory attendance of two delegates) and a professional programme, which is organised in cooperation with DIA (Drug Information Association).

The purpose of the meeting is to educate students about the projects run under the auspices of EPSA and to speed up their implementation in the member states, set the guidelines for future work and increase student mobility.

- ***EPSA Executive Committee***

We again have a member of the European Association Executive Committee. Jurij Obreza is an EPSA Team member serving as Vice-President for Mobility.

7 THE GRADUATES IN 2010

7.1 GRADUATES IN HIGHER STUDY OF LABORATORY BIOMEDICINE

Andoljšek Arteja (supervisor: Joško Osredkar): Določanje tumorskega označevalca HE4 pri raku jajčnika oziroma endometrija = Determination of tumour marker HE4 in ovarian and endometrial cancer, COBISS.SI-ID: 2814833.

Barborič Sabina (supervisor: Joško Osredkar): Vpliv življenjskega okolja na koncentracijo kadmija v krvi pri otrocih = The impact of environment on the blood concentration of cadmium in children, COBISS.SI-ID: 2803057.

Bergant Katarina (supervisor: Joško Osredkar): Določanje cinka v krvi pri otrocih glede nato, ali živijo v mestnem, kmečkem ali z živim srebrom obremenjenem okolju = Determination of zinc blood concentration in children, whether living in urban, rural or in mercury laden environment, COBISS.SI-ID: 2821745.

Bevc Tjaša (supervisor: Miroslav Petrovec): Primerjava treh metod za dokazovanje respiratornega sincicijskega virusa = Comparison of three methods for detection of respiratory syncytial virus, COBISS.SI-ID: 2848113.

Bizjak Anžiček Mateja (supervisor: Borut Božič, co-supervisor: Rok Orel): Proučevanje vpliva gliadinskih peptidov na kulture podganjih in humanih kolonocitov = Studying of influence of gliadin peptides on the cultures of rats and humans colonocytes, COBISS.SI-ID 2840433.

Blatnik Iva (supervisor: Joško Osredkar): Z nosečnostjo povezan plazemski protein A kot napovedni dejavnik za hipertenzijo v nosečnosti = Pregnancy associated plasma protein A as a prognostic factor for hypertension in pregnancy, COBISS.SI-ID: 2808433.

Bratina Katarina (supervisor: Joško Osredkar): Primerjava določanja encimov aspartat transferaze (AST) in alanin transferaze (ALT) pri hepatitisu in alkoholni jetrni cirozi = Comparison of determining the enzyme aspartate-aminotransferase and alanine-aminotransferase in hepatitis and alcoholic liver cirrhosis, COBISS.SI-ID: 2874225.

Čufar Jure (supervisor: Marija Sollner Dolenc): Zloraba alkohola med srednješolci v Sloveniji = Alcohol abuse among the secondary school students in Slovenia, COBISS.SI-ID: 2822257.

Goručan Jana (supervisor: Miroslav Petrovec, co-supervisor: Eva Ružič Sabljic): Dokazovanje vrste borelij Lyme borelioze glede na analizo gena ospA z uporabo PCR v realnem času = Identification of Lyme borreliosis borrelia species as for analysis based on gene ospA with of application real time-PCR, COBISS.SI-ID: 2812017.

Grah Jasna (supervisor: Joško Osredkar): Pomen določanja 17-ketosteroidov v urinu pri otrocih z motnjami v delovanju nadledvične žleze = The importance of determining 17-ketosteroids in urine of children with a malfunctioning of the adrenal gland, COBISS.SI-ID: 2868337.

Horvat Darja (supervisor: Joško Osredkar): Določanje razmerja 2-hidroksi/16-hidroksi estrogenov v urinu pri karcinomu jajčnika in endometrija = Determination of urinary ration of 2-hydroxy/16[alpha]-hydroxy estrogens in ovarian and endometrial carcinoma, COBISS.SI-ID: 2868593.

Hrnjak Mirjana (supervisor: Borut Božič, co-supervisor: Danijela Furlan): Primerjava nefelometričnega in turbimetričnega določanja albuminov v urinu = Comparison the results of albumin in urine determined by nephelometric and turbidimetric methods, COBISS.SI-ID: 2781553.

Kikelj Neža (supervisor: Borut Božič, co-supervisor: Polona Žigon): Pomen določanja protiteles proti trombinu z dvema encimsko imunskima metodama = Significance of antithrombin antibody detection with two enzyme-linked immunosorbent assay methods, COBISS.SI-ID: 2848369.

Kladnik Breda (supervisor: Joško Osredkar, co-supervisor: Tanja Lađić): Primerjava kromatografske in imunokemijske metode za določanje glikiranega hemoglobina v krvi pri bolnikih s sladkorno boleznijo tipa 2 = Comparison of chromatographic and immunochemical method for determining glycosylated hemoglobin in blood in patients with type 2 diabetes, COBISS.SI-ID: 2848625.

Kobe Maja (supervisor: Miroslav Petrovec): Primerjava treh metod za dokazovanje specifičnih protiteles proti virusu Epstein Barr = Comparison of three methods for detection of specific antibodies against the virus Epstein Barr, COBISS.SI-ID: 2857073.

Kociper Natalija (supervisor: Darko Černe): Preučevanje ekspresije gena za LDL receptor v nedrobnoceličnem pljučnem rakavem tkivu = Examination of LDL receptor gene expression in non small cell lung cancer tissues, COBISS.SI-ID: 2784113.

Konda Grega (supervisor: Janja Marc, co-supervisor: Štefka Krivec): Ocenjevanje diagnostične uporabnosti dokazovanja prikrite krvavitve v blatu s kvantitativno imunokemijsko metodo = Evaluation of diagnostic usability of determining fecal occult blood with quantitative immunochemical method, COBISS.SI-ID: 2781297.

Kovač Matej (supervisor: Miroslav Petrovec): Primerjava dveh seroloških metod za dokazovanje okužb z bakterijo Mycoplasma pneumoniae = Comparison of two serological methods for diagnostic of infections with bacteria Mycoplasma pneumoniae, COBISS.SI-ID: 2856561.

Kraljič Nataša (supervisor: Janja Marc, co-supervisor: Tadej Pajič): Vpeljava aglutinacijske metode za določanje aktivnosti von Willebrandovega faktorja v plazmi po dodatku ristocetina = Introducing agglutination method for determination of activity of von Willebrand factor in plasma after appendix of ristocetin, COBISS.SI-ID: 2868081.

Krajnc Barbara (supervisor: Joško Osredkar, co-supervisor: David Neubauer): Klinični pomen določanja dipeptidov pri avtizmu = Clinical meaning of dipeptides determination at autism, COBISS.SI-ID: 2925937.

Krajnc Polonca (mentor Milan Skitek, co-supervisor: Saša Bratož): Slovenska nacionalna shema za zunanjo oceno kakovosti - primerjava rezultatov kontrole med svežo in stabilizirano krvjo = Slovenian national external quality assessment scheme - results comparison for fresh and stabilised blood, COBISS.SI-ID: 2742897.

