ORPHEUS Workshop
“PhD Study from the Student Views"
organised by
JESSENIUS FACULTY OF MEDICINE IN MARTIN,
COMENIUS UNIVERSITY, SLOVAKIA

under the auspices of

ORPHEUS
Organisation for PhD Education in Biomedicine and Health Sciences in the European System

October 11 - 13, 2012

PROGRAMME
and
ABSTRACTS
The Workshop will be held at Jessenius Faculty of Medicine in Martin, Comenius University, Slovakia, October 11 – 13, 2012

under the auspices of

Prof. Jan Danko, MD, PhD.
Dean of Jessenius Faculty of Medicine in Martin

and

Prof. Zdravko Lackovic, MD, PhD.
President of ORPHEUS
Organising Committee

Peter Galajda       Katarina Murcekova
Andrea Calkovska   Katarina Korenciakova
Erika Halasova      Jana Sivakova
Kamil Javorka       Iveta Svecova
Jan Stasko          Lenka Chladekova
Jan Hanacek         Ivana Kapustova
Lubica Cervenova    Juraj Halicka
Eva Andrisova

Venue: Jessenius Faculty of Medicine, Mala Hora Str. 4A, Martin, Slovakia, Aula Magna

Language: English

Form of presentation: Oral presentations and discussion. Duration of the presentations 15 minutes + 5 minutes of discussion.

Registration: Registration on site will take place at the venue of the workshop, where the registration desk will be available on October 11 from 15:00 – 17:00 and on October 12 during workshop.

Registration is free of charge.
WELCOME ADDRESS

Dear participants,

it's a great pleasure and privilege for us to welcome you to ORPHEUS Workshop "PhD Study from the Student Views" held at the Jessenius Faculty of Medicine in Martin, Comenius University. This is the second ORPHEUS workshop hosted by our Institution. I believe it's getting to be a tradition.

System and problems of PhD education are crucial points for research, science as well as for sophisticated “good” practice in Medicine and related activities including teaching in undergraduate and postgraduate study. This highest form of university education prepares PhD students for research work through acquiring knowledge and skills under direct supervision and co-operation of university teachers in everyday working/partner relation. This is almost a definition. But what is the real situation? In the PhD education in medicine there are many critical points, especially in clinical fields. How to combine specialization and scientific training, so that graduates will be able to do good clinical practice and research. This is a challenge for us and one of the main issues of concern which will be certainly discussed. It is necessary to have a feedback from students, tutors and organizers of PhD education to find and define the point at which we find ourselves. This issue is the main theme of this year's ORPHEUS-MARTIN Workshop.

We appreciate an opportunity to organize this workshop in the framework of ORPHEUS. Intensive activities of ORPHEUS, as a key organization, positively affect PhD education in improvement of the quality of PhD study in Biomedicine and its output in the European area. We are pleased that representatives of our faculty have been involved in ORPHEUS activities since its “birth”. Actively participated in all previous conferences and worked in various committees which resulted in declarations and recommended standards for PhD education. ORPHEUS recommendations were transferred very quickly and flexible to PhD education at Jessenius Faculty of Medicine as the Standards for PhD Education in Biomedicine and Health Sciences in Europe are recently essential for international acceptance of PhD graduates.

As the Dean of the Jessenius Faculty of Medicine in Martin, I identify with calls for enhancing the quality assurance of doctoral education in promoting
innovative methods applications, internationalization of research work as well as common moral ethical aspects of research work and health care.

Dear participants, we cordially thank you for your attendance at workshop. We appreciate that PhD students as well as other participants have an opportunity to be informed about PhD standards directly from experts creating them. On the other side, the experts can acquire information and new ideas which could be implemented into existing standards.

Dear participants, I wish you a successful conference and a nice stay at the Jessenius Faculty of Medicine in Martin.

Prof. Jan Danko, MD, PhD.
Dean of the Jessenius Faculty of Medicine
PROGRAMME

THURSDAY, October 11, 2012

Conference of PhD Students of Jessenius Faculty of Medicine CU, Martin
Programme of the Conference is published on web site http://www.jfmed.uniba.sk

17:00 – 18:00 Opening Ceremony

Chairs: Andrea Calkovska, Peter Galajda, Vicedeans of the Jessenius Faculty of Medicine

Welcome and greetings from Comenius University
Dusan Mesko (Deputy Rector, Bratislava, Slovakia)

Welcome and greetings from Jessenius Faculty of Medicine CU
Jan Danko (Dean, Martin, Slovakia)

Welcome and greetings from ORPHEUS
Zdravko Lackovic (ORPHEUS President, Zagreb, Croatia)

Welcome Reception
FRIDAY, October 12, 2012

9:00 – 9:40  INTRODUCTION

Chairs: Galajda P, Lackovic Z, Calkovska A.

