

WEDNESDAY, 13 SEPT 2023	
12:30-14:00	POPULAR SCIENCE LECTURE FOR RESIDENTS OF SZCZECIN (Main Auditorium)
14:00-16:00	MEETING OF THE BOARD OF POLISH BIOCHEMICAL SOCIETY
16.00 -17.00	BIO COMPANIES EXHIBITION VISITING (congress venue)
17:00 -17:30	OPENING CEREMONY (Main Auditorium)
17:30-19:00	PARNAS LECTURE (Main Auditorium)
19:00-21:00	WELCOME COCTAIL (Main Hall)

THURSDAY, 14 SEPT 2023				
	Main Auditorium	Hall 116	Hall 117	Hall 114
9:00-9:45	PLENARY LECTURE (Main Auditorium)			
9:50-11:20	SESSION IV Metabolism and Omics	SESSION V Molecular and cellular bioenergetics	SESSION X Stem cells biochemistry	SESSION I Flow cytometry – a powerful tool for Cytomics Research
11:20-11:35	COFFEE BREAK			
11:35-13:05	SESSION XI New trends in medicine – diagnostics and therapy	SESSION VI RNA structure, function and regulation	SESSION IX Clinical biochemistry	SESSION II New developments in flow cytometry for clinical diagnostic
13:05-14:05	LUNCH BREAK			
14:05-15:05	POSTER SESSION			
15:05-16:35	SESSION XIX RNA deregulation in disease and RNA therapeutics	SESSION XVII Biochemistry and biotechnology of fungi		SESSION XXII Flow cytometry present and future
16:35-16:50	COFFEE BREAK			
16:50-17:50	SPECIAL GENERAL MEETING OF THE POLISH BIOCHEMICAL SOCIETY			
20:00-24:00	GALA DINNER			

FRIDAY, 15 SEPT 2023				
	Main Auditorium	Hall 116	Hall 117	Hall 114

9:00-9:45	PLENARY LECTURE (Main Auditorium)			
9:50-11:20	SESSION III Biochemistry of microorganisms	SESSION XIV Biomaterials, cells and their interactions	SESSION XVIII Regulation of cell metabolism	SESSION XVI Induced pluripotent stem cells and organoids for disease modelling
11:20-11:35	COFFEE BREAK			
11:35-13:05	SESSION VII Oxidative stress in health and disease	SESSION VIII Signaling pathways and cellular regulation	SESSION XII Ion transports across biological membranes	
13:05-14:05	LUNCH BREAK			
14:05-15:05	POSTER SESSION			
15:05-15:50	FEBS LECTURE (Main Auditorium)			
15:50-17:20	SESSION XV Immunometabolism and extracellular vesicles in health and disease	WOMEN IN SCIENCE	SESSION XIII Biophysics in life sciences	
17:20-17:35	COFFEE BREAK			
17:35-18:35	MEETING OF PTBIOCH EXECUTIVE COMMITTEE WITH MEMBERS OF THE POLISH BIOCHEMICAL SOCIETY			

SATURDAY, 16 SEPT 2023	
	Main Auditorium Hall 116
9:00-9:45	PLENARY LECTURE (Main Auditorium)
9:50-11:20	SESSION XX New trends in structural biology
	SESSION XXI Biophysics application
11:20-11:35	COFFEE BREAK
11:35-13:05	POSTER SESSION
	YOUNG SCIENTISTS' SESSION
13:05-14:00	CLOSING CEREMONY

I. FLOW CYTOMETRY – A POWERFUL TOOL FOR CYTOMICS RESEARCH

Thursday, 14 SEPT 2023

9:50-11:20

Hall 114

Dr hab. prof. UJ Jarosław Baran

Dr. Raif Yucel

9:50-10:10 Dr. Raif Yuecel

Cytometry or Cytomics – “To Be or Not To Be” – The Journey of Single Cells in the Era of Omics (Lecture)

r.yuecel@exeter.ac.uk

Exeter Centre for Cytomics, Henry Wellcome Building for Biocatalysis, Biosciences Department, University of Exeter, United Kingdom

10:10-10:25 Dr Milena Wiech

Multiparameter spectral flow cytometry with advanced unsupervised analysis to identify immune signature of neurological post-COVID Syndrome after mild SARS-CoV-2 infection (Oral presentation)

m.wiech@nencki.edu.pl

Milena Wiech¹, Dawid Stępnik¹, Piotr Chrościcki¹, Julian Swatler¹, Sara de Biasi², Michal Hampel³, Marta Brewinska-Olchowik¹, Anna Maliszewska³, Katarzyna Sklinda⁴, Marek Durlik^{3,5}, Waldemar Wierzba^{6,7}, Andrea Cossarizza², Katarzyna Piwocka¹

¹Laboratory of Cytometry, Nencki Institute of Experimental Biology, Polish Academy of Science, Warsaw, Poland; ²University of Modena and Reggio Emilia School of Medicine, Modena, Italy; ³Department of Gastroenterological Surgery and Transplantology, Central Clinical Hospital of the Ministry of Interior, Warsaw, Poland; ⁴Department of Radiology, Centre of Postgraduate Medical Education, Warsaw, Poland; ⁵Department of Gastroenterological Surgery and Transplantology, Centre of Postgraduate Medical Education, Warsaw, Poland; ⁶Central Clinical Hospital of the Ministry of Interior, Warsaw, Poland; ⁷University of Humanities and Economics, Lodz, Poland

10:25-10:45 Dr Lidia Gackowska

Cytometric evaluation of the active DNA demethylation pathway (Lecture)

l.gackowska@cm.umk.pl

Department of Immunology, Faculty of Pharmacy, Nicolaus Copernicus University in Torun, Collegium Medicum in Bydgoszcz, Poland

10:45-11:00 Dr Adrian Augustyniak

Flow cytometry in testing bacterial physiology after exposure to nanomaterials (oral presentation)

adrian.augustyniak@usz.edu.pl

Adrian Augustyniak^{1, 2, 3*}, Kamila Dubrowska², Joanna Jabłońska², Natalia Gurgacz², Krzysztof Cendrowski⁴, Beata Tokarz-Deptuła¹, Rafał Rakoczy²

1. University of Szczecin, Institute of Biology, Szczecin, Poland; 2. West Pomeranian University of Technology in Szczecin, Faculty of Chemical Technology and Engineering, Department of Chemical and Process Engineering, Szczecin, Poland; 3. Technische Universität Berlin, Chair of Building

Materials and Construction Chemistry, Berlin, Germany; 4. West Pomeranian University of Technology in Szczecin, Faculty of Civil and Environmental Engineering, Department of General Civil Engineering, Szczecin, Poland;

11:00-11:20 Dr. Axel Schulz

Flow and mass cytometry - tools for deciphering the immune system in all its complexity (Lecture)

axel.schulz@drfz.de

Axel Ronald Schulz¹, Addi J. Romero-Olmedo², Lisa-Marie Diekmann¹, Svenja Hochstätter³, Dennis Das Gupta², Heike Hirseland¹, Andreas Kaufmann⁴, Jens Dorna⁴, Daniel Staudenraus², Bärbel Camara², Carina Münch³, Véronique Hefter³, Siddhesh Sapre³, Stefan Bauer⁴, Christian Keller³, Michael Lohoff² and Henrik E. Meil

1. German Rheumatism Research Center, Berlin, Germany; 2. Institute of Medical Microbiology and Hospital Hygiene, Philipps-University Marburg, Marburg, Germany; 3. Institute of Virology, Philipps-University, Marburg, Germany; 4. Institute for Immunology, Philipps-University Marburg, Marburg, Germany

POSTERS

Dr Dorota Kostrzewa-Nowak

The use of phosflow cytometry assay to assess the impact of physical effort on T cells' activation

dorota.kostrzewa.nowak@pum.edu.pl

Dorota Kostrzewa-Nowak¹, Robert Nowak^{2,3}

1. Department of Clinical and Molecular Biochemistry, Pomeranian Medical University in Szczecin, Poland; 2. Institute of Physical Culture Sciences, University of Szczecin, Poland; 3. Department of Pathology, Pomeranian Medical University in Szczecin, Poland