Mišić Miroslav (supervisor: Joško Osredkar): Pomen določanja koncentracije kreatinina in izračun ocene glomerulne filtracije po transplantaciji ledvic = The importance of determining the concentration of creatinine levels and calculations of glomerular filtration after renal transplantation, COBISS.SI-ID: 2903665.

Osterman Elza (supervisor: Uroš Mlakar, co-supervisor: Helena Podgornik): Stimulacija malignih limfocitov B v gojišču z 12-O-tetradekanoil-forbol-13-acetatom = Stimulation of malignant B lymphocytes in medium with 12-O-tetradecanoyl-phorbol-13-acetate, COBISS.SI-ID: 2932081.

Perko Irma (supervisor: Miroslav Petrovec, co-supervisor: Darja Kreše): Primerjava dveh encimsko imunskih testov za dokaz topnega antigena legionele v urinu bolnika = Comparison of two enzyme immune tests for the detection of soluble antigen in urine of legionella patients, COBISS.SI-ID: 2924913.

Prešeren Jure (supervisor: Joško Osredkar, co-supervisor: Alenka France Štiglic): Razmerje uroporfirina I proti koproporfirinu III v urinu avtističnih otrok ob sumu na zastropitev s težkimi kovinami =

Uroporphyrin I versus coproporphyrin III ratio in urine of autistic children at suspicion of heavy metal poisoning, COBISS.SI-ID: 2854769.

Režonja Sanja (supervisor: Janja Marc, co-supervisor: Tadej Pajič): Vpliv hranjenja vzorcev na izolacijo RNA iz celic kostnega mozga = The influence of storage samples on isolation of RNA from bone marrow cells, COBISS.SI-ID: 2787441.

Sevnik Tina (supervisor: Joško Osredkar): Določanje sedimentacije eritrocitov v primerjavi z določitvijo serumskega C-reaktivnega proteina in števila levkocitov za ugotavljanje prisotnosti vnetja in okužbe = Determination of erythrocyte sedimentation rate in comparison to the determination of C-reactive protein and leucocytes as a tool for establishing the presence of inflammation and infection, COBISS.SI-ID: 2822001.

Stanič Tina (supervisor: Joško Osredkar, co-supervisor: Elizabeta Božnar Alič): Laboratorijska diagnostika klopnega meningoencefalitisa = Laboratory diagnostic of tick-borne encephalitis, COBISS.SI-ID: 2915185.

Šohar Monika (supervisor: Janja Marc, co-supervisor: Simona Mencej Bradač): Povezanost polimorfizma His477His v genu PPARG z mineralno kostno gostoto in biokemičnimi kazalci = Association of polymorphism His477His in the PPARG gene with bone mineral density and biochemical markers of bone turnover, COBISS.SI-ID: 2813553.

Štefančič Izidor (supervisor: Joško Osredkar): Klinični pomen določanja timidin kinaze in beta-2-mikroglobulina pri različnih hematoloških obolenjih = Clinical significance of determining thymidine kinase and beta-2-microglobulin in different haematological diseases, COBISS.SI-ID: 2854513.

Tomc Jana (supervisor: Miroslav Petrovec): Dokazovanje protiteles proti parvovirusu B19 z metodo kemiluminiscence = Detection of antibodies against parvovirus B19 by kemiluminiscence method, COBISS.SI-ID: 2849137.

Tunjic Andrea (supervisor: Joško Osredkar): Primerjava koncentracij encima N-acetil glukozaminidaze pri otrocih iz obremenjenega, mestnega ali kmečkega okolja = Comparison of concentrations of enzyme N-acetyl glucosaminidase in children from burdened, urban or rural environment, COBISS.SI-ID: 2803313.

Turnšek Urška: (supervisor: Černelč Peter, co-supervisor: Podgornik Helena): Določanje z arzenovim trioksidom povzročene apoptoze plazmocitomskih celic = Apoptosis of myeloma cells caused with arsenic trioxide, COBISS.SI-ID: 2911601

Vidic Zupančič Petra (supervisor: Joško Osredkar, co-supervisor: Elizabeta Božnar Alič): Laboratorijska diagnostika gnojne meningitisa = Laboratory diagnostics of bacterial meningitis, COBISS.SI-ID: 2783857.

Zorko Katarina (supervisor: Joško Osredkar): Primerjava dveh imunokemijskih metod za določanje proteina S-100B pri poškodbah glave = Comparison of two immunochemical methods for determination of protein S-100B at head injuries, COBISS.SI-ID: 2848881.

Žavbi Marko (supervisor: Aleš Jerin): Modifikacija in optimizacija pogojev ekstrakcije steroidnih hormonov iz humanega tkiva = Modification and optimization of steroid hormones extraction conditions from human tissue, COBISS.SI-ID: 2869873.

7.2 GRADUATES IN UNIVERSITY STUDY OF PHARMACY

Andrejc Darjan (supervisor: Irena Mlinarič Raščan): Indukcija apoptoze v humanih celičnih linijah limfocitov B s stimulacijo receptorja EP4 = EP4 receptor stimulation induces apoptosis in human B cell lines, COBISS.SI-ID: 2856817.

Avšič Stražar Tadeja (supervisor: Marija Sollner Dolenc): Zastrupitve s pesticidi v Republiki Sloveniji v obdobju 1999-2008 = The number of poisonings with pesticides in the republic of Slovenia in the period between 1999 and 2008, COBISS.SI-ID: 2925169.

Benček Marija (supervisor: Mitja Kos): Analiza ambulantnega predpisovanja antipsihotikov v Sloveniji v obdobju 2002-2008 = Primary care prescription of antipsychotics in Slovenia for the period 2002-2008, COBISS.SI-ID: 2903409.

Benedejčič Tina (supervisor: Borut Božič, co-supervisor: Saša Čučnik): Vezava različno afinitetnih protiteles proti β 2-glikoproteinu I na antigen = Binding of anti- β 2-glycoprotein I antibodies with diverse affinity to antigen, COBISS.SI-ID: 2801777.

Benković Marko (supervisor: Tomaž Vovk): Razvoj analizne metode za določanje plazemskih koncentracij novejših antiepileptikov s pomočjo fluorescenčnega označevanja in tekočinske kromatografije = Development of HPLC method for quantification of recent antiepileptic drugs with fluorescence marking in plasma samples, COBISS.SI-ID: 2931825.

Bevc Bernarda (supervisor: Aleš Obreza): Slovenska farmacevtska terminologija na področju pomožnih snovi = Slovenian pharmaceutical terminology of excipients, COBISS.SI-ID: 2787697.

Bolko Katarina (supervisor: Mirjana Gašperlin, co-supervisor: Alenka Zvonar): Optimizacija ovojnice mikrokapsul s samomikroemulgirajočim jedrom = Shell optimisation of microcapsules with self-microemulsifying core, COBISS.SI-ID: 2855281.

Bratuž Borut (supervisor: Lucija Peterlin Mašič): Optimizacija strukture 2,4-tiazolidindionskih inhibitorjev ligaze MurD = Structural optimization of 2,4-thiazolidinedione-based inhibitors of MurD ligase, COBISS.SI-ID: 2865009.

