Triplet

The Quarterly of the Faculty of Biochemistry, Biophysics and Biotechnology, JU 2/2016 (33)

43RD WINTER SCHOOL IS OVER

During the break between semesters (February 16-20, 2016), the 43rd Winter School of the Jagiellonian University Faculty of Biochemistry, Biophysics and Biotechnology, entitled: *'Biomolecules: from structure to function'* was held in Zakopane.

The conference programme included mainly lectures and presentations based on research conducted at the Faculty of Biochemistry, Biophysics and Biotechnology, but also scientists from Cambridge, Gdańsk, Heidelberg, Łódź, Munich, Warsaw, Wrocław and the Małopolska Centre of Biotechnology in Cracow took the opportunity to present results of their research.

This year's Winter School was also held to honour Prof. Adam Dubin who, for many years, headed the Department of Analytical Biochemistry and significantly contributed to the development of the biotechnology industry in Poland through his work with several biotech companies: Biocentrum, Selvita and Mabion till his retirement in 2015.

The first day of the conference focused on the topics close to Professor Dubin's head and heart, primarily proteolytic enzymes. During the next days, the lecturers talked about structural biology, interactions between proteins, interactions of pathogens with their hosts, and genome editing. Among the invited guests were friends of Professor Dubin and our Faculty: Prof. Gay Salvesen (University of California, San Diego), Prof. Matthias Bochtler (International Institute of Molecular and Cell Biology in Warsaw), Prof. Stanisław Bielecki (Łódź University of Technology) and Prof. Grzegorz Węgrzyn (University of Gdańsk).

The Winter School included also two poster sessions during which the authors were awarded prizes for scientific and aesthetic qualities of their posters. Piotr Konieczny (Department of General Biochemistry, Jagiellonian University Faculty of Biochemistry, Biophysics and Biotechnology) and Paulina Strzelecka (Faculty of Chemistry, Gdańsk University) won the main prizes.

Czterodniowy program Szkoły Zimowej wypełniło 7 sesji wykładowych i 2 sesje posterowe. W ich trakcie zaprezentowane zostały 32 wystąpienia ustne oraz 82 plakaty.

Apart from the scientific sessions, there were plenty of social events to deepen and strengthen relationships as well as establish new contacts, among them the opening banquet in honour of Professor Dubin and a beer tasting party. These beers, in the styles of Saison and Dunkelweizen, were brewed by students of biotechnology during a specialist course at our Faculty.

Traditionally, the ski and snowboard competition in memory of Professor Zygmunt Wasylewski was run on the Harenda slope. A small but very active group of fans cheered on the players fighting for victory.

cont. p. 2 ▸

CONTENTS

▸ 43RD WINTER SCHOOL IS OVER cont. from p. 1

Uczestnicy Memoriału im. prof. Zygmunta Wasylewskiego.

Olivia Bocheńska and Prof. Jerzy Dobrucki (skiing) and Mateusz Wawro and Jakub Kochan (snowboard) were the fastest competitors, while Dr Benedykt Władyka and Prof. Halina Gabryś were honoured for the most amazing style.

Organization of the 43rd Winter School was a combined effort of a team of scientists from the Departments of: Cell Biochemistry, Analytical Biochemistry, Comparative Biochemistry and Bioanalytics and the Department of Microbiology, coordinated by Dr Aneta Kasza. The accompanying events would not be feasible without the financial support from the following sponsors: VWR International, Promega GmbH, ImmunoGEN, Eppendorf Poland, Merck, CELLLAB, Lab Empire, CytoGen Polska, SARSTEDT, Lab-JOT® Ltd., Sigma-Aldrich, EURx, Selvita, MEDianus and the Professor Zygmunt Wasylewski Foundation.

RETIREMENT OF PROFESSOR DUBIN

In the end of October retired Professor Adam Dubin, a distinguished biochemist, expert in protein biochemistry and enzymology, excellent organiser, long-time Head of the Department of Analytical Biochemistry and Vice Dean of the Jagiellonian University Faculty of Biochemistry, Biophysics and Biotechnology.