Dawid Stępnik

Autofluorescence extraction as a powerful tool for adequate gating and pure sorting of rat neural system isolates

d.stepnik@nencki.edu.pl

Corresponding author e-mail:

k.piwocka@nencki.edu.pl

Dawid Stępnik¹, Milena Wiech¹, Jakub Janiec¹, Marta Małuszek¹, Marta Brewinska-Olchowik², Beata Kucharz³, Grzegorz Skarżyński³, Malgorzata Zawadzka³, Katarzyna Piwocka^{1*}

1. Laboratory of Cytometry, Nencki Institute of Experimental Biology, Polish Academy of Science, Warsaw, Poland; 2. Cytex Biosciences, Amsterdam, The Netherlands; 3. Laboratory of Neuromuscular Plasticity, Nencki Institute of Experimental Biology, Polish Academy of Science, Warsaw, Poland

Dr Monika Joanna Kniotek

Studies on the immunomodulatory effects of bacteriophages on functions of immune cells – a preliminary report

mkniotek@wp.pl

Hubert Kasprzak¹, Monika Kniotek^{3*}, Andrzej Górski^{1,2}, Ryszard Międzybrodzki^{1,2,3}

1. Bacteriophage Laboratory, Department of Phage Therapy, Hirsfeld Institute of Immunology and Experimental Therapy PAS, Wrocław, Poland; 2. Phage Therapy Unit, Medical Center, Hirsfeld Institute of Immunology and Experimental Therapy PAS, Wrocław, Poland; 3. Department of Clinical Immunology, Medical University of Warsaw, Poland

II. NEW DEVELOPMENTS IN FLOW CYTOMETRY FOR CLINICAL DIAGNOSTIC

Thursday, 14 SEPT 2023

11:35-13:05

Hall 114

Prof. dr hab. Piotr Trzonkowski

Dr hab. prof. UJ Jarosław Baran

11:35 – 11:55 Prof. dr hab. Piotr Trzonkowski

The phenotype of T regulatory cells as a predictor of the efficacy of Treg therapy

pitor.trzonkowski@gumed.edu.pl

PolTREG SA, Medical University of Gdansk, Poland

11:55 – 12:15 Dr hab. prof. UJ Jarosław Baran

Flow cytometry of extracellular vesicles – a new diagnostic tool?

jarek.baran@uj.edu.pl

Department of Clinical Immunology, Jagiellonian University Medical College, Cracow, Poland

12:15 – 12:30 Dr Izabela Siemińska

Myeloid-derived suppressor cells as a potential biomarker in cancer treatment and monitoring

izabela.sieminska@urk.edu.pl

1Department of Clinical Immunology, Jagiellonian University Medical College

2Institute of Veterinary Sciences, University Center of Veterinary Medicine JU-AU, University of Agriculture in Kraków

12:30-12:45 Dr Maciej Zieliński

Utilization of HLA multimer assays in viral diagnostics

mzielinski@gumed.edu.pl

Maciej Zieliński, Piotr Trzonkowski

Department of Medical Immunology, Medical University of Gdańsk

12:45-13:05 Discussion

III. BIOCHEMISTRY OF MICROORGANISMS

Friday, 15 SEPT 2023

9:50-11:20

Main Auditorium

Prof. dr hab. Grzegorz Węgrzyn

Dr hab. Tomasz Jagielski

9:50-10:20 Dr. hab. Tomasz Jagielski

Developing an animal infection model for pathogenic algae of the Prototheca genus (Lecture)

t.jagielski@uw.edu.pl

Tomasz Jagielski¹, Angelika Proskurnicka¹, Mateusz Iskra¹, Agnieszka Kwiatek²

1. Department of Medical Microbiology, Institute of Microbiology, Faculty of Biology, University of Warsaw, Warsaw, Poland; 2. Department of Molecular Virology, Institute of Microbiology, Faculty of Biology, University of Warsaw, Warsaw, Poland

10:20-10:45 Prof. dr hab. Zbigniew Józef Arent

Transcriptional profile of Leptospira interrogans serovar hardjo using a sheep as host-adaptation model

zbigniew.arent@urk.edu.pl

Zbigniew J. Arent^{1,2}, Klaudia Dubniewicz², Laura Pardyak¹, Igor Jasielczuk¹, Tomasz Szmatoła¹, Artur Gurgul¹

1. Center of Experimental and Innovative Medicine, University of Agriculture in Krakow, Poland; 2. University Centre of Veterinary Medicine, University of Agriculture in Krakow, Poland

10:45-11:10 Dr Marek Bartoszewicz

The phenylbutyrate affects the proliferation and expression of selected enterotoxin genes in food-derived strains of Bacillus cereus sensu lato

mbartos@uwb.edu.pl

Marek Bartoszewicz, Urszula Czyżewska

Department of Microbiology and Biotechnology, Faculty of Biology, University of Bialystok, Poland

11:10-11:20 Discussion and summary

POSTERS

Kavya Kondaka

Yeast DNA topoisomerase II targeting: the search for an antifungal compound with a novel mechanism of action

s191495@student.pg.edu.pl

Kamila Rząd, Kavya Kondaka, Weronika Jaroszevska, Ewa Paluszkiewicz, Katarzyna Kozłowska-Tylingo, Iwona Gabriel

Department of Pharmaceutical Technology and Biochemistry, Faculty of Chemistry and BioTechMed Center, Gdańsk University of Technology, 11/12 Narutowicza Str. , 80-233 Gdańsk, Poland

Aleksandra Kuplińska

Candida albicans O-acetyl-L-homoserine sulfhydrylase (Met15) characterisation with the use of a novel RP-HPLC-MS method

aleksandra.kuplinska@pg.edu.pl

Aleksandra Kuplińska¹, Joanna Stefaniak², Kamila Rząd¹, Iwona Gabriel¹, Katarzyna Kozłowska-Tylingo¹, Sławomir Milewski¹

1. Department of Pharmaceutical Technology and Biochemistry; 2. Department of Organic Chemistry; Faculty of Chemistry and BioTechMed Center, Gdańsk University of Technology, 11/12 Narutowicza Str. , 80-233 Gdańsk, Poland

Marta Gliźniewicz

Phage-antibiotic synergy (PAS) in Staphylococcus aureus/ Candida albicans dual-species community

marta.glizniewicz@pum.edu.pl

Marta Gliźniewicz¹, Barbara Dołęgowska¹, Patrycja Olszewska¹, Dominika Miłek¹, Artur Czajkowski¹, Bartłomiej Grygorcewicz¹

Department of Laboratory Medicine; Chair of Microbiology, Immunology and Laboratory Medicine; Pomeranian Medical University in Szczecin; Powstańców Wielkopolskich 72; 70-111 Szczecin, Poland

Dr Urszula Czyżewska

Can lipid profile be an indicator of increased polyene tolerance in Malassezia pachydermatis strains?

urszula.czyzewska@uwb.edu.pl

Urszula Czyżewska¹, Sandra Chmielewska², Marek Bartoszewicz¹, Maria Kendziorek³, Adam Tylicki¹

1. Department of Microbiology and Biotechnology, Faculty of Biology, University of Białystok, Poland; 2. Doctoral School of Exact and Natural Sciences, University of Białystok, Poland; 3. Laboratory of Cell Signaling and Metabolic Disorders, Nencki Institute of Experimental Biology, Polish Academy of Sciences, Warsaw, Poland

