

Triplet



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Jagiellonian University

NEW PROFESSORS

On October 22nd, two scholars of our Faculty were given the title of professor by the President of the Polish Republic: **Maria Kapiszewska** from the Department of General Biochemistry (received her title on January 31st 2008), and **Józef Dulak** from the Department of Medical Biotechnology (who received his title on February 29th 2008). Both laureates were also appointed professors of Jagiellonian University by prof. Karol Musioł - the Rector of the University. The appointment took place on January 27th, during University's Senate session.



PHD THESES

8th January 2008 **Barbara Paugh**, „Regulation of sphingosine kinase 1 and plasminogen activator inhibitor 1 in glioblastoma cells”, supervisors: Dr Tomasz Kordula (Wirginia Commonwealth University, Richmond, VA, USA) and prof. dr hab. Hanna Rokita.

4th March 2008 **Magdalena Pukło**, „Modulation of bacteriostatic activity of cationic antibacterial peptides by proteolytic enzymes of *Porphyromonas gingivalis*”, supervisor: prof. Jan Potempa.

4th March 2008 **Miłosz Gruca**, „Zymogenic cha-

racter of secretory proteinases of *Staphylococcus aureus* (prostafo-pains) and their significance in pathogenesis of staphylococcal infections”. , supervisor: prof.. Jan Potempa.

11th March 2008 **Piotr Liguziński**, „Theoretical investigations on control and regulation of oxidative phosphorylation and glycolysis in skeletal muscle” , supervisor: dr hab. Bernard Korzeniewski.

14th March 2008 **Małgorzata Kalemba-Drożdż**, „Effect of metabolism of 17 β -estradiol on the level of lymphocyte DNA damage of pregnant women” , supervisor: prof. Maria Kapiszewska.

FROM THE DEAN



Here we present the first issue of bulletin of the

Faculty of Biochemistry, Biophysics and Biotechnology. In addition to the Annual Report, published yearly, “Triplet” will bring more current news about activities and events at our Faculty. We hope that this new formula will be helpful and will find your approval.

Prof. K. Strzałka,
Dean of the Faculty BBB, JU

AWARDS, SCHOLARSHIPS

Agnieszka Jaźwa, M.Sc. from Department of Medical Biochemistry (phot.), was awarded (along with four other women) this year's L'Oreal prize “Woman and Science”. The prizes were 3 PhD and 2 post-PhD scholarships, and they were given for the application-oriented work in the field of medicine and biology. The ceremony of presenting the laureates with scholarships took place on December 7th at Warsaw University. For more information, please

visit: (<http://www.uj.edu.pl/IRO/NEWSLET/index.html>)

During the conference of Academic Association of Biotechnology Students, held between 23rd and 25th of November 2007 in Łódź, the awards were given to students of Department of Medical Biotechnology: : Marcin Krupka (this year's alumnus) - the 1st place for a spoken presentation, and Milena Dubiel with Paweł Dominik (4th year) - the 3rd place for a spoken presentation, along with Monika Maliszewska (3rd year), the 1st place for a poster.

During the Symposium of Young Naturalist in Zielona Góra (13th - 14th of October 2007)

Krzysztof Szade (3rd year) was awarded the prize for the most interesting presentation based on one's own research.

„Sapere Audo” scholarships were given to Małgorzata Sokołowska (5th year), Klaudia Skrzypek (5th year), Paweł Dominik (4th year)

oraz Radosław Lach (5th year) The scholarships of the Minister of Science and Higher Education were awarded to Marta Faryna, Karolina Janeczek, Radosław Lach and Klaudia Skrzypek.



CONFERENCES AND COURSES

The 35th Winter School “Structure vs. function of proteins and nucleic acids”, organised by Faculty of Biochemistry, Biophysics and Biotechnology (WBBiB JU), took place from February 23rd to 27th. It was dedicated to the memory of prof. Zygmunt Wasylewski, his work, and scientific research.

Among the participants were: prof. G. Bartosz (University of Łódź), prof. C. Ciernewski (Medical University of Łódź), prof. W. Gruszecki (Maria Curie-Skłodowska University), dr T. Holak (Max Planck Institute of Biochemistry), dr hab. A. Jarmołowski (Adam Mickiewicz University), prof. M. Jaskólski (Adam Mickiewicz University), prof. W. Krzyżosiak (Institute of Bioorganic Chemistry Of Polish Academy of Sciences), dr hab. K. Lewiński (Jagiellonian University), prof. K. Liberek (University of Gdańsk), prof. G. Węgrzyn (University of Gdańsk), and prof. M. Żylicz (International Institute of Molecular and Cell Biology). Altogether, more than 170 persons took part in the Winter School.