Brezovar Teja (supervisor: Julijana Kristl, co-supervisor: Petra Kocbek): Optimiranje izdelave disperzije nanodelcev TiO₂ in ugotavljanje varnosti na celični liniji keratinocitov = Optimization of TiO₂ nanoparticles dispersion preparation and assessment of its safety on keratinocyte cell line, COBISS.SI-ID: 2809713.

Caglič Nina (supervisor: Julijana Kristl, co-supervisor: Petra Kocbek): Optimiranje izdelave disperzije nanodelcev ZnO in ugotavljanje varnosti na celični liniji keratinocitov = Optimization of ZnO nanoparticles dispersion preparation and assessment of its safety on keratinocyte cell line, COBISS.SI-ID: 2869361.

Cerjanec Snežana (supervisor: Odon Planinšek): Granuliranje trdnih disperzij težko topne učinkovine in poroznega SiO₂ z gastrorezistentnim polimerom = Granulation of solid dispersion of poorly water-soluble model drug and porous silica with gastroresistant polymer, COBISS.SI-ID: 2876273.

Cvikl Maja (supervisor: Aleš Mrhar, co-supervisor: Polonca Drogenik): Optimizacija režima odmerjanja vakomicina s pomočjo računalniškega farmakokinetičnega programa v Univerzitetnem kliničnem centru Maribor = Optimizing vancomycin dosage regimen using computer pharmacokinetic program at University Clinical Centre Maribor, COBISS.SI-ID: 2936689.

Čebren Lipovec Nanča (supervisor: Aleš Mrhar): Vpliv farmacevtskih intervencij na pogostnost napak pri predpisovanju, izdaji in dajanju zdravil bolnikom z nazogastričnimi sondami = Impact of pharmacist interventions on the frequency of medication errors in patients with nasogastric enteral feeding tubes, COBISS.SI-ID: 2932337.

Čerpnjak Katja (supervisor: Mirjana Gašperlin): Vrednotenje koloidnih sistemov z lecitinom za dermalno aplikacijo askorbilpalmitata = Evaluation of colloidal systems with lecithin for dermal application of ascorbyl palmitate, COBISS.SI-ID: 2803569.

Dobravc Verbič Matej (supervisor: Aleš Mrhar, co-supervisor: Petra Svetina Šorli): Analiza hepatoksičnosti tuberkulostatikov pri bolnikih z aktivno obliko tuberkuloze, zdravljenih v bolnišnici Golnik = Analysis of hepatotoxicity of antituberculosis agents in patients, treated at the University Clinic Golnik, COBISS.SI-ID: 2754929.

Dren Cvetka (supervisor: Joško Osredkar, co-supervisor: Rado Janša): Pomen določanja koncentracije alfa-fetoproteina pred in po terapiji s sorafenibom pri pacientih s hepatocelularnim karcinomom = Role of concentration alfa-fetoprotein determination before and after medical treatment with sorafenib in patients with hepatocellular carcinoma, COBISS.SI-ID: 2814577.

Eržen Janja (supervisor: Mitja Kos, co-supervisor: Cvetka Bačar): Značilnosti bolnikov in njihovega zdravljenja z zdravili na gerontopsihiatričnem oddelku psihiatrične bolnišnice Idrija v letu 2009 = Characteristics of patients and their treatment with medicines in the gerontopsychiatric department of the psychiatric hospital Idrija in year 2009, COBISS.SI-ID: 2866033.

Femić Sanja (supervisor: Aleš Mrhar, co-supervisor: Jurij Trontelj): Identifikacija prenašalcev raloksifena in njegovih metabolitov ter bazedoksifena na membranah celic transfeciranih s prenašalnimi proteini = Identification of raloxifene and its metabolites and bazedoxifene transporter proteins expressed on cell membranes, COBISS.SI-ID: 2897521.

Ferlež Mitja (supervisor: Joško Osredkar): Analiza uporabe biološkega potnega lista v športu = Analysis of the athlete's biological passport in sport, COBISS.SI-ID: 2914929.

Fic Anja (supervisor: Joško Osredkar, co-supervisor: Borut Štabuc): Uspešnost eradikacije okužbe z bakterijo *Helicobacter pylori*, merjene z dihalnim testom = Effectiveness of *Helicobacter pylori* eradication therapy measured with urea breath test, COBISS.SI-ID: 2812529.

Fijan Olivia (supervisor: Joško Osredkar, co-supervisor: Rado Janša): Rak trebušne slinavke - preživetje v odvisnosti od uspešnosti terapije = Pancreatic cancer - survival depending on successfulness of therapy, COBISS.SI-ID: 2892913.

Glavač Ana (supervisor: Marija Bogataj): Ponazarjanje sil v želodcu na pretočnem sistemu s kroglicami in njihov vpliv na sproščanje iz tablet = Simulation of gastric forces using flow-through system with glass beads and their influence on drug release from tablets, COBISS.SI-ID: 2803825.

Golob Jana (supervisor: Stanko Srčič, co-supervisor: Mojca Lunder): Primerjava lipazne inhibicije referenčnih in generičnih kapsul orlistat = Comparison of lipase inhibition by reference and generic orlistat capsules, COBISS.SI-ID: 2784369.

Gorišek Dunja (supervisor: Borut Božič, co-supervisor: Snežna Sodin-Šemrl): Vnetni in adhezijski odzivi humanih endotelijskih celic na frakcije IgG pacientov z antifosfolipidnim sindromom = Inflammatory and adhesive response of human endothelial cells on IgG fractions of patients with antiphospholipid syndrome, COBISS.SI-ID: 2874481.

Grobelnik Benjamin (supervisor: Mitja Kos, co-supervisor: Marko Obradović): Pregled kriterijev za odločitve o financiranju zdravstvenih programov = Review of drug reimbursement decision criteria, COBISS.SI-ID: 2770289.

Grubar Fric Nina (supervisor: Aleš Mrhar, co-supervisor: Tatjana Remec): Optimizacija zdravljenja z vankomicinom v Splošni bolnišnici Novo mesto = Optimization of vancomycin treatment in General Hospital Novo mesto, COBISS.SI-ID: 2936433.

Hanželič Marko (supervisor: Stanko Srčič, co-supervisor: Ilija Ilić): Vpliv procesnih spremenljivk na velikost mikropelcev in izkoristek procesa s tehnologijo razprševanja s strjevanjem = Influence of process variables on microparticle size and process yield using spray congealing technology, COBISS.SI-ID: 2742641.

Ivanušič Mateja (supervisor: Franc Vrečer, co-supervisor: Grega Hudovornik): Študij vpliva temperiranja na lastnosti filmsko obloženih pelet s podaljšanim sproščanjem = The study of influence on curing on properties of prolonged release film coated pellets, COBISS.SI-ID: 2935921.

Jankovec Veronika (supervisor: Darko Černe, co-supervisor: Irena Prodnik Žitnik): Razvoj postopka merjenja aktivnosti sintaze višjih maščobnih kislin v rakavem tkivu = Method development for measuring fatty acid synthase activity in cancer tissue, COBISS.SI-ID: 2779505.