Professor Dubin completed his chemical studies and directly after graduation in 1970, he was employed as a research assistant at the Department of Animal Biochemistry, headed by Professor Aleksander Koj. Except from internships abroad, Professor Dubin's entire scientific career has been linked to the Institute of Molecular Biology. Thanks to his and other academics' involvement, the Institute was transformed into the Faculty of Biochemistry, Biophysics and Biotechnology. After receiving his doctoral degree in 1976, Professor Dubin conducted research on peptidases and their inhibitors, biosynthesis of acute-phase proteins and vitamin K-dependent protein carboxylation. In 1987 he obtained habilitation and his interests have focused on characterisation of proteinases and their protein inhibitors. In 1999, Professor Dubin was awarded the academic title of Professor of Biological Sciences and has started research on antibacterial peptides as well as staphylococcal peptidases and virulence factors.

Professor Dubin coordinated eleven research projects including a TEMPUS educational project covered by European funds. His scientific output includes over 110 original experimental publications cited around 1550 times. Professor Dubin was honoured with many awards including Gold Cross of Merit and Medal of the Commission for National Education. He is also a highly-regarded university teacher, author of many courses in biochemistry and enzymology, author or editor of several academic textbooks. Professor Dubin supervised numerous BSc and MSc students, as well as eleven doctors and two habilitated doctors. He took part in the development of a new degree programme in biotechnology. Furthermore, he served as a Faculty Coordinator for scholarship programmes which helped many students to complete internships in research institutions abroad.

Professor Dubin organised many conferences and actively participated in the establishment of the Małopolska Centre of Biotechnology. He was involved in many sections of the State Committee for Scientific Research, participated in the Jagiellonian University senate committees as well as in the Editorial Board of *Acta Biochimica Polonica*, acted as an expert in the State Accreditation Committee for Biotechnology and chaired the Interdisciplinary Group for the Development of the Bioeconomy (Ministry of Science and Higher Education).
But that is not all: Professor Dubin has made significant contributions to the development of Polish biobusiness. He set up the Biocentrum company and later co-founded the Selvita Holding.

Professor Dubin's extraordinary range of activities and achievements would be enough for more then one lifetime. Despite being retired, he is a model scientist and teacher – always reliable and devoted, working tirelessly for the academic community, friendly, sociable, witty and inspirational boss.

Paweł Mak

NEW DEGREE PROGRAMME

Bioinformatics with Applied Biophysics

This year, a new degree programme was launched at the Faculty of Biochemistry, Biophysics and Biotechnology - *Bioinformatics with Applied Biophysics*. This study programme was developed in response to the growing demand for specialists in advanced methods of analysis and interpretation of large amounts of data in the fields of genomics and proteomics, in computer simulation and modelling of biological processes. The programme is intended for students with a BSc degree in computer science, medical physics, biotechnology, biochemistry, biomedical engineering, chemistry or alike. Selection of candidates for the programme will start on 1 June.

The programme will be implemented in close cooperation with the Jagiellonian University Faculty of Mathematics and Computer Science. Almost half of the offered educational modules will be conducted as practical classes, either laboratory or computer and seminars. The new programme is coordinated by Dr Krzysztof Murzyn who completed all the preparatory work in collaboration with Dr Małgorzata Dutka and Dr Martyna Elas. Detailed information on the admission procedure and curriculum can be found on the website of the Faculty of Biochemistry, Biophysics and Biotechnology: www.wbbib.uj.edu.pl

JAGIELLONIAN UNIVERSITY OPEN DAY

On Friday, 16 March, in Auditorium Maximum, high-school students from around Poland had an opportunity to get information about the wide range of study programmes available at the Jagiellonian University. The first guests arrived at the Exhibition Hall already before 9 a.m. and two hours later the building at Krupnicza Street was bursting at the seams with the crowd of visitors.

This year, our Faculty stand attracted exceptionally strong interest. The student representatives of each of the three fields of study: biotechnology, biochemistry and biophysics answered innumerable questions about the admission procedures, curricula, number of classes and lectures, scientific, educational and research infrastructure and conditions of studying at the Faculty of Biochemistry, Biophysics and Biotechnology and, certainly, the employment opportunities.

A large group of visitors attended a presentation by Paweł Jedynak, MSc from the Department of Plant Physiology and Biochemistry, entitled: '*In Search of Biochemical Treasure*' given at 1 p.m. as an open lecture. Also two 15-minute presentations of our Faculty attracted many visitors.