Sandra Chmielewska

Changes in the lipid profile of Candida albicans during the acquisition of polyene tolerance

s.chmielewska@uwb.edu.pl

Sandra Chmielewska ¹, Urszula Czyżewska ², Aneta M. Dobosz ³, Adam Tylicki ²

1. Doctoral School of Exact and Natural Sciences, University of Białystok, Poland; 2. Department of Microbiology and Biotechnology, Faculty of Biology, University of Białystok, Poland; 3. Laboratory of Cell Signaling and Metabolic Disorders, Nencki Institute of Experimental Biology, Polish Academy of Sciences, Warsaw, Poland

Dr Laura Pardyak

Different fates of pathogenic Leptospira serovar Hardjo species within in vivo and in vitro model

laura.pardyak@urk.edu.pl

Laura Pardyak¹, Klaudia Dubniewicz², Ewa Ocoń¹, Izabela Siemińska², Agnieszka Pietsch-Fulbiszewska², Urszula Bracha¹, Zbigniew J. Arent^{1, 2}

1. Center of Experimental and Innovative Medicine, University of Agriculture in Krakow, Poland; 2. University Centre of Veterinary Medicine, University of Agriculture in Krakow, Poland

Anna Kowalczyk

Bacterial microbiota of chromium-contaminated water biocenosis – resistance, biodiversity, biofilm and siderophore production

kowalczyk.kowalczyk@uj.edu.pl

Anna Kowalczyk¹, Joanna Augustynowicz², Patrycja Fidelus², Dariusz Latowski¹

1. Jagiellonian University in Kraków, Faculty of Biochemistry, Biophysics and Biotechnology, Department of Plant Physiology and Biochemistry, ul. Gronostajowa 7, 30-387 Kraków, Poland; 2. Department of Botany, Physiology and Plant Protection, Faculty of Biotechnology and Horticulture, University of Agriculture in Krakow, al. Mickiewicza 21, 31-120 Kraków, Poland.

Prof. dr hab. Tadeusz Kaczorowski

New insights into diversity, adaptation strategies and bioprospecting of microbes living in Arctic deep-sea hydrothermal vent systems

tadeusz.kaczorowski@ug.edu.pl

Anna-Karina Kaczorowska¹, Ida H. Steen^{2,3}, Runar Stokke^{2,3}, Wojciech Rypniewski⁴, Łukasz Dziewit⁵, Olesia Werbowy⁶, Daria Biernacka¹, Sebastian Dorawa⁶, Wojciech Rusinek⁶, Tadeusz Kaczorowski⁶

1. Collection of Plasmids and Microorganisms, University of Gdansk, Poland; 2. Department of Biological Sciences, University of Bergen, Norway; 3. K.G. Jebsen Centre for Deep Sea Research, University of Bergen, Norway; 4. Institute of Bioorganic Chemistry of the Polish Academy of Sciences; 5. Department of Environmental Microbiology and Biotechnology, University of Warsaw; 6. Laboratory of Extremophiles Biology, University of Gdansk, Poland

Sebastian Dorawa

Characterization of LysTt72, a lytic endopeptidase from the extremophilic Thermus thermophilus MAT72 phage vB_Tt72

sebastian.dorawa@ug.edu.pl

Sebastian Dorawa¹, Agnieszka Godlewska¹, Magdalena Płotka¹, Anna-Karina Kaczorowska², Tadeusz Kaczorowski¹

1. Laboratory of Extremophiles Biology, Department of Microbiology, University of Gdansk, Wita Stwosza 59, 80-308 Gdansk, Poland; 2. Collection of Plasmids and Microorganisms, University of Gdansk, Gdansk, Wita Stwosza 59, 80-308 Gdansk, Poland

IV. METABOLISM AND OMICS

Thursday, 14 SEPT 2023

9:50-11:20

Main Auditorium

Prof. dr hab. Mariusz Ratajczak

Prof. dr hab. Magdalena Kucia

9:50-10:25 Prof. dr hab. Magdalena Kucia

An evidence that SARS-Cov-2/COVID-19 spike protein (SP) damages hematopoietic stem/progenitor cells in the mechanism of pyroptosis in Nlrp3 inflammasome-dependent manner

magdalena.kucia@wum.edu.pl

Department of Regenerative Medicine Center for Preclinical Research (CePT) of the Medical University of Warsaw

10:25-11:00 Dr Małgorzata Czystowska-Kuźmicz

Role of extracellular vesicles in cellular crosstalk in cancer and inflammatory conditions

mzczystowska@wum.edu.pl

Department of Biochemistry, Medical University of Warsaw, Poland

11:00-11:20 Joanna Zimniak

Tools for real-time metabolism analysis in live cells and for exploring heterogeneity of samples with single cell transcriptome resolution

jzimniak@perlan.com.pl

Altium International Sp. z o.o. Warszawa, Poland

POSTER

Mariusz Radkiewicz

LC-MS/MS profiling of Lactococcus and Leuconostoc excretome: vitamins B, short-chain fatty acids and lactic acid in culture media

mar.radkiewicz@gmail.com

Mariusz Radkiewicz¹, Emilia Samborowska¹, Magdalena Kowalczyk², Julia Kopczyńska², Olha Kostiuchenko²

1. Mass Spectrometry Laboratory, Institute of Biochemistry and Biophysics Polish Academy of Science, Warsaw, Poland; 2. Laboratory of Lactic Acid Bacteria Biotechnology, Institute of Biochemistry and Biophysics Polish Academy of Science, Warsaw, Poland

V. MOLECULAR AND CELLULAR BIOENERGETICS

Thursday, 14 SEPT 2023

9:50-11:20

Hall 116

Prof. dr hab. Adam Szewczyk

Prof. dr hab. Wiesława Jarmuszkiewicz

9:50 - 10:10 Dr Małgorzata Heidorn-Czarna

Protein homeostasis and functioning of mitochondria under optimal and stress conditions in plants: the relevance of mitochondrial proteases

malgorzata.czarna@uwr.edu.pl

Małgorzata Heidorn-Czarna¹, Hanna Jańska¹

Department of Molecular Cell Biology, Faculty of Biotechnology University of Wrocław, Wrocław

10:10 – 10:30 Dr Bogusz Kulawiak

Potassium ions traffic in mitochondria

b.kulawiak@nencki.edu.pl

Bogusz Kulawiak¹, Shur Galecka¹, Piotr Bednarczyk², Monika Żochowska¹, Antoni Wrzosek¹, Adam Szewczyk¹

Nencki Institute of Experimental Biology, Polish Academy of Sciences, Warsaw

10:30 - 10:40 Dr Beata Siemiątkowska

Stress adaptation in mitochondria affected by plastic particles

b.siemiatkowska@nencki.edu.pl

Siemiątkowska Beata, Malińska Dominika, Piecyk Karolina, Szczepanowska Joanna

Nencki Institute of Experimental Biology of the Polish Academy of Sciences, Poland

10:40 – 10:50 Dr Barbara Małgorzata Kalenik

Characterization of the mitochondrial large-conductance calcium-activated potassium channels in rodent cardiomyocytes

b.kalenik@nencki.edu.pl

Barbara Kalenik¹, Joanna Jasińska¹, Antoni Wrzosek¹, Bogusz Kulawiak¹, Piotr Bednarczyk², Adam Szewczyk¹

¹Laboratory of Intracellular Ion Channels, Nencki Institute of Experimental Biology PAS, 02-093 Warsaw

²Department of Physics and Biophysics, Institute of Biology, Warsaw University of Life Sciences - SGGW, 02-776 Warsaw

10:50 – 11:00 Mgr Krzysztof Wójcicki

The statins atorvastatin and simvastatin induce adaptations of aerobic metabolism in astrocyte cells

krzysztof.wojcicki@amu.edu.pl

Krzysztof Wójcicki¹, Adrianna Budzinska¹, Grzegorz Figura¹, Lukasz Galganski¹, Wiesława Jarmuszkiewicz¹

¹Laboratory of Mitochondrial Biochemistry, Department of Bioenergetics, Adam Mickiewicz University, Poznan, Poland