Lackovic Z. (Zagreb, Croatia)

ORPHEUS – SHORT HISTORY AND LONG PERSPECTIVES

Lackovic Z. (Zagreb, Croatia)

STANDARDS OF THE ORPHEUS FOR PhD EDUCATION – MAJOR POINTS
AND DILEMAS

9:40 – 12:15  SESSION I.

SYSTEMS OF PhD EDUCATION

Chairs: Mesko D, Javorka K, Gatina K.I.

9:40 – 10:00
Galajda P, Calkovska A, Halasova E, Javorka K, Stasko J, Danko J. (Martin,
Slovakia)

ORGANISATION OF PhD STUDY AT JESSENIUS FACULTY OF MEDICINE
IN MARTIN AND IN SLOVAKIA

10:00 – 10:20
Gatina KI, Dumanskyi YV, Zinkovych II, Sulaieva ON. (Donetsk, Ukraine)

«TWO BIRDS BY ONE STONE» OR UKRAINIAN MODEL OF PhD
EDUCATION
10:20 – 10:40

Nadashvili L, Bregvadze-Tabagari N, Tabagari S. (Tbilisi, Georgia)
ORGANIZING TEACHING IN PRE-CLINICAL AND CLINICAL DISCIPLINES:
STRUCTURING FIELD-SPECIFIC MODULES / COURSES, EXPRESSION IN
INDIVIDUAL ACTIVITY PLAN AND STUDENTS

10:40 – 11:00

Van Schravendijk C. (Brussels, Belgium)
PhD TRAINING IN MEDICAL SCIENCES IN FLANDERS; PAST, PRESENT
AND FUTURE

11:00 – 11:15 COFFEE BREAK

Chairs: Stasko J, van Schravendijk C, Tabagari S.

11:15 – 11:35

Sivakova J, Svecova I, Kapustova I. (Martin, Slovakia)
PhD STUDY - WHAT IS THE OPINION OF PhD STUDENTS?

11:35 – 11:55

Prylutska I, Sulaieva O, Zinkovych I, Deliy V, Gatina K. (Donetsk, Ukraine)
DRAWBACKS OF SYSTEM: UKRAINIAN PhD EDUCATION FROM
STUDENTS’ PERSPECTIVE

11:55 – 12:15

Valentinova L. (Bratislava, Slovakia)
PhD STUDY IN THE UK AT THE UNIVERSITY OF OXFORD AS OBSERVED
FROM SLOVAK SIDE

12:15 – 13:00 LUNCH
13:00 – 16:00 SESSION II.

INTERNATIONAL AND INTERDISCIPLINARY COOPERATION IN PhD EDUCATION

**Chairs:** Halasova E, Millan LM

13:00 – 13:20

Millan LM, Gerrikagoitia I. (Lejona, Spain)
**POSSIBILITIES OF INTERNATIONAL COOPERATION BETWEEN PhD STUDENTS**

13:20 – 13:40

Reksten TR. (Bergen, Norway)
**GOING INTERNATIONAL AS A YOUNG RESEARCHER**

13:40 – 14:00

Zorad S, Gajdosechova L. (Bratislava, Slovakia)
**POSSIBILITIES OF INTERNATIONAL COOPERATION BETWEEN PhD STUDENTS IN SLOVAK CONDITIONS – A REAL EXAMPLE**

14:00 – 14:20

Majchrakova L. (Zilina, Slovakia)
**MOBILITY PROGRAMMES AND SUPPORT SERVICES FOR YOUNG RESEARCHERS – SLOVAK ACADEMIC INFORMATION AGENCY**

14:20 – 14:40 **COFFEE BREAK**
Chairs: Hanacek J, Reksten TR, Cap I.