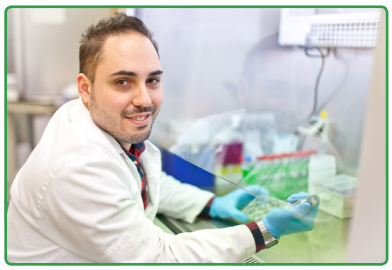
The Open Day was a good opportunity not only to present the new Faculty Guide to Courses and films made by the Committee for the Promotion of the Faculty of Biochemistry, Biophysics and Biotechnology, but also to conduct a survey which would assess understanding of the concept '*biophysics*' among high-school students.

phot. by . T. Oleś

FRANCESCO GUBINELLI – THE MOST POPULAR FOREIGN STUDENT IN POLAND

Francesco Gubinelli, who studies molecular biotechnology at the Faculty of Biochemistry, Biophysics and Biotechnology (MSc programme for foreign students, in English), won the title of the Most Popular Foreign Student in the INTERSTUDENT 2015 Competition. He earned as many as 10,538 votes in online voting. The results of the 6th edition of the Competition were announced during a gala ceremony at the European Solidarity Centre in Gdańsk on 21 January. The INTERSTUDENT Competition is organised under the '*Study in Poland*' programme implemented by the Conference of Rectors of the Academic Schools in Poland and the Perspektywy Education Foundation.

cont. p. 4



phot. by T. Oleś

Francesco, in January you have become the Most Popular Foreign Student in Poland. Has your life, as the Jagiellonian University student, been changed since winning the Competition?

No, not really. Of course, I see that now more people recognise me or associate my name with something, but in my field of interest popularity is not as important as being competent and motivated.

Do you know who has voted for you?

In January I really did not know who voted for me but later I have realised that many University units disseminate the information about my participation in the Competition through their websites and Facebook profiles: first the Faculty of Biochemistry, Biophysics and Biotechnology, then the Department of Communications and Marketing and the International Students Mobility Office. I found out that many friends voted for me, not only from the Faculty of Biochemistry, Biophysics and Biotechnology, but also from around the world. My friends helped me to win by encouraging their friends to vote for me. It was a really long 'chain of voters'. Taking this opportunity, I would like to thank everyone who contributed to my success.

Could you please say a few words about your visit to Gdańsk and the award ceremony which was held at the European Solidarity Centre? Have you had an opportunity to share your opinions on being a foreign student in Poland with other participants of the INTERSTUDENT 2015 Competition? If yes, do you have similar experiences?

Participation in the ceremony was an interesting and enjoyable experience. The European Solidarity Centre is an exceptional place and the event was organised perfectly. After the awards were presented to the winners, I spoke for a couple of minutes with the organisers and other students. We all have agreed that Poland and Polish universities should put more focus on foreign students, not only those on short visits under the Erasmus programme, but also those who wish to study full-time in Poland. For this purpose, the offer of studies in English should be improved. This includes not only economics or international relations, but also highly specialized fields of study as biotechnology or neuroscience.

At present you study molecular biotechnology at the Faculty of Biochemistry, Biophysics and Biotechnology. How did you learn about this degree programme?

At the end of my BSc programme, I have been very motivated to continue studies in Cracow. Moreover, I wanted to study a subject that would offer opportunities for entering the world of scientific laboratory research. After a long search, I eventually found information about the Molecular Biotechnology programme on the Jagiellonian University website and I realised at once that this would be for me.

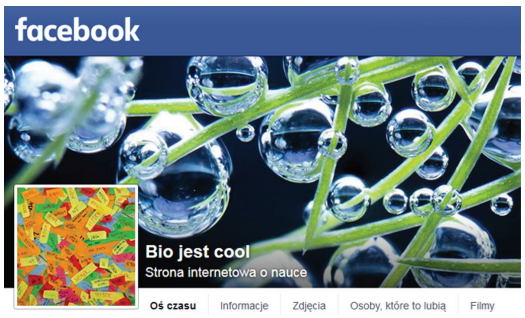
What do you like mostly about studying at the Faculty of Biochemistry, Biophysics and Biotechnology? Is there anything you would like to change?