11:00-11:10 mgr Katarzyna Lorencik

On the function and mechanism of alternative complex III replacing cytochrome bc in bacterial respiratory chain

katarzyna.lorencik@doctoral.uj.edu.pl

Katarzyna Lorencik, Robert Ekiert, Rafał Pietras, Marcin Sarewicz, Artur Osyczka

Department of Molecular Biophysics, Faculty of Biochemistry, Biophysics and Biotechnology, Jagiellonian University, Krakow, Poland

11:10 – 11:20 mgr Martyna Baranek-Grabińska

The role of human VDAC paralogs under oxidative stress induced by the absence of superoxide dismutases

martyna.baranek-grabinska@amu.edu.pl

Martyna Baranek-Grabińska¹, Andonis Karachitos¹, Wojciech Grabiński¹, Tomasz Skrzypczak²,
Hanna Kmita¹

¹Department of Bioenergetics, Institute of Molecular Biology and Biotechnology, Faculty of Biology,
Adam Mickiewicz University in Poznań, Poland²Department of Molecular and Cellular Biology,
Institute of Molecular Biology and Biotechnology, Faculty of Biology, Adam Mickiewicz University
in Poznań, Poland

POSTERS

Dr Lucyna Elżbieta Widacha

*Impact of endurance training on the branched-chain amino acids concentrations in the striated
muscles of rats*

lucyna.walkowicz@uj.edu.pl

Lucyna Widacha¹, Kamil Kus², Stefan Chłopicki^{2,3}, Jerzy A. Zoladz¹, Joanna Majerczak¹

¹ Chair of Exercise Physiology and Muscle Bioenergetics, Faculty of Health Sciences, Jagiellonian
University Medical College

² Jagiellonian Centre for Experimental Therapeutics (JCET), Jagiellonian University

³ Chair of Pharmacology, Faculty of Medicine, Jagiellonian University Medical College

Dr Antoni Wrzosek

Mitochondrial BKCa channels in senescent vascular smooth muscle cells

A.Wrzosek@nencki.edu.pl

Antoni Wrzosek¹, Barbara Kalenik¹, Agata Głuchowska², Bogusz Kulawiak¹, Piotr Bednarczyk³,
Grażyna Mosieniak², Adam Szewczyk¹

¹Laboratory of Intracellular Ion Channels, Nencki Institute of Experimental Biology PAS, 02-093
Warsaw

²Laboratory of Molecular Bases of Aging, Nencki Institute of Experimental Biology PAS, 02-093
Warsaw

³Department of Physics and Biophysics, Institute of Biology, Warsaw University of Life Sciences -
SGGW, 02-776 Warsaw

Mgr Jakub Pagacz

ROS generation patterns within bc1 network of heme cofactors

j.pagacz@gmail.com

Jakub Pagacz¹, Arkadiusz Borek^{1,2}, Artur Osyczka¹

1Department of Molecular Biophysics, Jagiellonian University, Krakow, Poland; 2Department of Plant Biotechnology, Jagiellonian University, Krakow, Poland

Dr Monika Żochowska

Loss of BKCa channel leads to change of mitochondrial redox homeostasis in glioma cells

m.zochowska@nencki.edu.pl

Monika Żochowska 1, Andrzej Galuba 1, Piotr Bednarczyk 2, David A.Stroud 3,4,5, Adam Szewczyk 1, Bogusz Kulawiak 1

1 Laboratory of Intracellular Ion Channels, Nencki Institute of Experimental Biology, Polish Academy of Sciences, Warsaw, Poland; 2 Department of Physics and Biophysics, Institute of Biology, Warsaw University of Life Sciences—SGGW, Warsaw, Poland; 3 Department of Biochemistry and Pharmacology, Bio21 Molecular Science and Biotechnology Institute, University of Melbourne, Parkville, Victoria, Australia; 4 Murdoch Children’s Research Institute, Royal Children's Hospital, Melbourne, Victoria, Australia; 5 Victorian Clinical Genetics Services, Murdoch Children’s Research Institute, Melbourne, Victoria, Australia

Mgr Wojciech Grabiński

Pathophysiological effects of the main protease (Mpro) of SARS-CoV-2 on mitochondria

wojgra@amu.edu.pl

Wojciech Grabiński, Karolina Funtowicz, Andonis Karachitos

Department of Bioenergetics, Institute of Molecular Biology and Biotechnology, Faculty of Biology, Adam Mickiewicz University in Poznań, Poland

Dr hab., prof. UR Marek Szklarczyk

RNA-seq reveals massive down-regulation of genes in cytoplasmic male-sterile beet plants

marek.szklarczyk@urk.edu.pl

Wojciech Wesołowski¹, Beata Domnicz¹, Marek Szklarczyk¹

¹Department of Plant Biology and Biotechnology, University of Agriculture in Krakow, Poland

VI. RNA STRUCTURE, FUNCTION AND REGULATION

Thursday, 14 SEPT 2023

11:35-13:05

Hall 116

Prof. dr hab. Andrzej Dziembowski

11:35 – 11:50 Dr hab. Barbara Uszczynska-Ratajczak

Catch me if you can: identification of long noncoding RNAs in vertebrate genomes

barbara.uszczynska@gmail.com

Barbara Uszczynska-Ratajczak^{1,2}, Monika Kwiatkowska¹, Daniel Kuznicki¹, Tugce Kocamanoglu¹, Silvia Carbonell-Sala², Rory Johnson³, Roderic Guigo²

1. Institute of Bioorganic Chemistry, Polish Academy of Sciences, Poznan, Poland

2. Centre for Genomic Regulation, Barcelona, Spain

3. University College Dublin, Ireland

11:50 – 12:05 Dr hab., prof. ICHB PAN Zbigniew Warkocki

The role of 3' end dynamics in LINE-1 retrotransposon biology

zwarkoc@gmail.com

Damian Janecki¹, Raneet Sen¹, Natalia Szóstak², Martyna Kordyś¹, Arkadiusz Kajdasz¹, Kinga Plawgo¹, Anna Philips², Zbigniew Warkocki¹

Institute of Bioorganic Chemistry, Polish Academy of Sciences, Poznan; 1 - Department of RNA Metabolism; 2- Laboratory of Bioinformatics

12:05 – 12:20 Dr Daria Sobańska

The functional interplay of conserved RNA-binding proteins for silencing a master regulator

dsobanska@ibch.poznan.pl

Daria Sobańska¹, Alicja A. Komur¹, Agnieszka Chabowska-Kita¹, Julita Gumna¹, Pooja Kumari², Katarzyna Pachulska-Wieczorek¹, Rafal Ciosk^{1, 2}

1 Institute of Bioorganic Chemistry, Polish Academy of Sciences, Poznan, Poland;

2 University of Oslo, Oslo, Norway

12:20 - 12:35 Prof. dr hab. Andrzej Dziembowski

Complex metabolic pathways of mRNA therapeutics in vivo

andrzej.dziembowski.ibb@gmail.com

Paweł S Krawczyk¹, Olga Gewartowska^{1,*}, Michał Mazur^{1,*}, Wiktoria Orzeł^{1,2}, Sebastian Jeleń^{1,2}, Bartosz Tarkowski¹, Aleksandra Brouze^{1,2}, Katarzyna Matylla-Kulińska^{1,2}, Wiktor Antczak^{1,2}, Paweł Turowski³, Agnieszka Tudek⁵, Tomasz Śpiewła⁴, Monika Kusio-Kobiąka¹, Aleksandra Wesołowska⁶, Dominika Nowis⁷, Jakub Gołąb⁸, Joanna Kowalska⁴, Jacek Jemielity⁹, Andrzej Dziembowski^{1,2,#}, and Seweryn Mroczek^{2,1,#}