Jelenko Andreja (supervisor: Borut Štrukelj): Določitev nukleotidnega zaporedja 18S rRNA ITS in karakterizacija polisaharidov iz gobe *Fomes fomentarius* = Sequence analysis of nuclear 18S rRNA ITS and characterisation of polysaccharides of mushroom *Fomes fomentarius*, COBISS.SI-ID: 2925425.

Jurčič Dolenc Simona (supervisor: Marija Sollner Dolenc): Napovedovanje kancerogenosti in mutagenosti spojin z računalniško aplikacijo Toxtree = Prediction of carcinogenicity and mutagenicity of compounds with Toxtree expert system, COBISS.SI-ID: 2783601.

Kladnik Mojca (supervisor: Borut Štrukelj, co-supervisor: Rade Injac): Ugotavljanje protektivnosti fulerenola in vivo pri terapiji malignih neoplazem z doksorubicinom na testisih pri podganah = Investigation of protective effects of fulleranol in vivo during doxorubicine therapy of malign neoplasma on testis in rats, COBISS.SI-ID: 2915441.

Klinc Nina (supervisor: Jana Lukač Bajalo, co-supervisor: Rok Orel): Proučevanje vpliva gliadinskih peptidov na kulture podganjih in humanih enterocitov = Studying influence of gliadin peptides on the cultures of rats and human enterocytes, COBISS.SI-ID: 2897265.

Kočevar Tina (supervisor: Iztok Grabnar): Analiza dostopnosti informacij o zdravilih na spletnih straneh farmacevtskih družb = Analysis of drug information availability on pharmaceutical companies web sites, COBISS.SI-ID: 2925681.

Koder Marko (supervisor: Mitja Kos): Vrednotenje izdaje recepta prostih zdravila z metodo navideznih pacientov = Evaluation of prescription free medicines dispensing by simulated patients method, COBISS.SI-ID: 2813297.

Kodrič Katarina (supervisor: Samo Kreft, co-supervisor: Helena Prosen): Identifikacija in kvantifikacija sestavin arome tatarske ajde (*Fagopyrum tataricum* Gaertn.) s plinsko kromatografijo = Identification and quantification of aroma compounds of tartary buckwheat (*Fagopyrum tataricum* Gaertn.) with gas chromatography, COBISS.SI-ID: 2876017.

Kolar Simon (supervisor: Tomaž Vovk): Razvoj analizne metode za določanja plazemskih koncentracij oksidirane in reducirane oblike glutationa s pomočjo fluorescenčnih ligandov = Development of an analytical method for determining reduced and oxidized glutathione levels in plasma with the aid of fluorimetric probes, COBISS.SI-ID: 2745457.

Kolarič Jasna (supervisor: Mirjana Gašperlin, co-supervisor: Alenka Zvonar): Izdelava samomikroemulgirajočih sistemov na osnovi srednjedolgoverižnih lipidov = Formulation of self-microemulsifying systems based on mediumchain lipids, COBISS.SI-ID: 2909297.

Koprivec Špela (supervisor: Samo Kreft, co-supervisor: Nina Kočevar Glavač): Merjenje 18β-gliciretinske kisline s HPLC v urinu ljudi po zaužitju napitka, slajenega z glicirizinom (E-958) = HPLC determination of 18β-glycyrrhetic acid in human urin, after orally administered glycyrrhizin preparation, COBISS.SI-ID: 2809969.

Kos Petra (supervisor: Saša Baumgartner, co-supervisor: Ksenija Kogej): Študij kompleksov med kationsko učinkovino in polianionskimi karagenani za doseganje prirejenega sproščanja = Study of complexes between cationic drug and polyanionic carrageenans for modified drug release, COBISS.SI-ID: 2868849.

Košir Darjan (supervisor: Vojko Kmetec, co-supervisor: Robert Roškar): Stabilnost in kompatibilnost protibolečinskih mešanic v elastomernih črpalkah = Stability and compatibility of analgesis admixtures in elastomeric infusers, COBISS.SI-ID: 2810993.

Kovačič Nina (supervisor: Joško Osredkar, co-supervisor: Ksenija Geršak): Vpliv hormonskega nadomestnega zdravljenja na koncentracijo testosterona pri menopavznih ženskah = The influence of hormone replacement therapy on the concentration of testosterone in postmenopausal women, COBISS.SI-ID: 2872689.

Kranjc Tilen (supervisor: Irena Mlinarič Raščan): Uravnavanje izražanja interleukina 6 preko prostaglandinskega receptorja EP4 = Expression of interleukin 6 is modulated by prostaglandine receptor EP4, COBISS.SI-ID: 2814321.

Kurent Luka (supervisor: Janja Marc, co-supervisor: Simona Mencej Bedrač): Povezanost polimorfizmov -1227C>T in -1734C>T v promotorju gena za peliotropin z mineralno kostno gostoto in biokemijskimi kazalci kostne premene = Association of polymorphisms -1227C>T in -1734C>T in peliotrophin gene promoter with bone mineral density and biochemical markers of bone turnover, COBISS.SI-ID: 2811505.

Lorbek Gregor (supervisor: Nataša Karas Kuželički, co-supervisor: Miha Milek): Ugotavljanje vpliva S-adenozilmetionina na aktivnost tiopurin-S-metiltransferaze v eritrocitih zdravih preiskovancev = The influence of S-adenosylmethionine on the activity of thiopurine-S-methyltransferase in erythrocytes of healthy individuals, COBISS.SI-ID: 2812273.

Lovrić Karlo (supervisor: Odon Planinšek, co-supervisor: Danijel Kikelj): Vrednotenje kokristalov flukonazola, pripravljenih z mletjem = Characterization of fluconazole cocrytals, prepared by solid-state grinding, COBISS.SI-ID: 2914161.

Medar Maja (supervisor: Janko Kos, co-supervisor: Tea Lenišnik Rižner): Ugotavljanje prisotnosti proteinov CYP1B1 in COMT pri raku endometrija = Evaluation of CYP1B1 and COMT protein levels in endometrial cancer, COBISS.SI-ID: 2815089.

Mele Nasta (supervisor: Pegi Ahlin Grabnar, co-supervisor: Petra Kocbek): Izdelava in fizikalno-kemijsko ter biološko vrednotenje nanodelcev iz hitosana in fosfolipida s proteinsko učinkovino = Preparation and physicochemical and biological evaluation of chitosan-phospholipid nanoparticles with a protein drug, COBISS.SI-ID: 2917489.

Miglar Nastja (supervisor: Samo Kreft, co-supervisor: Matjaž Zorko): Izolacija biološko aktivnih snovi iz rdečega vina in ugotavljanje njihovih učinkov na G-proteine = Isolation of biologically active substances from the red wine and determination of their effects on G-proteins, COBISS.SI-ID: 2932849.

Mihačević Ivana (supervisor: Saša Baumgartner): Vpliv sestave hidrogela za vlažno celjenje ran na sproščanje modelnega proteina = Composition of hydrogel for moist wound healing influencing the release of model protein, COBISS.SI-ID: 2821233.