The Faculty of Biochemistry, Biophysics and Biotechnology is a great place. If I had to describe it in a few words, I would say: advanced, international incubator of ideas. Investigations are carried out at a very high level, with passion and determination. People that I met here are great, both professors and students. It is a place with almost family atmosphere, if you have got a problem, you can just ask anyone and they will be glad to help you. Spending eight hours or more in the lab every single day with the same people let us develop personal contacts and individual relationships going far beyond professional links. If I could change anything, I would introduce more courses in English to give all students a wider choice.

In May, another edition of the Festival of Science will be held. Are you going to participate in this event as in the previous year? Is a similar festival held in Italy?

Yes, also this year I am planning to represent the Faculty of Biochemistry, Biophysics and Biotechnology at our Faculty stand. Talking about science in the middle of the Cracow's Main Market Square is a really fantastic experience! We have got similar events in Italy but I have never taken part in them. Here, in Cracow, I felt that I should have done it. In my opinion, it is very important to explain our research to a wider audience, to communicate scientific work conducted in universities and research centres to non-experts, to let everyone know where do their taxes go. It should be shown that science is constantly evolving and can have a positive impact on our daily lives.

OUR FACULTY IN SOCIAL MEDIA



Is it possible to talk about science in an interesting and dynamic manner? Our colleagues from the Faculty of Biochemistry, Biophysics and Biotechnology demonstrate that certainly it is possible and that social media are well suited to this purpose.

On the Facebook profile '*Bio Jest Cool*' (https://www.facebook.com/Bio-jest-cool-200165943683682/), one can find biological curiosities, puzzles, competitions and unobvious photos. Most of the published materials have been developed at the Faculty of Biochemistry, Biophysics and Biotechnology by Dr Tomasz Oleś. This profile attracts not only young people, it is worth visiting since the competitions are diverse and the prizes are very attractive.

Mariusz Gogól from the Department of Comparative Biochemistry and Bioanalytics, last year's Famelab finalist, runs a YouTube channel '*Zlewka Laboratoryjna*' (https://www.youtube.com/channel/UCbg5vfuHK2Youcsz_6B2WGA) and a Facebook profile under the same name and subtitle which encourages readers: 'If you are curious how Life "works" and how we discover Life secrets in lab – then this website is for you!' Mariusz has published there his videos which, in an easy and fascinating way, present several topics: DNA, use of colour in research studies and many others. Goodbye talking heads, hello living biochemistry!

We ask on behalf of the authors – please, like and subscribe!

COLLABORATION WITH SCHOOLS

Lectures for the Cracow Society of Young Friends of Learning and Fine Arts

For a few years, the Faculty Biochemistry, Biophysics and Biotechnology has been collaborating with the Cracow Society of Young Friends of Learning and Fine Arts attached to the Doctor Henryk Jordan Youth Centre. This year, at the turn of winter into spring, staff members of our Faculty have given four lectures as a part of a lecture series '*Meetings of Biologists*'. Scientists from the Department of Plant Physiology and Development and the Department of Cell Biology have been involved in the science popularisation activities; they have presented four lectures:

- 9 February – Dr Ariel Kamiński: '*Toxic Cyanobacteria*',
- 1 March – Dr Beata Bober: '*Elements in the Life of Plants*',
- 15 March – Dr Ariel Kamiński and Michał Adamski, MSc: '*Carnivorous Plants*',
- 5 April – Dr Damian Ryszawy: '*Modern Challenges of Cancer Treatment – Brain Tumours as the Scylla of 21st Century*'.

Biophysics for High Schools

One of the many activities undertaken recently at the Faculty of Biochemistry, Biophysics and Biotechnology and addressed to high school students was the '*Biophysics for High Schools*' programme. Students from classes with extended curriculum in science of the High School No. 8 in Cracow, once a month took part in over two-hour activities including lectures, demonstrations and classes. Altogether, six meetings were organised from October 2015 to April 2016. They focused on the following subjects:

- Colour – an Unobvious Phenomenon
- Deadly Biophysics
- How to Benefit from Radiation to Image and Kill Cancer?
- Bioacoustics
- Flexibility of Cells
- Imaging of Brain Activity

The educational activities for school students were carried out by PhD students and staff members from the Department of Biophysics. Questions asked by the attendees showed that the subjects were captivating and biophysics, initially mysterious, proved to be more accessible than anticipated.