14:40 – 15:00

Cap I, Barabas J, Borik S. (Zilina, Slovakia)
INTERDISCIPLINARY COOPERATION BETWEEN MEDICINE AND TECHNOLOGY IN THE FRAMEWORK OF DOCTORAL STUDIES AND POSTDOCTORAL ACTIVITIES

15:00 - 15:20

Gavliakova S, Plevkova J. (Martin, Slovakia)
INTEGRATION OF BIOMEDICAL ENGINEERS IN MEDICINE

15:20 – 15:40

Mravec B. (Bratislava, Slovakia)
LOST IN THE MOLECULES

15:40 - 16:00

Halicka J, Kapustova I. (Martin, Slovakia)
SYSTEM OF THE EDUCATION TO SCIENTIFIC WORK: PhD PROGRAMMES AT JESSENIUS FACULTY OF MEDICINE IN MARTIN, COMENIUS UNIVERSITY – STUDENT VIEWS

18:00 DINNER
SATURDAY, October 13, 2012

9:00 – 11:00 WORKSHOP CONCLUSIONS

Discussion and Presentation of the Workshop Declaration


11:00 CLOSING OF THE WORKSHOP

Prof. Zdravko Lackovic, MD, PhD
President of the ORPHEUS

Prof. Jan Danko, MD, PhD
Dean of the JFM CU  Martin

Prof. Peter Galajda, MD, PhD
Vicedean of the JFM CU for PhD Study
ABSTRACTS
"The quest for knowledge can, at times, be both a difficult and daunting task, be it for novel or seasoned PhD students alike. Let us thus lend some first-hand experience and opinions from those who either participate or participated in activities related to the ORPHEUS mission statement, most notably in the field of PhD studies and PhD graduate career opportunities and interdisciplinary cooperation between medicine and technology. The aforementioned interdisciplinary cooperation is the foundation for tomorrow's world of medical applications and breakthrough discoveries that will aid humanity and offer a wealth of opportunities to promote excellence and innovation worldwide. Once you are ready to embark on your journey of further education, we will also provide, in a nutshell, information on the European research fellowships and grants for researchers, commonly known as the Marie Curie mobility and fellowships programme, offering the possibility to gain experience abroad and also in the private sector, and to complete training with competences or disciplines catered towards individual career goals."

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ORGANISATION OF PhD STUDY AT JESSENIUS FACULTY OF MEDICINE IN MARTIN AND IN SLOVAKIA
Galajda P, Calkovska A, Halasova E, Javorka K, Stasko J, Danko J
Jessenius Faculty of Medicine in Martin, Comenius University, Slovakia

Jessenius Faculty of Medicine Comenius University (JFM CU) in Martin provides 14 PhD biomedicine and health sciences study programmes, including 5 in preclinical sciences, 8 in clinical sciences and 1 in Public Health. About 190 students are annually registered for PhD studies in 4-year full-time and 5-year par-time study programmes.

JFM CU has been a member of Organisation for PhD Education in Biomedicine and Health Sciences in the European System (ORPHEUS) since 2004. Its representatives annually took part in ORPHEUS meetings from Zagreb to Bergen and discuss about Standards for PhD Education.

PhD Programme: It has been reformed as third cycle of high education system according to Bologna and Salzburg principles and basically is defined by the Higher Education Act in Slovakia. Every PhD programme is guaranteed by a professor and additional two professors or associated professors. Programmes consist of theoretical part, including methodological courses for scientific work and practical (research) part. The faculty has a website with all the details for the programmes and admission criteria.

Quality development: Quality of study is complexly evaluated by the Accreditation Committee of the Government of the Slovak Republic. The optimal system of internal evaluation, including student's feedback is solved by the project supported by European Social Fund (ESF) (01/2012 - 12/2013) entitled “System of complex quality evaluation of education and scientific work at JFM CU in Martin”

PhD Training: JFM CU received the financial support from ESF (06/2010 - 05/2013) due to the project entitled “Support of human resources development using the most modern methods and forms of education at JFM CU in Martin”. The aim of the project is as follows: 1) to increase the motivation of undergraduate students to scientific work; 2) direct support of the PhD training through activities popularizing the science; 3) to improve the quality of PhD training and scientific work; 4) to support the e-learning and 5) to establish the Faculty Simulator Centre with an idea of the virtual teaching methods development at JFM CU. Till now many PhD trainees were supported by travel grant to present their scientific results at national conferences and abroad as well as turned profit from
the study stay outward during 1-6 months. In the framework of ESF Project there were organized brainstormings of PhD trainees and young scientists with tutors directed to discussions about the research results and routing of their dissertations. This fund supports the Awards of the Project for the best PhD students and tutors, and publishing of faculty scientific journal “Acta Medica Martiniana”. Students’ Scientific Conferences of JFM CU with an active participation of undergraduate students and PhD conferences were just awarded through ESF project.

**Supervision:** Each PhD student has a principal supervisor and when relevant at least one co-supervisor to cover all aspects of the programme confirmed by the Scientific Board of JFM CU. Supervisors are usually members of academic staff with professor or associated professor degrees and they work as clinicians and research scientists.