Miklič Tomaž (supervisor: Mitja Kos): Ambulantno predpisovanje zdravil za zmanjšanje ravni serumskih lipidov v Sloveniji v obdobju 2002-2008 = Primary care prescriptions of lipid modifying agents in Slovenia for the period 2002-2008, COBISS.SI-ID: 2926705.

Mis Jasmina (supervisor: Mojca Kržan, co-supervisor: Katarina Černe): Prispevek neselektivnih transporterjev pri privzemu histamina v endotelijske celice človeka = Contribution of nonselective transporters to histamine uptake into human endothelial cells, COBISS.SI-ID: 2932593.

Musizza Teja (supervisor: Aleš Mrhar, co-supervisor: Monika Sonc): Vrednotenje učinkovitosti zdravljenja bolnic s HER2-pozitivnim rakom dojke s trastuzumabom = Evaluation of efficacy of treatment with trastuzumab in patients with HER2 positive breast cancer, COBISS.SI-ID: 2801521.

Nanut Anja (supervisor: Aleš Mrhar, co-supervisor: Mitja Lainščak): Vpliv komorbidnosti in sočasnega zdravljenja z zdravili na urejenost antikoagulacijskega zdravljenja z varfarinom = Influence of comorbidity and concomitant drug therapy on stability of anticoagulant treatment with warfarin, COBISS.SI-ID: 2807921.

Natlačen Tjaša (supervisor: Tomaž Bratkovič): Izbor peptidnih ligandov regije Fc humanih imunoglobulinov G iz bakteriofagne predstavitvene knjižnice = Selection of ligands for the Fc-portion of human immunoglobulins G from a phage-displayed peptide library, COBISS.SI-ID: 2865777.

Nikolić Monika (supervisor: Joško Osredkar, co-supervisor: Borut Štabuc): Pomen izračuna fibroznega indeksa pri različnih jetrnih obolenjih = Importance of calculation of fibrosis index in different liver diseases, COBISS.SI-ID: 2919281.

Ozvaldič Nina (supervisor: Janko Kos, co-supervisor: Zala Jevnikar): Razvoj celičnega modela za študij vloge katepsina X pri luskavici = Development of the cell model to study the role of cathepsin X in psoriasis, COBISS.SI-ID: 2915697.

Panovska Zorica (supervisor: Irena Mlinarič Raščan, co-supervisor: Nataša Karas Kuželički): Povezanost polimorfizmov v izbranih genih folatnega cikla z napakami nevralne cevi = Association of polymorphisms in the selected gens of the folate cycle with neural tube defects, COBISS.SI-ID: 2869105.

Peklar Nataša (supervisor: Saša Baumgartner): Primerjava sproščanja amoksicilina in pentoksifilina iz plavajočih tablet in vrednotenje vpliva sestave ogrodja = Comparison of amoxicillin and pentoxifyllin release from floating tablets and evaluation of matrix composition effects, COBISS.SI-ID: 2779249.

Pelipenko Jan (supervisor: Julijana Kristl, co-supervisor: Karmen Teskač Plajnšek): Izdelava trdnih lipidnih nanodelcev z resveratrolom za terapijo revmatoidnega artritisa = Formulation of solid lipid nanoparticles with resveratrol for treatment of rheumatoid arthritis, COBISS.SI-ID: 2873969.

Pestotnik Kristina (supervisor: Mojca Kržan, co-supervisor: Janez Mavri): Vpliv devteracije na vezavne lastnosti histaminskega receptorja H2 v astrocitih neonatalne podgane = The influence of deuteration on binding characteristics of histamine H2 receptor in newborn rat astrocytes, COBISS.SI-ID: 2849649.

Petrovič Maja (supervisor: Janja Marc, co-supervisor: Simona Jurković Mlakar): Vpliv genskih delecij GSTM1 in GSTT1 na mineralno kostno gostoto = Influence of GSTM1 and GSTT1 gene deletions on bone mineral density, COBISS.SI-ID: 2768497.

Pišlar Mitja (supervisor: Iztok Grabnar, co-supervisor: Igor Locatelli): Razvoj in vrednotenje matematičnega modela tarčno posredovane farmakokinetike ter njegovih aproksimacij = Development and evaluation of a mathematical model of target-mediated drug disposition and its approximations, COBISS.SI-ID: 2856049.

Požek Tina (supervisor: Janko Kos, co-supervisor: Jerica Sabotič): Karakterizacija saharopepsinu podobne aspartatne proteaze iz gobe *Clitocybe nebularis* = Characterisation of sacchorepsin related aspartate protease from mushroom *Clitocybe nebularis*, COBISS.SI-ID: 2933361.

Rajh Tjaša (supervisor: Jana Lukač Bajalo, co-supervisor: Borut Božič): Spremljanje vpliva toksičnega gliadinskega peptida p31-43 na primarno kulturo podganjih epitelijskih celic tankega črevesa = Follow up of influence of toxic gliadin p31-43 peptide on primary culture of rat epithelial cells of small intestine, COBISS.SI-ID: 2865265.

Raztresen Andreja (supervisor: Mojca Kržan): Vpliv možganskega področja na lastnosti privzema histamina v astrocitu = Brain region-dependent characteristics of histamine transport into astrocytes, COBISS.SI-ID: 2893169.

Rekič Aleksander (supervisor: Stanislav Gobec, co-supervisor: Irena Zajc): Preučevanje citotoksičnosti analogov ksantohumola = Cytotoxicity of xanthohumol analogues, COBISS.SI-ID: 2811249.

Repič Matej (supervisor: Mojca Kržan, co-supervisor: Janez Mavri): Računalniško modeliranje ireverzibilne inhibicije encima monoamin-oksidadaze B = Computer modelling of irreversible monoamine oxidase B inhibition, COBISS.SI-ID: 2856305.

Rihtarič Metka (supervisor: Samo Kreft): Ugotavljanje vrstne pripadnosti vzorcev vrbovcev in krčnic s transmisijsko infrardečo spektroskopijo = Identification and classification of *Hypericum* and *Epilobium* species samples by transmission infrared spectroscopy, COBISS.SI-ID: 2811761.

Robar Ana (supervisor: Pegi Ahlin Grabnar): Izdelava nanodelcev s spontanym združevanjem polimerov in lipidov = Formulation of nanoparticles with self-assembly of polymers and lipids, COBISS.SI-ID: 2855025.

Setnikar Tina (supervisor: Darko Černe): Preučevanje izražanja gena za sintazo višjih maščobnih kislin v nedrobnoceličnem rakavem tkivu = Study of fatty acid synthase gene expression in non-small cell lung cancer tissue, COBISS.SI-ID: 2897009.

Sever Tanja (supervisor: Marija Bogataj): Simulacija prehoda gastrorezistentnih tablet skozi želodec in študij raztapljanja z aparaturo USP IV = The simulation of gastric emptying of pellets and dissolution study with apparatus USP IV, COBISS.SI-ID: 2821489.