GRANTS

In the last days of January, the National Science Centre announced the results of the last editions of the MAESTRO, HARMONIA and SONATA BIS competitions. Two scientists from the Faculty of Biochemistry, Biophysics and Biotechnology are among the winners:

Prof. Alicja Józkowicz from the Department of Medical Biotechnology, received over 1.3 million zł for studies of the role of haem oxygenase-1 in DNA repair in haematopoietic stem cells (HARMONIA 7).

Prof. Artur Osyczka from the Department of Molecular Biophysics received a grant of 2.5 million zł for a project entitled: '*Molecular Basis of Regulation of the Electron Flow Between the Membranous Pool of Ubiquinol and Water-Soluble Pool of Cytochrome c. Does the Mitochondrial Complex III Undergo a Transition Between the "Fast" and "Slow" States?*' (MAESTRO 7).

The MAESTRO programme is addressed to advanced researchers and is intended to develop and support various forms of investigations including interdisciplinary studies which may result in scientific discoveries, while HARMONIA is a competition for projects to be carried out with researchers from abroad.

PROFESSORSHIPS

On 26 January 2016, Jarosław Czyż was awarded the title of Professor. The ceremony was chaired by the President of the Republic of Poland. Jarosław Czyż graduated from the Jagiellonian University Faculty of Biology and Earth Sciences completing his biological studies in 1991 and since then he has been associated with the Department of Cell Biology. He carried out his research under the supervision of Prof. Włodzimierz Korohoda, first as a PhD student and then as a research assistant. In 1996 Jarosław Czyż defended his doctoral thesis. In the years 1998-2002 he attended several short- and long-term research internships at two scientific centres in Germany: the Department of Biophysics, Institute of Biology (at present: Institute of Biomaterials and Biomolecular Systems), University of Stuttgart and In Vitro Differentiation Group, Leibniz-Institute of Plant Genetics and Crop Plant Research, Gatersleben. Data from experiments conducted there, along with the results obtained at the Department of Cell Biology of the Faculty of Biochemistry, Biophysics and Biotechnology contributed to the habilitation thesis entitled: '*Research on Gap Junctions in Embryonic Stem Cell-Derived Cardiogenesis and in Neoplastic Cell Populations*'. Since 2008 Jarosław Czyż (with his team) have been involved in studies addressing the connexin family proteins and their roles in cancer progression and, in particular, microevolution of invasive subpopulations of cancer cells. Jarosław Czyż several times received the Award of the Jagiellonian University Rector in recognition of his achievements.

PHD THESES

Witold Nowak – '*Influence of Oxidative Stress on Bone Marrow Cells - Characterisation of Mesenchymal Stromal Cells Lacking Hmox1*'. Supervisor: Prof. Alicja Józkowicz. 11 March 2016.

Krzysztof Szade – '*Protection of Haematopoietic Stem Cells from Premature Aging – the Role of Haem Oxygenase-1*'. Supervisor: Prof. Józef Dulak. 9 February 2016.

Agata Szade – '*Role of Haem Oxygenases, Tumour Growth and Mobilisation of Haematopoietic Cells*'. Supervisor: Prof. Alicja Józkowicz. 9 February 2016.

Barbara Lipert – '*Role of MCPIP1 in Preadipocyte Differentiation*'. Supervisor: Prof. Jolanta Jura. 5 February 2016.

Agnieszka Bojko – '*Modulatory Effects of Curcumin and Tyrphostins (AG494 and AG1478) on the Regulation of Growth and Viability of LN229 Human Brain Cancer Cells*'. Supervisor: Prof. Andrzej Klein. 2 February 2016.

On 15 March 2016, the Council of the Faculty of Biochemistry, Biophysics and Biotechnology awarded Dr Benedykt Władyka from the Department of Analytical Biochemistry of our Faculty the degree of Doctor Habilitatus. The basis for awarding this degree was a series of works published in the years 2008-2013 under the common title '*Biochemical, Genetic and Molecular Aspects of Virulence of Bacteria of the Genus Staphylococcus*'.