1 International Institute of Molecular and Cell Biology, 4 Ks. Trojdena, 02-106 Warsaw, Poland.

2 Faculty of Biology, University of Warsaw, 5a Pawinskiego, 02-106, Warsaw, Poland

3 ExploRNA Therapeutics, 101 Żwirki i Wigury, 02-089, Warsaw, Poland

4 Faculty of Physics, University of Warsaw, Pasteura 5, 02-093, Warsaw, Poland

5 Institute of Biochemistry and Biophysics, 5A Pawińskiego, 02-106 Warsaw, Poland

6 Department of Medical Biology, Medical University of Warsaw, Litewska 14/16, 00-575, Warsaw, Poland

7 Laboratory of Experimental Medicine, Medical University of Warsaw, 5 Nielubowicza, 02-097, Warsaw, Poland

8 Department of Immunology, Medical University of Warsaw, 5 Nielubowicza, 02-097, Warsaw, Poland

9 Centre of New Technologies, University of Warsaw, Banacha 2c, 02-097, Warsaw, Poland

12:35 – 12:50 Dr hab. Małgorzata Adamczyk

Development of a quantitative analysis of tRNA modifications by nanopore RNA sequencing

malgorzata_adamczyk@pw.edu.pl

Paula Martin-Arroyo¹, Katarzyna Piętka¹, Natalia Stróżyńska¹, Grażyna Leszczyńska², Robert Nowak³, Małgorzata Adamczyk¹

¹ Warsaw University of Technology, Faculty of Chemistry, Laboratory of Systems and Synthetic Biology, Warsaw, Poland

² Lodz University of Technology, Faculty of Chemistry, Institute of Organic Chemistry, Lodz, Poland

³ Warsaw University of Technology, Faculty of Electronics and Information Technology, The Institute of Computer Science Warsaw, Poland

12:50 – 13:05 sponsored lecture

POSTERS

Mgr Kinga Ciechanowska

New insights into the helicase domain of human Dicer and its biochemical properties: ATPase and RNA rearrangement activities

akurzyns@man.poznan.pl

Kinga Ciechanowska 1, Agnieszka Szczepanska 1, Kamil Szpotkowski 1, Klaudia Wójcik 1, Anna Urbanowicz 2 and Anna Kurzynska-Kokorniak 1*

1 Department of Ribonucleoprotein Biochemistry, Institute of Bioorganic Chemistry Polish Academy of Sciences, 61-704 Poznan, Poland;

2 Laboratory of Protein Engineering, Institute of Bioorganic Chemistry Polish Academy of Sciences, 61-704 Poznan, Poland

Mgr Robert Pasięka

Elucidating the functions of U7 snRNA-dependent lincRNAs in human cells.

robpas@amu.edu.pl

Robert Pasięka, Patrycja Plewka, Kishor Gawade, Katarzyna Dorota Raczyńska

1Laboratory of RNA Processing, Department of Gene Expression, Institute of Molecular Biology and Biotechnology, Faculty of Biology, Adam Mickiewicz University in Poznan, Poland; 2Wielkopolska Center for Advanced Technologies in Poznan, Poland;

Mgr inż. Agnieszka Szczepańska

Impact of RNA and DNA G-quadruplexes on human Dicer activity.

akurzyns@man.poznan.pl

Agnieszka Szczepańska1#, Natalia Koralewska2#, Kinga Ciechanowska1, Marta Wojnicka1, Maria Pokornowska1, Marek C. Milewski2, Dorota Gudanis3, Daniel Baranowski3, Chandran Nithin4, Janusz M. Bujnicki4,5, Zofia Gdaniec3, Marek Figlerowicz1,6 and Anna Kurzyńska-Kokorniak1*

1 Department of Ribonucleoprotein Biochemistry, Institute of Bioorganic Chemistry Polish Academy of Sciences in Poznań

2Department of Molecular and Systems Biology, Institute of Bioorganic Chemistry Polish Academy of Sciences, Poznan, 61-704 Poznan, Poland

3Department of Biomolecular NMR, Institute of Bioorganic Chemistry Polish Academy of Sciences, Poznan, 61-704 Poznan, Poland

4Laboratory of Bioinformatics and Protein Engineering, International Institute of Molecular and Cell Biology, 02-109 Warsaw, Poland

5Institute of Molecular Biology and Biotechnology, Faculty of Biology, Adam Mickiewicz University, 61-614 Poznan, Poland

6Institute of Computing Science, Poznan University of Technology, 60-965 Poznan, Poland

Contributed equally

Mgr Weronika Szukała

MCPIP1 controls transcripts coding for important regulators of embryogenesis.

weronika.szukala@doctoral.uj.edu.pl

Agata Lichawska-Cieślak¹, Weronika Szukała^{1,2}, Tomasz K. Prajsnar³, Niedharsan Pooranachandran³, Maria Kulecka^{4,5}, Michalina Dąbrowska⁵, Michał Mikula⁵, Krzysztof Rakus³, Magdalena Chadzińska³, Jolanta Jura¹

¹Department of General Biochemistry, Faculty of Biochemistry, Biophysics and Biotechnology, Jagiellonian University, Krakow, Poland; ²Doctoral School of Exact and Natural Sciences, Jagiellonian University, Krakow, Poland; ³Department of Evolutionary Immunology, Institute of Zoology and Biomedical Research, Faculty of Biology, Jagiellonian University, Krakow, Poland; ⁴Department of Gastroenterology, Hepatology and Clinical Oncology, Medical Center for Postgraduate Education, Warsaw, Poland; ⁵Maria Skłodowska-Curie National Research Institute of Oncology, Warsaw, Poland;

Mgr Paweł Piłat

N4BP1 is a novel ribonuclease found in P-bodies.

pawel.pilat@doctoral.uj.edu.pl

Paweł Piłat¹, Mateusz Wilamowski¹, Jolanta Jura¹

¹Department of General Biochemistry, Faculty of Biochemistry, Biophysics and Biotechnology, Jagiellonian University, Kraków

Mgr Błażej Przystajko

Identification of long non-coding RNAs (lncRNAs) and study of their biological significance in mitochondria of Arabidopsis thaliana.

blazejprzystajko@gmail.com

Błażej Przystajko¹, Małgorzata Kwaśniak-Owczarek¹, Shin-Ichi Arimura², Hanna Jańska¹

¹Faculty of Biotechnology, University of Wrocław, Poland; ²Graduate School of Agricultural and Life Sciences, The University of Tokyo

Fatma Nur Bal

Subcellular localization of ncRNAs in primary mouse astrocytes.

mpiwecka@ibch.poznan.pl

Fatma Nur Bal*¹, Monika Piwecka¹

¹. Department of Non-coding RNAs, Institute of Bioorganic Chemistry, Polish Academy of Sciences, Noskowskiego Street 12/14, 61-704 Poznań

Mgr inż. Julian Zacharajasz

The dynamics of miRNAs expression in the postnatal mouse pituitary gland and insights into cell-type specific miRNA regulation in pituitary cells

mpiwecka@ibch.poznan.pl

Julian Zacharajasz¹ *, Ewelina Kałużna¹, Marta Sztachera¹, Monika Piwecka¹

¹Department of Non-coding RNAs, Institute of Bioorganic Chemistry, Polish Academy of Sciences, Poznań, Poland

Dr Katarzyna Kulik

The importance of sulfur and selenium atoms in wobble uridines of bacterial tRNAs for reading NNA- and NNG-3'-ending codons; the thermodynamic stability of RNA duplexes with S2U and Se2U modifications

katarzyna.kulik@cbmm.lodz.pl

Katarzyna Kulik¹, Paulina Kuwerska², Karolina Podkoczyj², Agnieszka Dziergowska², Elzbieta Sochacka², Grazyna Leszczynska², Barbara Nawrot¹

¹Department of Bioorganic Chemistry, Centre of Molecular and Macromolecular Studies, Polish Academy of Sciences, Sienkiewicza 112, 90-363 Lodz, Poland; ²Institute of Organic Chemistry, Lodz University of Technology, Zeromskiego 116, 90-924 Lodz, Poland