Stanič Uroš (supervisor: Marija Sollner Dolenc, co-supervisor: Ester Heath): Razgradnja nekaterih zdravilnih učinkovin in njihovih metabolitov v simuliranih pogojih čiščenja odpadnih voda = Degradation of selected pharmaceutical and their metabolites in simulated waste water treatment conditions, COBISS.SI-ID: 23951399.

Sujoldžić Sabina (supervisor: Aleš Mrhar, co-supervisor: Bojan Madjar): Interakcije med zdravili pri ambulantno zdravljenih bolnikih v pomurski regiji = Interactions between medicaments in patients, treated in outpatient clinics in Pomurje region, COBISS.SI-ID: 2933617.

Šerc Ivan (supervisor: Mitja Kos): Ambulantno predpisovanje zdravil otrokom in mladostnikom v Sloveniji v obdobju 2002-2008 = Primary care drug prescription to children and adolescents in Slovenia in the period 2002-2008, COBISS.SI-ID: 2931569.

Šmalc Dejan (supervisor: Stanislav Gobec, co-supervisor: Matej Živec): Načrtovanje in sinteza reduciranih dipeptidov kot potencialnih inhibitorjev bakterijskih transpeptidaz = Design and synthesis of reduced dipeptides as potential inhibitors of bacterial transpeptidases, COBISS.SI-ID: 2855793.

Štrucl Nina (supervisor: Pegi Ahlin Grabnar): Vgrajevanje ovalbumina v nanodelce iz hitosana in lecitina = Entrapment of ovalbumin in chitosan/lecithin nanoparticles, COBISS.SI-ID: 2849393.

Štuhec Matej (supervisor: Saša Baumgartner, co-supervisor: Aleš Obreza): Sinteza in karakterizacija novih biorazgradljivih kopolimerov iz trimetilenkarbonata in D,L - laktida ter možnost izdelave nanodelcev = Synthesis and characterization of novel biodegradable copolymers from trimethylene carbonate and D,L - lactides, nanoparticle - based drug delivery systems, COBISS.SI-ID: 2870129.

Štumberger Mateja (supervisor: Marija Sollner Dolenc): Primerjava zakonodaje za varno uporabo kemikalij v EU, ZDA in Japonskem = Comparison of legislation for the safe use of chemicals in the EU, USA and Japanese, COBISS.SI-ID: 2813041.

Tavčar Eva (supervisor: Samo Kreft): Izolacija in identifikacija sterolov iz vrste Euphorbia acanthothamnus = Isolation and identification of sterol Euphorbia acanthothamnus, COBISS.SI-ID: 2855537.

Tišler Urša (supervisor: Aleš Mrhar, co-supervisor: Peter Korošec): Povezava rezultatov testa sproščanja 15-hidroksieikozatetraenojske kisline iz levkocitov s klinično sliko intolerance na acetilsalicilno kislino = Relationship between in vitro test of release of 15-hydroxyeicosatetraenoic acid from leukocytes and clinical profile of intolerance to acetylsalicylic acid, COBISS.SI-ID: 2743153

Trdina Neža (supervisor: Aleš Obreza, co-supervisor: Janez Mravljak): Načrtovanje in sinteza neionogenih amfifilnih mimetikov glikolipida = Design and synthesis of noniogene amphiphilic glycolipide mimetics, COBISS.SI-ID: 2918513.

Trobec Katja (supervisor: Aleš Mrhar, co-supervisor: Jurij Trontelj): Preučevanje vpliva polimorfizma UGT1A1*28 na metabolizem raloksifena z genotipiziranimi mikrosomi = Investigation of UGT1A1*28 genotype impact on raloxifene metabolism in genotyped human microsomes, COBISS.SI-ID: 2813809.

Trstenjak Gregor (supervisor: Samo Kreft, co-supervisor: Damjan Janež): Optimizacija ekstrakcije in izolacije antioksidativnih polifenolov iz lubja navadne jelke (Abies alba Mill.) = Optimization of antioxidative polyphenols isolations and extraction from silver fir bark (Abies alba Mill.), COBISS.SI-ID: 2936945.

Urdih Samo (supervisor: Aleš Obreza, co-supervisor: Viljem Pavli): Vpliv mikrokristalnih celuloz na stresno stabilnost zaviralcev angiotenzin-konvertaze = Influence of microcrystalline celluloses on stress stability of angiotensin-converting enzyme inhibitors, COBISS.SI-ID: 2877041.

Urnaut Sara (supervisor: Janez Kerč, co-supervisor: Mateja Cegnar): Polielektrolitni kompleksi iz hitosana in kopolimera mlečne ter asparaginske kisline kot dostavni sistem za proteinske učinkovine = Polyelectrolyte complexes from chitosan and polylactic-co-aspartic acid as protein drug-delivery system, COBISS.SI-ID: 2933105.

Vobornik Nives (supervisor: Iztok Grabnar): Optimizacija načrta klinične pediatrične raziskave fentanila s populacijskim farmakokinetično-farmakodinamičnim modeliranjem in simulacijo = Optimization of the design of pediatric clinical trial with fentanyl using population pharmacokinetic-pharmacodynamic modelling and simulation, COBISS.SI-ID: 2909553.

Volčanjk Nataša (supervisor: Samo Kreft, co-supervisor: Simona Strgulc Krajšek): Elaborat izdelave učne poti o zdravilnih in strupenih rastlinah v okolici Bovca = Elaboration on establishing nature interpretative trail about medicinal and poisonous plants in Bovec surroundings, COBISS.SI-ID: 2802033.

Zaletel Anja (supervisor: Marija Bogataj): Predvidevanje vpliva kislosti želodčnega medija in hitrosti prehoda pelet na sproščanje natrijevega diklofenakata = Predicting of the impact of acidity of gastric media and pellets gastric emptying rate on the release of diclofenac sodium, COBISS.SI-ID: 2930033.

Zibelnik Katja (supervisor: Marija Sollner Dolec, co-supervisor: Robert Rožkar): Razvoj metode LC-MS/MS za določanje vsebnosti bisfenola A v nebioloških vzorcih = Development of LC-MS/MS method for determination of bisphenol A in nonbiological samples, COBISS.SI-ID: 2872433.

Zupančič Eva (supervisor: Julijana Kristl, co-supervisor: Helena Florindo): Izdelava in vrednotenje polimetil metakrilatnih mikro- in nanodelcev z vgrajenim minociklinom za pripravo kostnega cementa = Preparation and characterisation of minocycline-loaded polymethyl methacrylate micro- and nanoparticles for bone cement preparation, COBISS.SI-ID: 2869617.

Živko Urška (supervisor: Aleš Mrhar, co-supervisor: Polonca Drogenik): Analiza predpisovanja in izdajanja antibiotikov iz rezervne liste v UKC Maribor = Prescription and dispensing analysis of reserve antibiotics as the UKC Maribor, COBISS.SI-ID: 2808177.

7.3 MASTERS OF SCIENCE

Bobnar Irena (supervisor: Aleš Mrhar, co-supervisor: Jože Drinovec): Primerjalna terapevtska vrednost zaviralcev ACE in antagonistov receptorjev za angiotenzin II = Evaluation of therapeutic outcomes with ACE inhibitors and angiotensin receptor blockers, COBISS.SI-ID: 2744433.