Staphylococci form a significant part of the normal skin flora, either human or animal. On the other hand, staphylococci are responsible for a number of infections and diseases of the host organisms so they can be assigned to opportunistic pathogens. From all of the *Staphylococcus* species, *Staphylococcus aureus* has attracted special attention due to its relatively highest virulence and increasing drug resistance. Pathogenesis of most cases of staphylococcal infections or diseases is multifactorial, so understanding the roles of specific virulence factors is difficult. The selected experimental model can significantly affect the results since the human and animal strains are distinct. In his works, Doctor Władyka discussed staphylococcal virulence and challenges of investigating this phenomenon.

Secreted proteases are key virulence factors of staphylococci. Doctor Władyka's studies has shown that staphopain C, a cysteine proteinase, is inhibited by alpha-1-antichymotrypsin (ACHT) of human plasma. This is a case of the so-called cross-class inhibition, since ACHT is a serpin, a typical 'suicide' inhibitor of serine proteases. Using recombinant variants of ACHT, Doctor Władyka revealed the molecular basis for the inhibition. Furthermore, he has suggested the inhibition of staphopain C by ACHT to be a probable reason for the absence of this protease in S. *aureus* strains isolated from humans or animals other than poultry. It appears that staphopain C remains active in chicken plasma which may indicate that the protease is widespread among strains isolated from poultry and suggest that colonisation preferences and virulence towards the host organism depend from the presence of staphopain C.

Staphopain C is coded on the pAvX plasmid, in which Doctor Władyka discovered also an operon coding for a toxin-antitoxin system (TA). TA systems play a variety of roles, from supporting stable inheritance of mobile genetic elements to involvement in survival strategy of bacteria in response to unfavourable environmental conditions, including exposure to antibiotics. At present it is believed that these are TA systems that contribute to bacterial survival in the presence of antibiotics and, what is more interesting, it applies to organisms that do not contain genes associated with resistance to these agents. Doctor Władyka has characterised TA systems and has shown that the plasmid can be inherited stably with bacterial genotype. Furthermore, he has demonstrated that toxin of this TA system is a specific ribonuclease capable of degrading mRNA with varying efficiencies and thus playing a role in the regulation of gene expression, including genes coding for virulence factors. The most significant achievement, however, was unravelling the mechanism of reversible activation of the TA system: it has been shown that transcript of the TA system operon is resistant to degradation by the toxin which is essential for its regulatory function. Results of these studies were published in a prestigious journal *Nature Communications* and the scientific achievements were honoured with the following prizes: the Jakub Karol Parnas Award from the Polish Biochemical Society and the Professor Kazimierz Bassalik Award from the Committee on Microbiology of the Polish Academy of Sciences.

Doctor Władyka graduated from our Faculty of Biochemistry, Biophysics and Biotechnology in 2002 with a MSc thesis and in 2007 he received his PhD degree at the Department of Analytical Biochemistry where he has been employed till today. Doctor Władyka is a co-author of more than 30 original and review articles which were cited about 300 times.

KNOW

According to the time-limits determined in the rules of financing and clearance of pro-quality tasks implemented at the Faculty of Biochemistry, Biophysics and Biotechnology, in relation to the KNOW status, the Committee for the Development and Enhancement of Research Capacity and Application Potential of the Faculty of Biochemistry, Biophysics and Biotechnology, under the direction of Prof. Jolanta Jura processed the applications submitted by the Faculty staff members in the first quarter of 2016.

It has been the fourth time now to grant financing to various projects. Twelve people received financial support for attendance at conferences abroad. Moreover, one person obtained funds for participation in specialist workshops and a further one for a short trip to another research centre.

Furthermore, the Committee decided to cover the accommodation costs of two visiting professors: Prof. H. Motohashi from the Tohoku University in Japan and Prof. B. Dawn from the University of Kansas in the United States, at the Faculty of Biochemistry, Biophysics and Biotechnology.

The Committee also allocated funds to organise scientific conferences. The first one, organised under the direction of Professor Dulak, will be held in Orléans, France (3rd Conference of the International Associated Laboratory: '*microRNAs – Mediators of Differentiation and Biomarkers of Diseases*') in May 2016. The second conference, organised by Prof. Jerzy Dobrucki and entitled: '*4d Nucleome – Cell Nucleus in Space and Time*' will take place in Cracow the next year.