The symposium program included 11 lecture sessions and 2 poster sessions, during which 26 lectures and 16 presentations were given, and 48 posters were displayed. The



posters were assessed by prof. G. Bartosz, dr J. Drukala, dr hab. A. Jarmołowski, and prof. M. Jaskólski. After a boisterous debate, the judges decided to award the first prize to Joanna Szymak (Department of Cell Biochemistry

of WBBiB UJ), for her work entitled “Obtaining anti-ADAM17 antibody fragments (scFv) by phage display technique”. Three other works were



awarded a ‘honorable mention’: “Phenotypic heterogeneity and metastability of human lung A549 adenocarcinoma cell line” by Iga Bechyne, M.Sc. from Department of Cell Biochemistry WBBiB UJ, “The keys to pluripotency - will iPS replace ES?” by Monika Maleszewska from Mygen Students’ Scientific Organisation, and “PCNA response to the local oxidative damage in cell nucleus” by Katarzyna Kędziara from Division of Cell Biophysics WBBiB UJ.

On the occasion of Winter School Jubilee, prof. Kazimierz Strzałka, the Dean of the Faculty, prepared a short presentation on the history of Winter Schools. Afterwards, the participants of preceding seminars went down the memory lane, and talked about the previous meetings (originally held in Rabka, then in Zakopane).



The organisers of the conference did not forget about Biotechnology Students’ Scientific Organisation ‘Mygen’: during one-hour-long presentation, Mygen members presented report on their achievements. After the presentation students announced the results of ‘The Most Outstanding Worker of WBBiB’ competition. The winners are:

- for the most vivid lecture **dr. S. Kędracka-Krok**
- for the fastest exam **prof. A. Klein**
- for the most complicated way to obtain the credit ‘Biochemistry’ team
- for the biggest number of textbooks published **prof. A. Kozik**
- for the most exciting exam **prof. H. Gabryś**
- for the biggest number of students re-taking the exam **prof. H. Gabryś**
- for the best English-Polish translation **prof. J. Potempa**
- Miss of the Faculty **dr. J. Kozieł**
- Mister of the Faculty **dr. A. Górecki**

On the last day of the School, for the first time, prof. Zygmunt Wasylewski’s Memorial skiing competition took place. 24 competitors were divided into two groups: Professors & PhD’s,



and Students. The winners were: from the first group - prof. M. Pasenkiewicz-Gierula (Department of Computational Biophysics and Bioinformatics) and dr hab. J. Kruk (Department of Plant Physiology and Biochemistry), among the students the invincible were Dominika Trembecka (Division of Cell Biophysics), and Michał Gwizdała (Department of Biophysics).

The 35th Winter School was organised by Department of Physical Biochemistry. It was funded by WBBiB and sponsors: Selvita Ltd., ELKaBe Ltd., Merck Ltd.

(Magdalena Tworzydło)

GRANTS

In 2007, 54 grants funded by the Ministry of Science and Higher Education (MNiSW) were realised at WBBiB, among these were 16 grants awarded in 2007. In addition to that, 12 grants funded by other institutions were realised as well.

Department of Medical Biotechnology has been granted by the Ministry the amount of 560 000 PLN as the matching fund to the 7 Framework European proje-

ct “European Vascular Genomics Network”. The grant will be used for purchase of real-time RT-PCR thermocycler and Laser Doppler for measurements of the blood flow.

The negotiations on “Chloroplast Signals” (COSI) grant draw to a close. The grant is a part of FP7-People Programme-Marie Curie Action-Initial Training Networks, coordinated by University of Vienna. There are 10 institutions engaged in the application, including the team of prof. H. Gabryś.

In total, the grant is worth 2’800’000 euros.

The Ministry of Science and Higher Education awarded the Faculty two subsidies to support equipment purchases. 400 000 PLN was allotted for multiprocessor cluster for computational modelling at Department of Computational Biophysics and Bioinformatics (prof. Marta Pasenkiewicz-Gierula) and 240 000 PLN for histological laboratory equipment at Radiobiology of Cancer and Radio-spectroscopy Lab (dr. Krystyna Urbanska).