**Research environment:** The basic, pre-clinical and clinical research at Departments and Clinics of JFM CU is organized in several Centres of Excellence. It focuses on three areas: perinatology, respirology, and oncology. The topics of interests include also diseases of nervous system, selected (e.g. metabolic) diseases and environmental adverse effects on human body. PhD students are trained in most up to date methods of molecular biology, immunohistochemistry, imaging, analysis of biological signals etc. Research at JFM CU is interdisciplinary and it is supported by wide scheme of projects from university grants for young researchers up to international scientific cooperation covered by framework programmes, European Regional Development Fund (ERDF) and the others. JFM CU received 14 projects from ESF and ERDF for financial support of improving of research excellence centres.

**International dimension:** International aspect plays very important role in personal development and improvement of PhD students as well as in scientific quality of final PhD thesis. Each PhD student at JFM CU has an opportunity to spend some part of his/her PhD study at cooperating research departments abroad; to learn new scientific methods and attitudes and implement them in research; to become familiar with the work in international scientific groups and build up the research basis for continuing cooperation. Two main European programmes supporting PhD student mobilities have been currently working at the JFM CU. There are LLP/Erasmus placement programme and ESF. Additionally, Comenius University in Bratislava offers travel grants for PhD students enabling repeating mobilities.
**PhD thesis:** The PhD thesis is the basis for evaluating skills of PhD students due to independent, original and scientifically significant research. PhD thesis is presented in written form and includes a full review of the literature relevant to the themes, research aims, methodological considerations, results, discussion and conclusions. The results of PhD scientific work are evaluated by independent jury, including 3 reviewers. It is recommended to publish outcomes of PhD thesis at least in three extenso papers in internationally recognized, peer-reviewed journals, at least one as the first author, and in the case of experimental medicine, in journals registered in Current Contents database.

**Combined PhD and clinical specialization programmes:** At present, there are no possibilities for combined programmes in Slovakia, but this issue is solved by the Association of Medical Faculties and the Ministry of Health in Slovakia.

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Implementation of the European standards of PhD programs in Ukraine is complicated by national traditions and state requirements for postgraduate education. The main restrictions are:

- limited funding;
- lack of systematic quality control;
- undeveloped international mobility scheme for PhD students;
- lack of work experience in the international team;
- orientation on domestic job market requests rather than on international standards;
- restricting focus on chosen specialty.

In order to improve the quality of scientific research in DonNMU we have focused on paradigm of postgraduate education as a driving force of research stimulation. Being somewhat similar to mythical Janus, the new scheme of DonNMU PhD education should reach the highest European standards on the one hand and meet the main national requirements on the other. The valuable experience from attending the 7th ORPHEUS conference allowed us to develop a new model of PhD education in DonNMU, which is based on the following principles:

1. Strict selection of PhD candidates;
2. Revision of syllabus of the compulsory disciplines;
3. Multilevel educational program aimed at performing multidisciplinary scientific projects;
4. Implementation of internal quality control of PhD education;
5. Encouragement of international mobility of PhD student;
6. Optimization of educational and research funding of PhD programs.

The new scheme of PhD education in DonNMU will improve the quality of scientific research and provide new opportunities for the international cooperation.

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Biomedical engineering is standalone interdisciplinary field of study and science and it is very attractive for many students and young researchers. It builds essential and necessary connection between medicine and science fields such as chemistry, physics, electronics, mathematics or computer science. Rapid development of this field of science is an evident sign of constant need to involve modern and new technologies in medical imaging, diagnosis, rehabilitation and treatment of patients. Therefore also in Slovakia biomedical engineering as a field of study is on the rise and it has several years of tradition. Aim of our study was to investigate real possibilities of graduate and postgraduate bioengineers in practice. We used information from relevant public internet sources such as faculty websites and also we prepared a questionnaire to gain information from current biomedical engineering students and postgraduate biomedical students. The aim of the questionnaire was to find out and describe the view of bioengineers on the benefits (or even on the negatives) of PhD study in their future career development. In conclusion we can say that integration of biomedical engineers in public health care system in Slovakia is improving but still very problematic and difficult mostly due to many legislative barriers while their performance in medical and biomedical research is on the increase.