N-ZYME

The last three months have been rather quiet for '*N.zyme*' members. In March, the General Meeting was held during which we discussed the current issues and voted on the composition of the new Review Panel. Aleksandra Ignatowicz, Justyna Macina and Łukasz Strzelec were elected the Review Panel members. Next, new '***N.Zyme***' members were admitted. We also prepared a schedule of activities for the summer semester and refreshed the Facebook fan page. Please, visit our FB profile for new, interesting articles. Moreover, we succeeded in completing the renovation of our Club room which is not only a place to study and read, but also a nice area to relax and cultivate friendships. Lately, the '***N.Zyme***' Council have arranged a group visit to a cinema.

Katarzyna Łagosz

NOBEL

The second half of the academic year is filled with a lot of activities related to the International Student Conference on Biophysics to be held in May. The Conference is the most important recurring project for the '*Nobel*' members. This year's event will be the fifth edition and we will do our best to make it as successful as before. As in the previous years, our conference will offer great programmes, both scientific and social. We hope that everyone will find something for themselves.

Although we have been very busy, we had time to help in the organisation of this year's Winter School of the Faculty of Biochemistry, Biophysics and Biotechnology, which was held in Zakopane. As every year, it was a good opportunity to make new friends and get acquainted with recent research in biological sciences, and all of this at the foot of the Tatra Mountains, in the winter delightful atmosphere.

Another important event was the Jagiellonian University Open Day during which we tried to answer all questions and encourage the school students to explore the very special field of biophysics. We hope that we have successfully cleared up all doubts and that in October we will welcome new, hungry for knowledge, students of biophysics.

Katarzyna Lichańska

After the Christmas break, the Biotechnology Students' Research Club '*Mygen*' continued with the Thursday seminar series. Our first guest was Prof. Józef Dulak who gave a lecture on induced pluripotent stem cells (iPSC). A major event for us was a visit of Prof. Jan Hartman, a well known Polish philosopher and publicist. The meeting entitled: '*On Behalf of the Guinea Pig - Ethics of Man's Relationship with Nature*' was dedicated to the ethical aspects of animal testing and the role that man attributed to himself in the nature.

Recently, we have had many opportunities do get better acquainted with each other, for instance members of '*Mygen*' could test their wit and imagination trying to get out of an *escape room*.

At the end of March, registration for the 2nd Student Conference on Genetics '*Genomica*' has been launched. This event is organised by '*Mygen*' in collaboration with the Genetic Research Club of the Jagiellonian University attached to the Institute of Zoology of the Faculty of Biology and Earth Sciences. The last year's (first) '*Genomica*' edition was a great success and was highly appreciated by participants who have requested that this meeting should become a regular event among the student life sciences conferences. The 2nd '*Genomica*' Conference will be held in the Institute of Zoology, on May 20-21.

Daniel Krochmal

GUESTS OF THE FACULTY

21 January 2016
Dr Milena Bellin (Department of Anatomy and Embryology, Leiden University Medical Centre, Leiden, Netherlands). Lecture entitled: '*Cardiomyocytes from Human Pluripotent Stem Cells to Study Long-QT Syndrome*'. Guest of the Department of Medical Biotechnology.

2 February 2016
Dr Craig Murdoch (University of Sheffield, UK). Lecture entitled: '*Zebrafish: a Model System for Studying Systemic Host-Pathogen Interactions in Vivo*'. Guest of the Department of Microbiology.

8-11 February 2016
Prof. Andrea Alessandrini (University of Modena and Reggio Emilia, Modena, Italy). Lectures entitled: '*Mechanical Properties of Lipid Bilayers and Living Cells: Biophysical Approaches*'. Guest of the Department of Biophysics.

8 March2016
Aleksandra Ozga, MSc (Theodor Kocher Institute, University of Bern, Bern, Switzerland). Lecture entitled: '*Effect of the TCR-pMHC Binding Affinity on Differentiation and Proliferation of CD8+ Lymphocytes*'. Guest of the Department of Immunology.

1 October 2015 – 12 March 2016
Isabel Andrea Patiño (Chemistry Institute, University of Antioquia, Medellin, Colombia). Guest of the Department of Plant Physiology and Biochemistry.