Mgr Patrycja Szczupak

Studies on the affinity of the bacterial 2-selenouridine-tRNA synthase (SelU) enzyme for its prenyl pyrophosphate substrates.

patrycja.szczupak@cbmm.lodz.pl

Patrycja Szczupak, Ewa Radzikowska-Cieciura, Katarzyna Kulik, Rafał Madaj, Małgorzata Sierant, Agnieszka Krakowiak, Barbara Nawrot

Department of Bioorganic Chemistry, Centre of Molecular and Macromolecular Studies, Polish Academy of Sciences, Lodz 90-363, Sienkiewicza 112, Poland

VII. OXIDATIVE STRESS IN HEALTH AND DISEASE

Friday, 15 SEPT 2023

11:35-13:05

Main Auditorium

Prof. dr hab. Izabela Sadowska-Bartosz

Prof. dr hab. Grzegorz Bartosz

11:35-12:25 Prof. Helmut Sies

Redox Eustress: Homeostasis is Homeodynamics

sies@hhu.de

Institute for Biochemistry and Molecular Biology I, Heinrich-Heine-University Düsseldorf, Leibniz Research Institute for Environmental Medicine, Düsseldorf, Germany

12:25-12:45 Prof. dr hab. Jacek Witkowski

Aging and failing cellular proteodynamics: a lesson from centenarians

jawit@gumed.edu.pl

Department of Pathophysiology, Medical University of Gdańsk, Poland

12:45-13:05 Prof. dr hab. Jędrzej Antosiewicz

AKT and JNK kinases in iron-mediated oxidative stress

jant@gumed.edu.pl

Jędrzej Antosiewicz, Andżelika Borkowska, Małgorzata Halon-Golabek

Department of Bioenergetics and Physiology of Exercise, Medical University of Gdańsk, Poland

POSTERS

Szymon Rutecki

Oxidative stress contributes to carboplatin and paclitaxel-dependent premature senescence of normal peritoneal cells

srutecki@student.ump.edu.pl

Szymon Rutecki, Agnieszka Leśniewska-Bocianowska, Julia Matuszewska, Daniel Rychlewski, Aleksandra Leśniewska, Justyna Mikuła-Pietrasik, Krzysztof Książek

Department of Pathophysiology of Ageing and Civilization Diseases, Poznan University of Medical Sciences, Poznan, Poland

Dominika Drab

Reactive nitrogen species (RNS)-dependent formation of macrophage extracellular traps (METs) by bone marrow-derived macrophages (BMDMs)

dominika.drab@doctoral.uj.edu.pl

Dominika Drab^{1,2}, Michał Santocki¹, Elżbieta Kolaczowska¹

1. Laboratory of Experimental Hematology, Institute of Zoology and Biomedical Research, Jagiellonian University, Gronostajowa 9, 30-387 Krakow, Poland; 2. Doctoral School of Exact and Natural Sciences, Faculty of Biology, Jagiellonian University, S. Łojasiewicza 11, 30-348 Krakow, Poland

Aleksandra Polikowska

Assessment of lipid peroxidation products in schizophrenia patients

polikowska.aleksandra@gmail.com

Polikowska Aleksandra¹, Goszka Małgorzata¹, Stodolak Patrycja¹, Serwin Natalia¹, Anna Michałczyk², Jerzy Samochowiec², Barbara Dołęgowska¹, Cecerska-Heryć Elżbieta¹

1. Department of Laboratory Medicine, Pomeranian Medical University, Szczecin, Poland; 2. Clinic of Psychiatry, Pomeranian Medical University, Szczecin, Poland

Dr Paulina Strugała-Danak

Exploring the antioxidant potential of purple potato extract: A comprehensive study on lipid membrane protection, anti-radical and antidiabetic activity

paulina.strugala@upwr.edu.pl

Paulina Strugała-Danak, Aleksandra Włoch, Natalia Mrowińska, Hanna Pruchnik, Janina Gabrielska

Department of Physics and Biophysics, Wrocław University of Environmental and Life Sciences, C.K. Norwida 25, 50-375 Wrocław, Poland

Dr Anna Lichota

Assessment of oxidative potential of compounds in the development of gut microbiota dysbiosis

anna.lichota@umed.lodz.pl

Anna Lichota, Monika Sienkiewicz

Department of Pharmaceutical Microbiology and Microbiological Diagnostics, Medical University of Lodz, Lodz, Poland

Dr Karolina Niska

Polyphenol-rich composition AP119 shows antioxidant and anti-inflammatory properties in human Hek293 cells and PBMCs

karolina.niska@aronpharma.pl

Karolina Niska¹, Patrycja Bloch¹, Alina Mieczkowska¹, Nikola Sobczak¹, Krzysztof Lemke¹, Barbara Khaidakov¹

1. AronPharma Ltd., 3 Trzy Lipy Street, 80-172 Gdańsk, Poland; 2. Institute for Cardiovascular Prevention (IPEK), Ludwig-Maximilians-Universität München, Germany

Laura Banaszekiewicz

A Design of Experiments Strategy to select a unique composition of extracts rich in polyphenols

barbara.khaidakov@aronpharma.pl

Laura Banaszekiewicz¹, Julian Guzowski¹, Patrycja Bloch¹, Karolina Niska¹, Alina Mieczkowska¹, Michał Dobkowski¹, Krzysztof Lemke¹, Barbara Khaidakov¹

1. AronPharma Ltd., 3 Trzy Lipy Street, 80-172 Gdańsk, Poland

Prof. dr hab. Izabela Sadowska-Bartosz

Nitroxide-containing amphiphilic polymers mitigate oxidative stress in human neuroblastoma SH-SY5Y cells induced by overexpression of tau protein

isadowska@poczta.fm

Natalia Pieńkowska¹, Margaret Fahnestock², Crystal Mahadeo², Izabela Zaborniak³, Paweł Chmielarz³, Grzegorz Bartosz¹, Izabela Sadowska-Bartosz^{1*}

1. Laboratory of Analytical Biochemistry, Institute of Food Technology, College of Natural Sciences, University of Rzeszów, Rzeszów, Poland; 2. Department of Psychiatry and Behavioural Neurosciences, McMaster University, Hamilton, ON, Canada; 3. Department of Physical Chemistry, Faculty of Chemistry, Rzeszow University of Technology, Rzeszow, Poland

Prof. dr hab. Grzegorz Bartosz

Antioxidant properties and antiproliferative effects of various forms of garlic

grzegorz.bartosz@gmail.com, isadowska@poczta.fm

1,4Paulina Furdak, 1Natalia Pieńkowska, 2Ireneusz Kapusta, 3Grzegorz Bartosz and 1Izabela Sadowska-Bartosz

1. Laboratory of Analytical Biochemistry; 2. Department of Food Technology and Human Nutrition and 3. Department of Bioenergetics, Food Analysis and Microbiology, Institute of Food Technology and Nutrition, College of Natural Sciences, University of Rzeszów, Rzeszów, Poland; 4. Doctoral School of the University of Rzeszów, University of Rzeszów, Rzeszów, Poland

Kacper Kut

Formation of a purple product in the reaction of ABTS● with proteins

gbartosz@ur.edu.pl, isadowska@poczta.fm

1Kacper Kut, 2Grzegorz Bartosz, 3Ireneusz Stefaniuk, 1Izabela Sadowska-Bartosz

1. Laboratory of Analytical Biochemistry and 2. Department of Bioenergetics, Food Analysis and Microbiology, Institute of Food Technology and Nutrition, and 3. Institute of Materials Engineering, College of Natural Sciences, University of Rzeszów, Rzeszów, Poland

Paulina Furdak

Effect of 6-hydroxydopamine on the glutathione level in SH-SY5Y human neuroblastoma cells

grzegorz.bartosz@biol.uni.lodz.pl, paulinaf2@o2.pl

1Natalia Pieńkowska, 1Paulina Furdak, 2Grzegorz Bartosz and 1Izabela Sadowska-Bartosz