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The PhD study consists of the theoretical and research parts. Individual plan is set upon supervisor’s research project. In addition to individual research work plan, the Faculty provides PhD students with courses in scientific methodology and English language that is finished with oral exam. In order to complete each year of PhD study, it is necessary to obtain at least 40 credits. According to the requirements students can obtain credits for activities in teaching, research and brainstorming meetings as well as for successful passing of examinations. Prior to submission of written thesis at the end of study, a student needs to have at least 150 credits. Then a thesis is peer-reviewed by 3 experts in the particular research field. Other general requirements to award PhD degree are 3 in extenso publications in international peer-reviewed journals (first authorship at least in one of them). There are some differences among commissions for PhD study if these journals must be registered in Current Contents database.

At present, the PhD study is carried out at Departments of Basic Sciences, Pre-clinical Departments and at Clinics of Jessenius Faculty of Medicine Comenius University and Martin University Hospital. Research is substantial part of a PhD programme. By current legislation PhD students at Clinics spend maximum of 30% of time by activities different than research (20% in clinical work and 10% in teaching activities). The latter is difficult to apply in practice. How to solve this problem? One possible way is co-operation between clinics and non-clinical departments in the PhD students exchange program, e.g. PhD student would have a legal option to work on research project at Departments of Basic Sciences or Pre-clinical Departments for couple of days per week, or couple of months per year. Another solution might be the obligatory PhD degree for all medical doctors working in Martin University Hospital, where there
wouldn't be a difference between medical doctors working under the Ministry of Health and medical doctors – PhD students who work under the Ministry of Education. Particular problem is the question of combined programmes in PhD and Specialization (SpSt) study for PhD students working at Clinics at the same time. Current legislation related to this problem is not clear. Even if there is an option of retroactive acceptation of 2-year practice into SpSt after awarding PhD degree, it is not guaranteed by law and it is in full competence of the heads of Clinics. Current system discourages PhD students from staying in academic field.

Last, but not least, one can ask: What will PhD students do after awarding degree? PhD students are interested in academic carrier, the only jobs they have ever been trained for. Some are destined for perpetual postdoctoral fellowships, others leave research. Support to get adequate position outside the academia is missing as well.

We have presented the most important problems of PhD study in Slovakia and our unsolved issues are open to discussion.

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MOBILITY PROGRAMMES AND SUPPORT SERVICES FOR YOUNG RESEARCHERS – SLOVAK ACADEMIC INFORMATION AGENCY
Majchrakova L
Slovak Academic Information Agency Zilina, Zilina, Slovakia

In our contribution we are going to focus on SAIA's contribution on promoting international academic and research cooperation and on services dedicated for researchers.

SAIA, n. o. (Slovak Academic Information Agency) is a non-governmental non-profit organisation implementing programmes and providing services aimed at internationalisation of education and research in Slovakia.

In one hand SAIA provides information on study abroad opportunities, existing scholarships and grants. It also offers advisory services for foreign nationals interested in study or research stays in Slovakia. It is involved in selection of applicants for various study, research, and lecturing stays abroad and in Slovakia and it coordinates various programmes as Academic mobility; Action Austria – Slovakia; CEEPUS (Central European Exchange Programme for University Studies); National Scholarship Programme for the Support of Mobility; SciexNMSch (SwissSlovak Scholarship Fund) are.

Young researchers can apply for the mobility within several of them, in present contribution we will outline the most suitable for PhD. students and early researchers.

Second part of the presentation will be dedicated to services for researchers in EURAXESS Services Centres for Researchers witch is SAIA member - within an European EURAXESS Services Network in 37 countries. These service centres help overcome obstacles to smooth operation of the mobility programmes; they provide information and services to international and Slovak researchers and their families on various aspects of mobility - including practical information related to the stay in another country. Vital communication tools in the work of the centres include the European mobility portal for researchers EURAXESS – Researchers in Motion (http://ec.europa.eu/euraxess) and national mobility portals. Through the portals the researches may search also for work opportunities and research institutions may announce openings for researchers free of charge.

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International cooperation between PhD students is encouraged by the specific PhD programs of the different High Schools in biomedical Sciences. Even to instrumentalize this cooperativity, financial support is approved as part of the calls. Within the European space, programs like Erasmus or the Frame projects are initiatives that offer valuable possibilities to carry out cooperation between several Laboratories that can crystallize in PhD Thesis with contributions that result from the application of new technologies. Erasmus program allows also teaching activities by supporting stays of postdoctoral researchers. Information about research lines and useful techniques of Laboratories to be contacted with is a necessary prerequisite for a successful stay of a PhD student. In this regard, ORPHEUS enterprised a valuable initiative during the annual Meeting in Vienna 2010. A workshop of this Meeting was entirely devoted to elaborate a list of research interests and the adequate techniques mastered by the participant scientists.