Božnar-Alič Elizabeta (supervisor: Joško Osredkar, co-supervisor: Matjaž Jereb): Pomen določanja proteina S100B v diferencialni diagnostiki bakterijskega in virusnega meningitisa = Significance of S100B protein determination in differential diagnostics and viral meningitis, COBISS.SI-ID: 2830193.

Brcar Marica (supervisor: Vojko Kmetec): Raziskava procesov zagotavljanja in obvladovanja kakovosti kot podlaga za vpeljavo parametričnega sproščanja serij končnega izdelka = Evaluation of quality assurance and quality management process as a base for implementation of parametric release of the finished product batch, COBISS.SI-ID: 2827121.

Dimnik Aleš (supervisor: Mirjana Gašperlin, co-supervisor: Janez Kerč): Study of Effects of Technology Parameters on Uniformity of Budenoside Nasal Suspension Content, COBISS.SI-ID: 2936177.

Drnovšek Tanja (supervisor: Stanko Srčič, co-supervisor: Mateja Vrečer): Načrtovanje elektronskega dokumentacijskega sistema za odobravanje proizvajalcev/dobaviteljev v farmacevtski industriji = Designing electronic document system for approving manufacturer/supplier in pharmaceutical industry, COBISS.SI-ID: 2812785.

Perko Mojca (supervisor: Vojko Kmetec, co-supervisor: Aleš Mlinarič): Development and Validation of Chromatographic Method for Determination of Silymarin in Plant Preparations and Study of their Stability, COBISS.SI-ID: 2830449.

7.4 SPECIALISTS

Abram Tjaša (supervisor: Vojko Kmetec, co-supervisor: Monika Sonc): Vloga lekarniškega farmacevta pri zdravljenju raka s peroralnimi zdravili = The role of public pharmacist in cancer treatment with oral drugs.- 2010, 58 f., COBISS.SI-ID: 2775665.

Ignatov Nataša (supervisor: Meta Milovanovič): Napake pri ravnanju z zdravili = Medication errors.- 2010, 99 f., COBISS.SI-ID: 2898289.

Kraševac Andrej: (supervisor: Stanislav Primožič, co-supervisor: Darja Frankič): Pharmaceutical Care for Prevention of Occurrence of Dangerous Skin Changes, 2010, 96 pg., COBISS.SI-ID: 2775921.

Penovski Plevčak Dragica (supervisor: Stanko Srčič): Postopki izdelave parenteralnih pripravkov za individualno preskrbo bolnikov v bolnišnici, ambulantni ali na domu = Procedures for parenteral products' preparation adjusted to individual needs of inpatients, outpatients or patients in home care, 2010. - 89 f., 78 f., COBISS.SI-ID: 2749553.

Petre Maja (supervisor: Franc Kozjek): Efficiency of Treatment of Orthopaedic Implants-Related Infections in UKC-Maribor, 2010, 51 f., COBISS.SI-ID: 2864753.

Štefančič Jana (supervisor: Monika Sonc): Individualna priprava protitumornih zdravil v Splošni bolnišnici Nova Gorica = Individual preparation of anticancer drugs at general hospital Nova Gorica, 2010, 66 f., COBISS.SI-ID: 2749297.

Tršan Mateja (supervisor: Slavko Pečar): Good Manufacturing Practice for Sterile Products in Hospital Pharmacy with Focus on Bacterial Endotoxins Test, 2010, 128 f., COBISS.SI-ID: 2898033.

Virant Igor (supervisor: Monika Sonc): Aseptic Parenteral Antitumour Drugs Production in Hospital Pharmacy – Starting Points for Validation, 2010, 66 f., COBISS.SI-ID: 2749041.

7.5 PhD GRADUATES

Berginc Katja (supervisor: Albin Kristl): Vpliv staranega etanolno-vodnega česnovnega ekstrakta na intestinalne in jetrne prenašalce ter jetrni encim citokrom 3A4 = The impact of aged garlic extract on intestinal and hepatic transporters and hepatic cytochrome 3A4, COBISS.SI-ID: 2864241.

Dolenc Andrej (supervisor: Julijana Kristl): Prednosti nanooblog in nanodelcev v načrtovanju sodobnih sistemov za dostavo učinkovin = Advantages of nanolayering and nanoparticles in advanced drug delivery systems, COBISS.SI-ID: 2778993.

Gaser Dominik (supervisor: Borut Štrukelj, co-supervisor: Mojca Lunder): Načrtovanje in razvoj peptidnih ligandov lipaz z metodo bakteriofagnega prikaza = Lipases peptide design and development through phage display technology, COBISS.SI-ID: 2768753.

Irman Špela (supervisor: Borut Božič, co-supervisor: Miha Škarabot): Vpliv podskupin antifosfolipidnih protiteles na kristalizacijo aneksina A5 na fosfolipidnem dvosloju = Effects of subsets of antiphospholipid antibodies on annexin A5 crystallization on phospholipid bilayers, COBISS.SI-ID: 2903921.

Jakopin Žiga (supervisor: Marija Sollner Dolenc): Načrtovanje in sinteza substituiranih 1,2,4-oksadiazolov in saharinov kot gradnikov potencialnih biološko aktivnih spojin = Design and synthesis of substituted 1,2,4-oxadiazoles and saccharins as building blocks of potential biologically active compounds, COBISS.SI-ID: 251072000.

Jurković Mlakar Simona (supervisor: Janja Marc, co-supervisor: Joško Osredkar): Vpliv izpostavljenosti ionom kadmija in vloga genov za antioksidativne encime pri razvoju osteoporoze = Influence of exposure to cadmium ions and the role of antioxidative enzyme genes in the development of osteoporosis, COBISS.SI-ID: 254127616.

Kočevar Glavač Nina (supervisor: Samo Kreft): Razvoj metod za aciliranje proteinov in njihovo analizo ter vrednotenje njihovih bioloških lastnosti = Development of methods for protein acylation and their analysis and evaluation of their biological properties, COBISS.SI-ID: 2755185.

Pajič Tadej (supervisor: Ivan Malešič, co-supervisor: Peter Černelč): Aktivnost glutamat-dehidrogenaze v limfocitih bolnikov s kronično limfocitno levkemijo = Glutamate dehydrogenase activity in lymphocytes of chronic lymphocytic leukaemia patients, COBISS.SI-ID: 2822513.

Pavli Matej (supervisor: Saša Baumgartner, co-supervisor: Franc Vrečer): Načrtovanje, izdelava in vrednotenje ogrodnih tablet s prirejenim sproščanjem na osnovi naravnih polimerov = Designing, manufacturing and evaluation of modified release matrix tablets based on natural polymers, COBISS.SI-ID: 2814065.

Radić Nataša (supervisor: Borut Štrukelj): Vpliv izvlečkov medicinskih gob in rastlin na izražanje genov v modelnih celičnih linijah = The effect of medicinal mushroom and plant extracts on gene expression in model cell lines, COBISS.SI-ID: 2897777.