VISITS/ INTERNATIONAL CONTACTS

SERIES OF LECTURES IN INDIA - 23rd of January - 15th of February 2008

The aim of my journey was a series of lectures at University of Hyderabad, as well as in other Indian academic centers. Our Department has been working together for a long time with M.V.N. Prasad's laboratory at the University,



University Campus in Hyderabad

which is the most reputable school of Andra Pradesh state. The campus is located in the suburbs of Hyderabad, a dynamic and incredibly crowded town of several millions of

habitants. The journey was a great opportunity to work with prof. Prasad (phot.) on some publications, and to bring him plant samples, that will be used for determination of heavy metal content.



Tempel of Sun in Konark

Then I visited Bangalore and Bhubaneswar, University of Goa

in Dona Paula, and recently founded University of Balasore (Orissa State), giving talks and taking part in scientific discussions. The last stop on my way was the University of New Delhi. All of my hosts were extremely hospitable and very interested in cooperation. Apart from scientific activity at University of Hyderabad, the journey resulted in establishing new scientific contacts with prof. Sharma (University of Goa), preparation of cooperation project based on inter-governmental agreements (with prof. Misra, University of Bangalore), and making plans on mutual experimental research with prof. Pardha Saradhi (University of New Delhi).

(K. Strzałka)

From 9 to 15 February, together with Mr. Kazimierz Murzyn, the head of Life Science Cluster in Krakow, and Mr. Krzysztof Krzysztofciak, the head of Malopolska Agency for Regional Development, I visited the North Carolina on the invitation of North Carolina Eastern Region.

During that visit we have discussed the possibilities of cooperation in the field of biotechnological industry. I have also presented the biotechnology program in English.

(Józef Dulak)



hemolymph of horseshoe crab, used in tests for endotoxin detection

VISITING LECTURERS

- prof. Libor Vitek, 1st Faculty of Medicine, Charles University, Prague, Czech Republic: "*The role of bilirubin in oxidative stress-mediated diseases*", 4th of December 2007 (phot.)
- prof. dr hab. Barbara Płytycz, Department of Evolutional Immunobiology, Institute of Zoology Jagiellonian University, Kraków, Polska: "*Ryboflavin and immunity: from earthworms celomocytes to inflammatory reaction*" , 5th of December 2007
- Dr Steven W. Paugh, Virginia Commonwealth University, Richmond, VA, USA: "*Sphingosine-1-phosphate analogs as potential therapeutic agents*", 11th of January 2008
- prof. Wolfgang Bilger, Christian-Albrechts Universität zu Kiel, Germany: "*Interaction of UV-B radiation and low temperature: damage and acclimation*", 13th of March 2008
- dr Avigdor Scherz, Weizmann Institute of Sciences, Rehovot, Israel: "*Vascular targeted PDT - a new paradigm for prostate and breast cancer*", 14th of March 2008



(Krystyna Urbańska)

OPEN UNIVERSITY - PROMOTING SCIENCE

Jagiellonian University Open Day took place on March 14th 2008. On that occasion, Faculty of Biochemistry, Biophysics and Biotechnology (WBBiB) put up a promotional stall in Auditorium Maximum, prepared a multimedia presentation shown in Auditorium Maximum, and gave prospective students (in all, more than 70 of them) a tour of the Faculty building. Prospective students had a chance to watch a short presentation on the Campus, its equipment, and plans of further development of the site. Then, the students of the faculty have given their future colleagues a grand tour of the Faculty building: they had an opportunity to visit laboratories and see several presentations prepared especially on that occasion. These included: microbiology, in-vitro plants, pipetting course, and cell biology. In addition to that, the prospective students had a chance to see computers macromolecules visualisations. The success of that day wouldn't be possible if it wasn't for both Students' Scientific Organisations, Students' Government and the workers of the Faculty. Thanks to the work and cooperation the day was a great achievement.

(Kamila Szulc)

Biology, Physics and Everything in Between - a series of lectures given by a team from Department of Biophysics presenting various applications of biophysics. The series is addressed to the 1st year students of Biology, and Biotechnology, as well as to high-school students. During summer term, the lectures are being held every Friday, at 10AM, room D107. (Coordinator: dr hab. K. Urbańska).

Festival of Science (14th-17th May 2008) - the event will be held at Main Market. The tent of WBBiB will be open on Saturday 17th May, from 11AM to 5PM. The program for the day: short popular science movies and animation concerning molecular biology and biotechnology, experiments, an information campaign on GMO, the Faculty presentation, and a presentation of Students' Research Organisations. Organisation: prof. M. Kapiszewska, dr. A. Osyczka, M. Sokołowska, students' research organisations.