The area of Neuroscience has an established tradition of programming interlabs cooperativities. The network of European neuroscience Schools (NENS) organizes every year several Schools and supports the participation of a selected group of PhD students that follow seminars and practical laboratory work related to one of the relevant neuroscientific topics. Taking into account the number of international publications and the common research projects, the outcome of the international PhD cooperation during the last years has been very positive. It is desirable to increase the PhD cooperativity between countries of the geographically extended Europe and between American and Asiatic continents. Again ORPHEUS has started this initiative and has begun with the organization of ORPHEUS MUNDUS.

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LOST IN THE MOLECULES
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Recently, amount of new information related to medicine research increases almost exponentially. Therefore, today's experts in science are oftentimes focused on the investigation of isolated biological phenomena at the molecular level. The same is true also for topics of PhD study. Therefore the biological mechanisms are frequently studied from the point of reductionism. However, to understand importance of these mechanisms and utilize obtained knowledge in clinical practice, complex view is necessary. There are several possibilities, how to help PhD students to understand of studied mechanisms in their complexity, including courses introducing the theory of science, communication with colleagues investigating another topics. More complex view of investigated topic then may lead to discovery of “hidden” interrelationship between biological phenomena with possible clinical application of data obtained during PhD study.

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Field-Specific teaching of D. Tvildiani Medical University PhD program is based on interdisciplinary attitude. Program is carried out in three specific study directions:

- Structural, molecular, biological and functional bases of normal and pathologic processes which are divided into two sub-directions:
  - Modern use of biomarkers and future perspectives.
  - Human body molecular and cellular responses to pathologic processes.
- Determining factors for disease etiology, clinical course and treatment, prevention, screening and epidemiology.
- Scientific bases for innovative development of medical education.

Structuring scientific (field-specific) modules is carried out according scientific study direction, research study methodology and medical specialty (cardiology, cancer, endocrinology, etc.).

Considering own qualification and experience and in coordination with supervisor a PhD student distributes/plans achievement of field-specific educational course credits basing on the following choice:

- According PhD program scientific research direction which mainly means taking corresponding educational courses (e.g. “medical bases of biomarkers, modern studies and future aspects”, etc.) and participation in lectures/seminars given on actual scientific issues.
- According the methodology of PhD student thesis research serving for intensive study of modern methods of research (e.g. modern research methods in biochemistry, immunology, etc.) and laboratory rotation.
- According medical specialty direction (e.g. cardiology, obstetrics, etc.) implying giving lectures-seminars on scientifically actual problems (e.g. academic course “Human body molecular and cellular response to pathologic processes”).

PhD students mainly apprise positively following basic aspects of educational courses of theoretical field-specific modules: program design and organization, evaluation of educational course, academic process, supporting students, estimation of teachers, student progress and achievement.

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Acquisition of membership in ORPHEUS and subsequent analysis of the European doctoral programmes have induced vigorous activity in DonNMU as for reorganization of postgraduate education in Ukraine. In order to obtain a comprehensive picture of its strengths and weaknesses, a survey of the PhD students' opinion was conducted in DonNMU. For this purpose, a Questionnaire was developed. It included questions on the following topics:

1. Motivation;
2. Selection of candidates, admission criteria;
3. Assessment of the quality of supervision;
4. Satisfaction with the quality of the scientific project;
5. Satisfaction with the educational programme;
6. Attitude to multidisciplinary projects and development of transferable skills;
7. Suggestions as for improving the system.

As a whole, the survey indicates that more than 70% of the interviewed students were not fully satisfied with the admission criteria, quality of education, range and/or content of courses. The majority of respondents expressed concern about the quality of their own research project. Moreover, they showed considerable interest in acquiring knowledge in methodology of the scientific research, gaining a multidisciplinary approach in research and obtaining transferable skills.

In conclusion, an introduced feedback between the managers of the doctoral programmes and the students represents an effective mechanism for the targeted correction of the developing model of the postgraduate education.