Resman Nuša (supervisor: Roman Jerala, co-supervisor: Janko Kos): Mehanizem aktivacije imunskega odziva preko receptorskega kompleksa TLR4/MD-2 = Immune response activation through TLR4/MD-2 receptor complex, COBISS.SI-ID: 2894449.

Šink Roman (supervisor: Anamarija Zega): Načrtovanje, sinteza in kristalografske študije inhibitorjev ligaz Mur = Design, synthesis and crystallographic studies of inhibitors of Mur ligases, COBISS-ID: 2913393.

Švajger Urban (supervisor: Matjaž Jeras): Indukcija tolerogenih dendritičnih celic in regulatornih limfocitov T in vitro = Induction of tolerogenic dendritic cells and regulator T lymphocytes in vitro, COBISS.SI-ID: 2781809.

Zupančič Vinko (supervisor: Franc Vrečer, co-supervisor: Albin Kristl): Karakterizacija različnih polimorfnih oblik, hidratov in soli nekaterih zdravilnih učinkovin = Characterization of different polymorphic forms, hydrates and salts of some active pharmaceutical ingredients, COBISS.SI-ID: 2782065.

Zvonar Alenka (supervisor: Mirjana Gašperlin): Optimizacija tehnološkega postopka izdelave ter vrednotenje mikrokapsul s samomikroemulgirajočim jedrom = Optimization of technological procedure and evaluation of microcapsuls with selfmicroemulsifying core, COBISS.SI-ID: 2778737.

Živec Matej (supervisor: Stanislav Gobec): Načrtovanje in sinteza peptidomimetičnih inhibitorjev biosinteze peptidoglikana = Design and synthesis of peptidomimetic inhibitors of peptidoglycan biosynthesis COBISS.SI-ID: 2894193.

8 SCIENTIFIC AND RESEARCH ACTIVITY

8.1 CHAIR OF BIOPHARMACY AND PHARMACOKINETICS

Scientific and professional articles

Berginc Katja, Kristl Albin: Farmakološki učinki česnovih pripravkov in njihove interakcije z zdravilnimi učinkovinami = The pharmacological effects of garlic supplements and their interactions with prescribed therapy.- *Farm. vestn.*, 2010, 61, 3, pg. 171-175, COBISS.SI-ID: 2827889.

Berginc Katja, Trdan Tina, Trontelj Jurij, Kristl Albin: HIV protease inhibitors: garlic supplements and first-pass intestinal metabolism impact on the therapeutic efficacy.- *Biopharm. & Drug Disp.*, 2010, 31, 8-9, pg. 495-505, COBISS.SI-ID: 2893681.

Berginc, Katja, Trontelj Jurij, Kristl Albin: The influence of aged garlic extract on the uptake of Saquinavir and Darunavir into HepG2 cells and rat liver slices.- *Drug Met. Pharm.*, 2010, 25, 3, pg. 307-313, COBISS.SI-ID: 2827633.

Berginc Katja, Žakelj Simon, Kristl Albin: In vitro interactions between aged garlic extract and drugs used for the treatment of cardiovascular and diabetic patients.- *Eur. J. Nutr.*, 2010, 49, 6, pg. 373-84, COBISS.SI-ID: 2747761.

Cvirn Novak Mateja, Mrhar Aleš: Vloga lekarniškega farmacevta pri obvladovanju čezmerne telesne mase = Community pharmacist's contribution to overweight management.- *Farm. vestn.*, 2010, 61, 2, pg. 117-121, COBISS.SI-ID: 2785905.

Faganel Barbara, Dolžan Vita, Grabnar Iztok, Jazbec Janez: Relationship of the reduced folate carrier gene polymorphism G80A to methotrexate plasma concentration, toxicity, and disease outcome in childhood acute lymphoblastic leukemia.- *Leukemia & Lymphoma*, 2010, 51, 4, pg. 724-726, COBISS.SI-ID: 2793841.

Kastelic Matej, Koprivšek Jure, Kores-Plesničar Blanka, Serretti Alessandro, Mandelli Laura, Locatelli Igor, Grabnar Iztok, Dolžan Vita: MDR1 gene polymorphisms and response to acute risperidone treatment.- *Progr. Neuro-psychopharmacol. Biol. Psychiatr.*, 2010, 34, 2, pg. 387-392, COBISS.SI-ID: 26850009.

Kerec Kos Mojca, Bogataj Marija, Mrhar Aleš: Mucoadhesion on urinary bladder mucosa: the influence of sodium, calcium and magnesium ions.- *Pharmazie*, 2010, 65, 7, pg. 505-509, COBISS.SI-ID: 2796913.

Klančar Uroš, Legen Igor, Kristl Albin, Mrhar Aleš: >>In vitro-in vivo<< korelacija (IVIVC) za učinkovine v pripravkih s podaljšanim sproščanjem, ki se intenzivno metabolizirajo ali absorbirajo s prenašalci v prebavilih = In vitro in vivo correlation (IVIVC) for drugs in extended release formulations which are extensively metabolized or absorbed with transporters.- *Farm. vestn.*, 2010, 61, 3, pg. 162-170, COBISS.SI-ID: 2829169.

Knez Lea, Režonja Renata, Šuškovič Stanislav, Košnik Mitja, Mrhar Aleš: The basel statement on medication reconciliation: basis for a study in a Slovenian hospital.- *Int. Pharmacy J.* 2010, 26, 2, pg. 56-58, COBISS.SI-ID: 914417.

Locatelli Igor, Kastelic Matej, Koprivšek, Jure, Kores-Plesničar Blanka, Mrhar Aleš, Dolžan Vita, Grabnar Iztok: A population pharmacokinetic evaluation of the influence of CYP2D6 genotype on risperidone metabolism in patients with acute episode of schizophrenia.- *Eur. J. Pharm. Sci.*, 2010, 41, 2, pg. 289-298, COBISS.SI-ID: 2824049.

Locatelli Igor, Nagelj Kovačič Nataša, Mrhar Aleš, Bogataj Marija: Gastric emptying of non-disintegrating solid drug delivery systems in fasted state: relevance to drug dissolution.- *Expert Opinion On Drug Delivery*, 2010, 7, 8, pg. 967-976, COBISS.SI-ID: 2832241.

Martinc Boštjan, Grabnar Iztok, Mrhar Aleš, Vovk Tomaž: Rapid high-performance liquid chromatography method for determination of pregabalin in a pharmaceutical dosage form following derivatization with fluorecamine.- *J. AOAC Int.*, 2010, 93, 4, pg. 1069-1076, COBISS.SI-ID: 2819697.

Novak Polona, Černe Manica, Bogataj Marija, Urleb Uroš, Mrhar Aleš: Enhanced therapeutic effect of LK-423 in treating experimentally induced colitis in rats when administered in colon delivery microcapsules.- *J. Microencapsulation.*, 2010, 27, 7, pg. 572-582, COBISS.SI-ID: 2835569.

Obradović Marko, Mrhar Aleš, Kos Mitja: Cost-effectiveness analysis of HPV vaccination alongside cervical cancer screening programme in Slovenia.- *Eur. J. Public Health*, 2010, 20, 4, pg. 415-421, COBISS.SI-ID: 2834033.

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