STUDIES IN ENGLISH

During the winter term 2007/2008 our Faculty hosted 11 overseas students, including 6 Erasmus students, 2 MSc students in Biotechnology, and 3 PhD students. For overseas students the Faculty offers, along with individual learning scheme, more than 20 courses in English. Needless to say, the courses held in English are open to Polish students as well. For more information please visit: <http://biotka.mol.uj.edu.pl/biotechnology/index.html>

THIRD POLISH-FRENCH INTENSIVE COURSE IN BIOTECHNOLOGY

The course, organised in cooperation with University Paris 7, took place between February 11th and February 15th 2008. The participants of the course were 1st year PhD students and postgraduate students of WBBiB, and 10 students of 'Magistere Europeen de Genetique' at University Paris 7. The program of the course included:

- J. Cichy "Imaging of immune system responses"
- H. Gabrys "Plant biotechnology: transgenic plants"
- I. Horwacik "Peptides isolated from phage displayed libraries and their application in design of anti-cancer vaccines"

- K. Pyrc "Coronaviruses: well-known viruses or a new threat?"
- M. Majka "Few easy steps to understand stem cells"
- A. M. Osyczka "Bone tissue engineering with adult human mesenchymal stem cells: BMPs, biomaterials and beyond"
- J. Drukala "Application of autologous keratinocytes in wound healing - the principal role of skin stem cells in this process"
- A. Jozkowicz "Angiogenesis: matter of life and death"
- I. Caille "Adult neurogenesis"

Moreover, during the course, poster presentations were given. The course ended with the final exam. The classes were coordinated by prof. H. Rokita and dr I. Caille.

(Hanna Rokita)

MSc STUDIES IN COOPERATION WITH UNIVERSITY OF ORLEANS

Between 16th and 18th of December 2007, a course "New approaches in cancer research and therapy" took place at the Faculty. The course was organised by dr Claudine Kieda of CNRS in Orleans, and prof. Józef Dulak and dr hab. Amalia Guzdek of WBBiB. During the course the scientists from Orleans delivered their lectures. The invited lecturers were: Claudine Kieda, Chantal Pichon, Patrick Midoux, Friedrich Piller, Jean-Claude Beloeil and Christian Damblon.

The course enjoyed great popularity, more than 50 students participated in the program. The course is one element of wide cooperation between our Faculty and the University in Orleans (see http://biotka.mol.uj.edu.pl/new_www/html/pl2fr.html). The scientists from our Faculty delivered their lectures as well: in November 2007 prof. Tadeusz Sarna, and dr hab. Jerzy Dobrucki, while in January 2008 - prof. Józef Dulak. Presently 4 students of the Faculty and one student from Orleans take part in the program. They prepare their master theses, and their supervisors are scientist from both WBBiB and Orleans.

STUDENTS' RESEARCH ORGANISATION 'MYGEN' ACHIEVEMENTS

The members of 'Mygen' Research Organisation are not only active on the field of science (having many success in presenting the effects of their work at various conferences), but they are also involved in science-promoting activities. In addition to that, they work steadily in order to better integrate the students' community. Our posters and reports were presented at numerous conferences (both national, and international) such as

- 2nd Polish Students' Science Symposium „Between biotechnology and environmental protection - interdisciplinary meeting of young naturalists” 13th -14th of October 2007, Zielona Góra - Ewa Rojczyk, Agata Marek, Małgorzata Sokolowska i Krzysztof Szade (main prize for the most interesting presentation)
- First German-Polish Students Life Science Meeting „Biotechnology in Europe”, 5th - 9th of November 2007, Munich, Germany: Agata Marek, Małgorzata Sokolowska, Krzysztof Szade, Marcin Krzykawski, Milena Dubiel, Andrzej Mazan, Wojciech Gałan, Ewa Oleszycka, Marta Faryna, Michał Rysz i Łukasz Skalniak
- 8th Polish Academic Seminar of Biotechnology Students, 17th - 19th of November 2007, Kraków: Marta Faryna, Marta Zaionc ('honorable mention' for practical poster), Monika Maleszewska ('honorable mention for theoretical poster), Małgorzata Sokolowska, Barbara Mojsa, Jakub Kołodziejcki, Andrzej Mazan, Milena Dubiel i Paweł Dominik (3rd place: spoken presentation), Marcin Krupka (1st place: spoken presentation)
- 35th Winter School of WBBiB UJ, 23rd - 27th of February 2008, Zakopane: Małgorzata Sokolowska, Monika Maleszewska i Jacek Stępniewski, Katarzyna Kowalik, Rafał Gumienny, Marta Faryna, Agnieszka Skatecka, Agata Marek, Krzysztof Szade, Marcin Krzykawski, Barbara Mojsa i Barbara Sierpień, Jarosław Surkont, Grzegorz Sieński