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“Networking” has become a mantra for many aspiring entrepreneurs, and the most successful young hustlers attend meetings, conferences, gatherings and events in order to introduce themselves and their ideas to the more established business world. For young scientists, the drive should be the same. There is a whole world out there that does not know the PhD students, what they can do and what they might achieve. And there is a whole world out there that can give the hopeful researcher valuable insight in new techniques, ways of approaching and solving problems and in transdisciplinary research across cultural and physical borders. International cooperation in PhD projects will supply important values, not only in terms of increased sample sizes or permission to use different equipment, but also new sources of funding, access to knowledge databases and human resources, and not to forget new friendships and contacts. With almost 80 % of PhD candidates joining the non-academic workforce once they graduate, one needs to prepare for what the employer is looking for. Current job advertisements reveal that “international experience”, “good communication skills”, “foreign languages” and “collaborative skills” are highly valued, skills that come for free with a stay abroad. In my talk I’ll discuss some of the aspects with international networking as a PhD student, based own experiences to general features, the possibilities out there and the consequences of broadening ones own horizon.
Authors of this study created a questionnaire focused on PhD student's opinions about many aspects of PhD study at the Jessenius Faculty of Medicine in Martin, Slovakia. It is based on answers of PhD students attending full–time and part–time form of study. We tried to summarize and evaluate the results according to the point of view of PhD students from theoretical, pre–clinical or clinical disciplines.

PhD students were asked questions about the most important issues of their everyday scientific but also „clinical“ life. We wanted to find out what they expect from this type of education and what part of their expectations has been fulfilled.

The most frequently asked topics in our questionnaire were as follows: PhD supervision, equipment access, foundation sources, scholarships and their availability, educational responsibilities, clinical practice and its influence on research work. Very important part of the questionnaire includes questions focused on the future of PhD students, mainly their chances of being more successful in the labour market.

Regular „brainstorming“ meetings of PhD students with presentations of their partial scientific results are necessary part of PhD education at our Faculty. PhD students obtain skills not only in presenting their works but also in discussions, and learn how to defend their scientific results. It is also a great opportunity to improve cooperation between theoretical, pre–clinical and clinical workers. These facts were the main reason why we asked a lot of opened questions how to improve the „brainstormings“.

We hope that our results will be a source of new ideas which will help to improve the quality of PhD education at our Faculty, and maybe will stimulate PhD students to discuss the conditions of higher education among themselves and with their supervisors. We think that it is very important to talk about pros and cons of educational system in Slovakia on academic field.

Acknowledgement: We would like to thank to Ms. A. Skrzypek and her co–workers from Jagiellonian University in Krakow for their help with the preparation of this questionnaire.

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Slovakia and United Kingdom are two distant countries in many ways, historically, economically and also from scientific point of view. PhD study in these countries is close in one aspect, but far away in another one. The aim is to compare PhD study in Slovakia and UK under various conditions, including projects, financial support and possibilities of scientific cooperation.

PhD project and its design represent a key role in whole PhD study. It considerably contributes to successful finish of study. A straight-forward concept – one student, one project – is generally accepted in both countries. Nevertheless, when considerable amount of data from one project is not achieved due to different unexpected problems, participation in several projects represents a big advantage.

PhD funding is completely different. While in UK student needs to apply for studentship in publicly funded organizations, in Slovakia the funding is provided by government. Advantages in Slovakia encompass a good availability, higher universities demand than the interest of students and continuous funding during 4 years study. Contrary in UK, funding is very tightly designed, covers only the time in laboratory, but not writing thesis, nor preparing for “viva”.

Possibilities to co-operate with other teams are domains of the team leaders, generally better established in UK. From my experience if the team leaders have a good reputation in the scientific field, the cooperation with expert teams is much easier. The successful collaboration of various teams could produce more interesting data than PhD student and/or his team would achieve by himself only.

In summary the requirements on the efficiency and performance of the PhD students are much more demanding in UK than in Slovakia.

The Fellowship at University of Oxford was supported by Albert Renold Travel Fellowships for Young Scientists, European Foundation for the Study of Diabetes and by Slovak Diabetes Association.

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POSSIBILITIES OF INTERNATIONAL COOPERATION BETWEEN PhD STUDENTS IN SLOVAK CONDITIONS – A REAL EXAMPLE

Zorad S, Gajdosechova L

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Starting PhD students are often struggling with requirements of research work as well as with some aspects of scientific communication. This “struggle lag time” can be shortened by sending the students for certain time to well-established foreign laboratories in order to get them more experienced in advanced research life. Despite low financial support we succeeded to employ this way of treatment of new PhD students. For example Lucia Gajdosechova graduated from Comenius University in Bratislava, started as PhD student in our group in September 2011. In October 2011 she was sent for 1-month-stay to Department of Pharmacology, Jagiellonian University in Cracow, Poland. In collaboration with Polish PhD students she participated on common experiments and got familiar with proteomics methods. The stay was supported by bilateral Slovak-Polish grant obtained from APVV Slovak grant agency. In July 2012 Ms. Gajdosechova visited Department of Health Sciences at University of Jaen, Spain for a month. Collaborating with Spanish PhD students and their tutors she studied the effect of olive oil diet on metabolism. This visit was partially supported by Slovak SAIA agency. Finally, in August 2012 Ms. Gajdosechova spent an additional month at Institute of Biotechnology, National Taiwan University in Taipei, Taiwan. Here she closely collaborated with Taiwanese PhD students by working on several project related to adipose tissue metabolism. The trip was financially covered by bilateral NSC-SAS-Project–based Personnel Exchange Program grant. The result of above-mentioned 3 trips is 1 CC publication and 2 common abstracts. We consider short time visits as an important tool in teaching PhD students in order to increase their skills as well as research and cultural experience.