1. Laboratory of Analytical Biochemistry, and 2. Department of Bioenergetics, Food Analysis and Microbiology, Institute of Food Technology and Nutrition, College of Natural Sciences, University of Rzeszów, Rzeszów, Poland

Prof. dr hab. Tomasz Popławski

Elevated level of DNA damage and impaired DNA repair of oxidative DNA lesions in patients with multiple sclerosis

tomasz.poplawski@umed.lodz.pl

Beata Filipek, Tomasz Popławski

Department of Pharmaceutical Microbiology and Biochemistry, Medical University of Lodz

Sylwia Ziółkowska

The association of base-excision repair genes expression and the occurrence of non-alcoholic fatty liver disease

sylwia.ziolkowska@umed.lodz.pl

Sylwia Ziółkowska 1, Piotr Czarny 1, Magdalena Ejsmont 1, Kinga Jarmusz 1, Maciej Kosmalski 2, Tadeusz Pietras 2, Maciej Jabłkowski 3, Janusz Szemraj 1

1. Department of Medical Biochemistry, Medical University of Lodz, 92-215 Lodz, Poland; 2. Department of Clinical Pharmacology, Medical University of Lodz, 90-153 Lodz, Poland; 3. Department of Infectious and Liver Diseases, Medical University of Lodz, 91-347 Lodz, Poland

VIII. SIGNALING PATHWAYS AND CELLULAR REGULATION

Friday, 15 SEPT 2023

11:35-13:05

Hall 116

Dr hab. prof. UML Tomasz Boczek

11:35-11:50 Dr hab. prof. UML Agata Sakowicz

The nuclear factor kappa B (NFκB) signaling pathways in preeclamptic placental cell (Lecture)

agata.sakowicz@gmail.com

Department of Medical Biotechnology, Medical University of Lodz, Poland

11:50-12:05 Dr Michalina Węzyk

Synaptic deficiency in the iPSC model of Alzheimer's disease (Lecture)

mwezyk@imdik.pan.pl

Department of Neurogenetics and Functional Genetics Mossakowski Medical Research Institute Polish Academy of Sciences, 5 Pawinskiego Street, 02-106 Warsaw, Poland

12:05-12:20 Prof. Nina Vardjan

Dysregulation of adrenergic excitability in astrocytes in neurodegeneration (Lecture)

nina.vardjan@mf.uni-lj.si

Anemari Horvat^{1,2}, Robert Zorec^{1,2}, Nina Vardjan^{1,2}

1. Institute of Pathophysiology, Faculty of Medicine, University of Ljubljana, Slovenia; 2. Celica Biomedical, Ljubljana, Slovenia

12:20-12:35 Dr Antoni Kowalski

Alpha-synuclein: a surprising activator of Ca²⁺-transporting ATPases (Lecture)

antoni.kowalski@mbg.au.dk

Antoni Kowalski^{1,3,4}, Cristine Betzer^{2,3}, Sigrid Thirup Larsen^{1,3}, Emil Gregersen^{2,3}, Estella A. Newcombe⁴, Montaña Caballero Bermejo^{1,3,5}, Victor Bendtsen^{1,3}, Jorin Diemer⁶, Christina V. Ernstsens⁷, Shweta Jain⁸, Alicia Espiña Bou^{1,3}, Annette Eva Langkilde⁹, Lene N. Nejsum⁶, Edda Klipp⁷, Robert Edwards⁸, Birthe B. Kragelund⁴, Poul Henning Jensen^{2,3}, Poul Nissen^{1,3}

1. Department of Molecular Biology and Genetics, Aarhus University, Aarhus, Denmark; 2. Department of Biomedicine, Aarhus University, Aarhus, Denmark; 3. Danish Research Institute of Translational Neuroscience – DANDRITE, Aarhus University, Aarhus, Denmark; 4. REPIN and Structural Biology and NMR Laboratory, Department of Biology, University of Copenhagen, Denmark; 5. Department Biochemistry and Molecular Biology and Genetics, IBMP, University of Extremadura, Badajoz, Spain; 6. Theoretical Biophysics, Humboldt-Universität zu Berlin, Berlin, Germany; 7. Department of Clinical Medicine, Aarhus University, Aarhus N, Denmark; 8. Departments of Neurology and Physiology, University of California San Francisco, San Francisco, CA; 9. Department of Drug Design and Pharmacology, University of Copenhagen, Denmark

12:35-12:45 Dr Jerzy Kotlinowski

MCPIP1 inhibits hepatic stellate cell activation in autocrine and paracrine manner (Oral presentation)

j.kotlinowski@uj.edu.pl

Natalia Pydyn¹, Anna Ferenc¹, Katarzyna Trzos¹, Piotr Major², Mateusz Wilamowski¹, Tomasz Hutsch³, Andrzej Budzynski², Jolanta Jura², Jerzy Kotlinowski¹

1. Jagiellonian University, Faculty of Biochemistry, Biophysics and Biotechnology, Department of General Biochemistry, Gronostajowa 7, 30-387 Krakow, Poland; 2. Jagiellonian University Medical College, 2nd Department of General Surgery, Jakubowskiego 2, 30-688 Krakow, Poland; 3. Department of Pathology and Veterinary Diagnostics, Institute of Veterinary Medicine, Warsaw University of Life Sciences, Warsaw, Poland.

12:45-12:55 Monika Maciejewska

Verification of the senescence algorithm in patients with lung cancer treated with chemotherapy (Oral presentation)

mmaciejewska1@wim.mil.pl

Monika Maciejewska¹, Weronika Andrzejczyk^{1,6}, Dagmara Kobza^{1,4}, Aleksandra Olszewska-Banach^{1,5}, Maciej Skrzyszewski^{1,2}, Agata Borkowska^{1,5}, Maciej Golan¹, Katarzyna Gajewska⁸, Urszula Brzósowska⁸, Szczepan Cierniak⁸, Tomasz Gil⁷, Claudine Kieda^{1,3}, Halina Waśl

1. Laboratory of Molecular Oncology and Innovative Therapies: Military Institute of Medicine - National Research Institute, Poland; 2. Doctoral School of Translational Medicine, Centre of Postgraduate Medical Education, Poland; 3. Centre for Molecular Biophysics, UPR CNRS 4301, Orléans, France; 4. School of Chemistry, University of Leeds, Leeds, UK; 5. Postgraduate School of Molecular Medicine, Medical University of Warsaw, Poland; 6. BioMedChem Doctoral School of the University of Lodz and Lodz Institutes of the Polish Academy of Sciences, Poland; 7. The John Paul II

Specialist Hospital in Cracow, Poland; 8. Department of Pathology, Military Institute of Medicine - National Research Institute, Poland;

12:55-13:05 Maciej Skrzyszewski

Role of cellular senescence and autophagy in colon cancer cell chemoresistance and stemness phenotype: role of hypoxia (Oral presentation)

mskrzyszewski@wim.mil.pl

Maciej Skrzyszewski^{1,2}, Monika Maciejewska¹, Dagmara Kobza^{1,3}, Cezary Szczylik^{4,5}, Claudine Kieda^{1,6}, Halina Waś¹

1. Laboratory of Molecular Oncology and Innovative Therapies: Military Institute of Medicine - National Research Institute, Poland; 2. Doctoral School of Translational Medicine, Centre of Postgraduate Medical Education, Poland; 3. School of Chemistry, University of Leeds, Leeds, UK; 4. Department of Oncology, European Health Center, Otwock, Poland; 5. Centre of Postgraduate Medical Education, Poland; 6. Centre for Molecular Biophysics, UPR CNRS 4301, Orléans, France