Tea meetings at Gronostajowa – lecture series of the Cracow Branch of the Polish Biochemical Society:

27 January 2016
Dr Józef Spałek (Department of Condensed Matter Theory and Nanophysics, Faculty of Physics, Astronomy and Applied Computer Science, Jagiellonian University, Cracow). Lecture entitled: '*Emergence as a Fundamental Principle of Nature Description or Appearance of New Qualitative Features on Consecutive Stages of Complexity. Some Concrete Examples from the Field of Physics and Biology*'.

24 February 2016
Dr Michał Mikuła (Maria Skłodowska-Curie Memorial Cancer Centre and Institute of Oncology, Warsaw). Lecture entitled: '*Interaction of the Components of the Mitogen-Activated Protein Kinase (MAPK) Signalling Pathway with the Nuclear Chromatin*'.

30 March 2016
Prof. Agnieszka Dobrzyń (Nencki Institute of Experimental Biology, Polish Academy of Sciences, Warsaw). Lecture entitled: '*Molecular Mechanism of Pancreatic Beta-Cell Dysfunction in Type 2 Diabetes Mellitus and Translational Medicine or How Findings from Basic Research are Applied in Clinical Practice*'.

Isabel Patino (on the right) and Dr Małgorzata Jemioła-Rzemińska

IT'S PAST BELIEF!

Why Titus Andronicus was not a hamster?

„Noble patricians, patrons of my right,
Defend the justice of my cause with arms;"

William Shakespeare, *Titus Andronicus*

I have changed my mind again; originally I have been going to convince everyone that this is me who is not a hamster. The story that I am going to share with you now is, in my opinion, more interesting. Above all, however, I must say that I have not expected that I would defend the Act of 15 January, 2015 on Animals Used for Scientific or Educational Purposes, so soon after my column came out in Triplet No. 31.

It is a double occasion: a lecture delivered recently by a guest of our Faculty on ethical aspects of animal testing, and a paper which appeared, also recently, in an 'opinion-forming periodical'. In this paper, Poland is described as a dark, gloomy and depressing country filled with squeaking of hamsters murdered by bloodthirsty scientists in nooks and crannies all over university buildings. On the other hand, our guest has tried to convince the audience that he essentially does not differ from a hamster and, for him, there is neither a difference between killing a hamster, human or mosquito.

Had the Shakespearean hero been a hamster (maybe as our guest would have liked it to be), probably he would not have served a pie, made of baked bodies of two cruel youths, Chiron and Demetrius, to Tamora (their mother) but he would have rather eaten his daughter Lavinia after she had been morally and physically (but not biologically) murdered by these two oppressors. She was later killed by her father, but it was a work of mercy, *human endpoint*, as we call it today. It is true that Hannibal Lecter, played by Sir Anthony Hopkins, had a preference for gourmet meals comprised of human organs including fresh tissues but this talented actor did not leave choice to the film directors (Jonathan Demme, Ridley Scott, Brett Ratner and others). So, the similarity with the role of Titus Andronicus in the Oscar winning film by Julie Taymor is purely accidental.

As we may remember from a film of Stanisław Jędryka, 'a single pair of hamsters can produce as many as 15 offspring twice a year and the offspring can have…' But, a female hamster is inclined to eat all her 15 young if she gets stressed. She is also able to kill the male if not separated. This would make sense for territorial animals; if the female had not killed the male, then it would be he who killed the young, since in the natural environment the probability that a male will encounter his own offspring is significantly lower than the probability of meeting the offspring of another male, so infanticide can increase the proportion of the aggressor's own genes in the gene pool. And what about the female? If a predator, e.g. fox finds the nest, it is better for the mother to cannibalise the litter, save energy and look for another shelter because most probably the predator will eat the young anyway.

Let's recapitulate: if Andronicus had been a hamster, he most likely would have devoured Lavinia and maybe also her brothers, but this would have happened only when he had been a female hamster… If he had been a MALE hamster, he could have eaten Lavinia only if she had not eaten him earlier.

It seems to me that each biological species has the right to its own nature. If we do not judge negatively female hamsters, then we should not negatively judge humans either. Humans use their intelligence and social skills to develop a phenomenon called science for their own benefit. Yes, biological species differ one from another and the fact that Hannibal Lecter was a doctor has nothing to do in this case. I wish bon appétit to all hamsters who think differently!

Przemysław M. Płonka

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cont. p. 12 ▸

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