Supported by NSC-SAS PPP project.

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This publication is aimed to present the project „System of complex quality assessment of pedagogical process and scientific-research work at JFMED CU in Martin“, which was approved in the framework of operating program Education, priority axis No. 1. Reform of educational system and professional training, Provision 1.2 Higher education institutions, and research and development as motors of proficient society progress, call code OPV-2010/1.2/02-SORO. Project financing is supported by the European social fund and state budget of the Slovak Republic.

**Project title:** System of complex quality assessment of pedagogical process and scientific-research work at JFMED CU in Martin

**ITMS Project code:** 26110230040  
**Project realization:** 01/2012 – 12/2013  
**Beneficiary:** Comenius University in Bratislava  
Jessenius Faculty of Medicine in Martin

The overall allowable expenses of the project realization are **614 798,50 EUR**, out of which 95 % - **584 058,57 EUR** is from non-refundable financial support. Remaining 5 % - 30 739,93 EUR is provided by JFMED CU from its own expenses.

**Places of project realization:** Kollárova 2, 036 01 Martin  
Sklabinská 26, 036 01 Martin  
Malá Hora 4, 036 01 Martin  
Malá Hora 4A, 036 01 Martin  
Novomeského 7, 036 01 Martin

**Aim of the project**  
Strategic aim of the project is to work out the System of complex quality assessment of pedagogical process and scientific-research work at JFMED CU in Martin

Strategic aim will be fulfilled by realization of two specific aims:  
1. Working out, implementation and testing of the quality assessment of pedagogical process and scientific-research work at JFMED CU in Martin in General Medicine study program.  
2. Working out, implementation and testing of the quality assessment of human resources and research at JFMED CU

The first specific aim will be carried out through the following four activities:  
1.1 Proposal and testing of direct measurement of higher education quality in General Medicine study program  
1.2 Proposal and testing of measures for improvement of higher education quality in General Medicine study program  
1.3 Proposal and testing of measures for elimination of information disbalance in relation of JFMED towards the public regarding higher education in General Medicine study program  
1.4 Proposal and testing of results of complex measurement of higher education process at JFMED CU in General Medicine study program
1.1 Proposal and testing of system of results assessment in all relevant workplaces of JFMED CU in research

1.1 Proposal and testing of measures to eliminate information disbalance in relation of JFMED towards the public regarding all workplaces of JFMED CU according to the results in research

1.2 Proposal and testing of results assessment of implementation of complex quality assessment of human resources and research at JFMED CU

Brochure is predominantly focused on activities of specific aim no. 2, activities 2.2 and 2.3. It summarizes knowledge in the field of research and education quality assessment pursuant to ORPHEUS organization which deals with PhD education in Biomedicine and health care within the European system. It is an association of European biomedical and medical faculties, and other institutions providing this form of education and research. ORPHEUS annually organizes several meetings, where two overlapping communities, on one side employees in research and development – tutors of PhD students, guarantors of PhD. study, medical and biomedical faculty employees, and on the other side PhD students or graduates of PhD study, present their knowledge. In accordance with projects aims, we have focused on employees in research and development, and on their role in elimination of so called digital gaps in processing and distribution of research and development results. Evaluation of questionnaire, dealing with quality assessment of knowledge transfer in research, and the following presentation of obtained results seems to be interesting.

In accordance with above-mentioned activities of the second specific aim, JFMED CU will advertise and publish information regarding scientific–research work and its results towards professionals and the public through its web page. The proposal of the way of presentation of science and research (presentation of PhD. programs, thesis, results, study possibilities and so on) on the web page is discussed at the moment. ORPHEUS workshop seems to be one of the best possibilities how to make PhD study more attractive and popular. Scientists working at JFMED CU will highlight the quality of scientific-research work at our Faculty, and through interactive techniques, will work on knowledge improvement, and on information barrier elimination in this field.