(M. Sokolowska)



COOPERATION OF KRAKOW-BASED BIOTECHNOLOGICAL COMPANIES

Selvita and BioCentrum - both product and solution providers to the pharmaceutical and biotechnology industry have entered into a strategic cooperation agreement. As part of the agreement BioCentrum will become a part of Selvita group and will concentrate the potential of both companies in the area of ADMET contract research, including microbiology and biochemistry assays and the development and production of proteins. Selvita will continue to develop its innovative compound pipeline as well as offer advanced services to the drug industry including drug discovery and design, bioinformatics and chemical informatics. "The cooperation with Selvita will help us to develop our service offerings, increase research and marketing budgets and increase and improve BioCentrum's laboratory infrastructure", said prof. Adam Dubin, the founder and former CEO of BioCentrum. "In four years since the company was founded our company has gained a good reputation in the international biotechnology community. Based on our cooperation with the Faculty of Biochemistry, Biophysics and Biotechnology, Jagiellonian University we developed unique research capabilities and now it is time to reach out for new customers" For more information see www.biocentrum.pl)

EUROBIOTECH 2008 - 17th-18th of October

This autumn CENTRAL EUROPEAN CONGRESS OF LIFE SCIENCES "EUROBIOTECH 2008" will take place in Kraków. The Congress is going to be devoted to medical biotechnology, biopharmacology, biosimilars, nutrigenomics,

bio-products, biomaterials and "green medicine". The organizers are prof K. Strzałka from Jagiellonian University, Agricultural University, the Polish Federation of Biotechnology, Jagiellonian Innovation Centre and Cluster Life Science in Kraków. For more information, please visit: http://www.targi.krakow.pl/fairs/EUROBIOTECH_II.html).

PUBLICATION IN CIRCULATION

In the issue of Circulation (the most acclaimed cardiology and vascular biology magazine, IF 11) from 15th January 2008, an article by prof. Józef Dulak and dr Alicja Józkowicz from the Department of Medical Biotechnology was published. Invited by the editorial staff of the magazine, the authors together with prof. Anupam Agarwal and dr Jessy Deshane (University of Alabama, Birmingham, USA), sum up their research of several years. They prove the pivotal role of heme oxygenase-1 in angiogenesis, the process of new blood vessels formation. (Dulak J, Deshane J, Józkowicz A, Agarwal A, *Heme oxygenase-1 and carbon monoxide in vascular pathobiology*, Circulation . 117 (2): 231-241, 2008).

ERASMUS

The Erasmus scholarship results were announced on March 20th. The candidates were students of the 3rd and 4th year and PhD students of WBBiB interested in

overseas research visits and study continuation. 36 scholarships for five-months visit were given, as well as one scholarship for ten-months study period. Among the awardees were 31 students of Biotechnology and six Biophysics students.

HISTORICAL REFERENCES

Studies on melanin and pigmented cells have been the main focus of of biophysical research at our Faculty since its beginning in 1970. Recently, I have come across a melanin-oriented publication of Howard Mason from 1948 (Mason HS. J Biol Chem 1948: 172: 83), which is one of the most important works on melanin biosynthesis. Along with the works by Henry Raper, the Mason papers formulate the so-called Raper-Mason pathway: the step-by-step description of melanogenesis. In his work Mason quotes the papers by prof. Leon Marchlewski (one with prof. Bolesław Skarżyński as the senior author), concerning spectral properties of indole derivatives. They were published in the Bulletin of the Polish Academy of Arts and Sciences, in 1929, 1931, and 1937: [Marchlewski L, Skarzynski B. Bull Internat Acad Polon Sc Série A, 241, (1929); Grinbaum R, Marchlewski L. Bull Internat Acad Polon Sc Série A, 171, (1937); Boryniec A, Marchlewski L. Bull Internat Acad Polon Sc Série A, 392, (1931)]. There's no need to explain how important these Names are for the history of our University and our Faculty. But one should emphasize the influence these Scientists exerted on melanin research, creating the groundwork for later development of the Department of Biophysics, and the Institute of Molecular Biology, leading to our current Faculty of BB&B.

(Przemysław Płonka)

FROM THE EDITORS

Although many interesting propositions were send (e.g. "Lakmus", "Ferment", "Blot", or "Medium"), the editorial staff decided to choose "Triplet" as the name of the bulletin. This proposition is particularly adequate as it refers in triple [sic!] manner to information-coding in DNA, triple 'B' in the Faculty's name, and the fact that the bulletin is going to be published once in three months.

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