The XLVII Winter School of the Faculty of Biochemistry, Biophysics and Biotechnology, Jagiellonian University, Kraków, Poland; "Molecules, Pathways, and Games"

The XLVII Winter School of the Faculty of Biochemistry, Biophysics and Biotechnology of the Jagiellonian University (FBBB JU) in Kraków, entitled „Molecules, Pathways, and Games", took place in Zakopane on February 8th–12th, 2020. The honorary patronage of the Winter School was given by Professor Zbigniew Madeja, the Dean of the FBBB JU.

The Winter School opened a series of events related to the celebration of the 50th anniversary of the establishment of the Institute of Molecular Biology of the Jagiellonian University (IMB JU), which at that time consisted of five Departments. In 2002, IMB JU was transformed into the Faculty of Biotechnology and in 2006 that Faculty changed its name into the Faculty of Biochemistry, Biophysics, and Biotechnology. At present, FBBB JU consists of 16 Departments and employs over 250 people.

The acronym of the title of this year's Winter School: "Molecules, Pathways, and Games", refers to the initials of Professor Marta Pasenkiewicz-Gierula, to whom the very first session of the Winter School was dedicated. Marta Pasenkiewicz-Gierula graduated from the Faculty of Physics of the Jagiellonian University and was immediately employed (in 1972) as an assistant in the Department of Biophysics of the newly founded IMB JU. In the years of 1979-1993, she completed abroad three long-term internships: two at the National Biomedical ESR Center (Wisconsin, USA) and at the University of Tokyo and Taisho Pharmaceutical Co. (Japan). At present, she is the head of the Department of Computational Biophysics and Bioinformatics FBBB JU, which was founded by her in 2007. In her scientific career to date, she has published over 85 scientific papers, which were cited over 3500 times, and her Hirsh index is 35. She is also an author and a co-author of two chapters in books published by Springer Verlag, three scripts, and several methodological and review papers. Her research interests mainly include studies of model lipid bilayers using the molecular dynamics simulation techniques. Many of her most cited publications were written in cooperation with Professor Witold K. Subczyński (Wisconsin, USA), Professor Akihiro Kusumi (Japan), and Professor Tomasz Róg (Finland).

The scientific programme of the Winter School consisted of six regular lecture sessions and two poster sessions. The naming convention of the lecture sessions followed the Winter School title, with two lecture sessions held each day. The lecture sessions were entitled as follows – (Day 2) "Molecules: Membrane structure and dynamics" and "Molecules: Protein structure, dynamics, and function", (Day 3) "Pathways: Signalling pathways and biochemical networks" and "Pathways: Modelling the molecular mechanisms of the biological processes", and (Day 4) "Game of Life" and "Game over: pathology and disease". Among the 20 lecturers and over 60 poster authors there were researchers and students from the FBBB JU, the Maria Curie-Skłodowska University (UMCS) in Lublin and other prominent research institutions from Poland, USA, Japan, France, Czech Republic, and Finland. The detailed scientific programme and the conference Book of Abstracts is available at the Winter School web page (see: https://winterschool.wbbib.uj.edu.pl).

The scientific programme of the Winter School was filled with numerous social events. Lively scientific discussions and planning of future collaborations had started at the welcome party and continued in the following days during parties after poster sessions and at the conference dinner on the final day of the Winter School. Thanks to the generous support of the Professor Zygmunt Wasylewski Foundation, the willing Winter School participants could compare their skiing skills during the 10th Annual-Professor Wasylewski Memorial Ski Race Competition.

Organization of the XLVII Winter School would not be possible without substantial sponsorship and support. We are especially grateful to the Professor Zygmunt Wasylewski Foundation, IKA (www.ika.com), Acta Biochimica Polonica, Lab-JOT (www.labjot.com), Smartlab (smart-lab.com.pl), Genomed (www.genomed.pl), Eppendorf (www.eppendorf.com), SARSTEDT (www.sarstedt.com), and A&A Biotechnology (www.aabiot.com).

The rich scientific programme of the XLVII FBBB JU Winter School resulted in numerous post-conference publications in the dedicated issue of *Acta Biochimica Polonica* (ABP). The Associate ABP Editor Przemysław M. Płonka and the Guest ABP Editor Krzysztof Murzyn processed 12 submissions which were subjected for peer reviews. In the end, 10 papers were accepted for publications and published in several consecutive issues of ABP, starting from 3/2020. Factually, the scope of these papers perfectly reflects the main topics discussed over the Winter School. The team from the Medical University, and UMCS in Lublin published three review papers concerning: MALDI-MSI applied to plant tissue analysis (Suśniak *et al.*), mechanisms of pathogenicity in bacteria from the Aeromonas genus

(Matys *et al.*), and biological activity of bacterial Nod factors (Kidaj *et al.*). Phytosanitary and in part phytopharmacological aspects were the subject of two more papers, which concerned the presence of pheomelanin-like pigment in the fungal endophytes of ash tree (Pukalski *et al.*), and a simplified method of obtaining *in vitro* cultures of callus of *Nicotiana tabacum*, an important model plant (Lang *et al.*). A strictly molecular character was revealed by the paper by Solecka *et al.*, which concerned the importance of the backbone of reporter vectors in the proper interpretation of the activity of the promoter of matrix metalloproteinase-2. A more direct "Game of Life"-related aspect was exhibited by the paper concerning Smad2/3 signalling in the regulation of transformation of fibroblasts derived from asthma patients (Wnuk *et al.*). The final three papers concerned topics in the closest interest of Professor Marta Pasenkiewicz-Gierula and her team, namely evaluation of empirical force fields' parameters assigned to longer linear alkanes modelling hydrocarbon tails in cellular membrane phospholipids (Bratek *et al.*), *in silico* Cellular Automata models of the proliferating population of heterogeneous cancer cells (Kłóś & Plonka), and development of a new method for finding Fourier coefficients of the torsional potential in empirical force fields used in biomolecular modelling studies (Kania *et al.*).

Once again, the FBBB JU Winter School turned out to be a successful scientific event promoting exchange of research ideas and facilitating scientific collaboration in numerous fields of life sciences. I would like to thank all the participants and invite all for our next meeting.

On behalf of the Organizing Committee,

Krzysztof Murzyn, DSc