POSTERS

Dr Robert Kleszcz

Vismodegib and the Wnt canonical pathway inhibitor PRI-724 affect tongue squamous cell carcinoma CAL 27 cell line

kleszcz@ump.edu.pl

Robert Kleszcz¹, Mikołaj Frąckowiak¹, Dawid Dorna¹, Jarosław Paluszczak¹

1. Department of Pharmaceutical Biochemistry, Poznan University of Medical Sciences, Poznań, Poland

Michał Rakowski

The signaling role of ergothioneine

michal.rakowski@edu.uni.lodz.pl

Michał Rakowski^{1,2,*}, Szymon Lekki-Porębski^{1,2}, Agnieszka Grzelak¹

1. Department of Cancer Biology and Epigenetics, Faculty of Biology and Environmental Protection, University of Lodz, Poland; 2. The Bio-Med-Chem Doctoral School of the University of Lodz and Lodz Institutes of the Polish Academy of Sciences, University of Lodz, Poland

Dr Patrycja Rachubik

The Role of Axin1 in the Insulin-Dependent Regulation of Glucose Uptake in Cultured Rat Podocytes

prachubik@imdik.pan.pl

Patrycja Rachubik P1, Dorota Rogacka1,2, Irena Audzeyenka1,2, Agnieszka Piwkowska A1,2

1. Laboratory of Molecular and Cellular Nephrology, Mossakowski Medical Research Institute Polish Academy of Sciences, Poland; 2. Department of Molecular Biotechnology, Faculty of Chemistry, University of Gdansk

Klaudia Grochowalska

GPR81 Regulates Podocyte Lipid Accumulation in Hyperglycemia

kgrochowalska@imdik.pan.pl

Klaudia Grochowalska1, Irena Audzeyenka1,2, Agnieszka Piwkowska1,2

1. Laboratory of Molecular and Cellular Nephrology, Mossakowski Medical Research Institute, Poland; 2. Department of Molecular Biotechnology, Faculty of Chemistry, University of Gdańsk, Poland;

Aleksandra Gędej

Interaction of multivalent galectins with N-glycans attached to fibroblast growth factors fine-tuning their cellular signaling

aleksandra.matynia2@uwr.edu.pl

Aleksandra Gędej1, Dominika Żukowska1, Natalia Porębska1 and Łukasz Opaliński1

1. Faculty of Biotechnology, Department of Protein Engineering, University of Wrocław, Joliot-Curie 14a, 50-383 Wrocław, Poland

Dominika Żukowska

Receptor clustering mechanism is employed by galectins to control transduction of signals by FGFRs

dominika.zukowska@uwr.edu.pl

Dominika Żukowska1, Aleksandra Gędej1, Natalia Porębska1 and Łukasz Opaliński1

1. Faculty of Biotechnology, Department of Protein Engineering, University of Wrocław, Joliot-Curie 14a, 50-383 Wrocław, Poland

Dr Agnieszka Grzelak

Differences in response of 2D and 3D breast cancer cultures against modulation of estrogen-dependent signal pathways

agnieszka.grzelak@biol.uni.lodz.pl

Agnieszka Grzelak1, Szymon Lekki-Porębski1,2, Michał Rakowski1,2

1. Cytometry Laboratory - Department of Oncobiology and Epigenetics, University of Lodz, Lodz; 2. The Bio-Med-Chem Doctoral School of the University of Lodz and Lodz Institutes of the Polish Academy of Sciences, University of Lodz, Lodz;

Paulina Gregorczyk

The role of N-glycosylation in FGFR1 trafficking between the plasma membrane and the nuclear envelope

paulina.gregorczyk@uwr.edu.pl

Paulina Gregorczyk¹, Natalia Porębska¹, Dominika Żukowska¹, Aleksandra Chorążewska¹, Aleksandra Gędaj¹ and Łukasz Opaliński¹

1. Faculty of Biotechnology, Department of Protein Engineering, University of Wrocław, Joliot-Curie 14a, 50-383 Wrocław, Poland

Dr hab. Robert Nowak

Does physical effort cause changes in expression of selected chemokine and interleukin receptor genes in peripheral blood leukocytes?

robert.nowak@usz.edu.pl

Robert Nowak^{1,2}, Alicja Trzeciak-Ryczek^{3,4}, Andrzej Ciechanowicz⁵, Andrzej Brodkiewicz⁶, Elżbieta Urańska², Dorota Kostrzewa-Nowak⁵

1. Institute of Physical Culture Sciences, University of Szczecin, Poland; 2. Department of Pathology, Pomeranian Medical University in Szczecin, Poland; 3. Institute of Biology, University of Szczecin, Poland; 4. The Centre for Molecular Biology and Biotechnology, University of Szczecin, Poland; 5. Department of Clinical and Molecular Biochemistry, Pomeranian Medical University in Szczecin, Poland; 6. Department of Pediatrics, Child Nephrology, Dialysotherapy and Management of Acute Poisoning, Pomeranian Medical University, in Szczecin, Poland

Dr Sławomir Lasota

The role of EGFR redistribution in the electrotaxis of mouse 3T3 fibroblasts

slawomir.lasota@uj.edu.pl

Sławomir Lasota, Jagoda Pilipiuk, Sylwia Bobis-Wozowicz, Ivan Cherepashuk, Zbigniew Madeja
Department of Cell Biology, Faculty of Biochemistry, Biophysics and Biotechnology, Jagiellonian University, Kraków, Poland

Dr Anna Adamiok-Ostrowska

Ciliary gene TRIP11 suppresses adhesion and migration of renal cancer cells

anna.adamiok@cmkp.edu.pl

Anna Adamiok-Ostrowska¹, Agnieszka Piekiełko-Witkowska¹ and Joanna Bogusławska¹

1. Department of Biochemistry and Molecular Biology, Centre of Postgraduate Medical Education; Marymoncka 99/103, 01-813 Warsaw, Poland.

Justyna Śmiałek-Bartyzel

BacSp222 as the first proinflammatory bacteriocin recognized by TLR2/TLR6 heterodimer

justyna.smialek@doctoral.uj.edu.pl

Justyna Śmiałek-Bartyzel^{1,2}, Monika Bzowska³, Renata Mężyk-Kopec³, Marcin Kwissa⁴, Paweł Mak²

1. Doctoral School of Exact and Natural Sciences, Jagiellonian University, Poland; 2. Department of Analytical Biochemistry, Faculty of Biochemistry, Biophysics and Biotechnology, Jagiellonian University, Poland; 3. Department of Cell Biochemistry, Faculty of Biochemistry, Biophysics and Biotechnology, Jagiellonian University, Poland; 4. Pritzker School of Molecular Engineering, University of Chicago, USA;

Marta Wojnicka

The biochemical characterization of Dicer1e, a truncated variant of human ribonuclease Dicer

mwojnicka@ibch.poznan.pl

Marta Wojnicka¹, Arkadiusz Kajdasz², Anna Kurzyńska-Kokorniak¹

1. Department of Ribonucleoprotein Biochemistry, Institute of Bioorganic Chemistry PAS Poznan, Poland; 2. Laboratory of Bioinformatics, Institute of Bioorganic Chemistry PAS Poznan, Poland

Karolina Kozal

Impact of nutrient availability and hypoxia-inducible factors on breast cancer invasive potential

karolina.kozal@edu.uni.lodz.pl

Karolina Kozal^{1,2}, Anna Krześlak^{1,2}

1. Department of Cytobiochemistry, Faculty of Biology and Environmental Protection, University of Lodz, Lodz, Poland; 2. Polish Biochemical Society

Piotr Czarnota

Rb1 protein is not responsible for induction of TGF- β 2 gene expression after BRAFV600E kinase inhibition with PLX4720

piotr.czarnota@doctoral.uj.edu.pl

Piotr Czarnota¹, Tomasz Gromowski¹, Jarosław Cisowski¹

¹. Department of General Biochemistry, Faculty of Biochemistry, Biophysics and Biotechnology, Jagiellonian University, Krakow, Poland

Aleksandra Solecka

Regnase-2 reduces invasiveness of glioblastoma cells by down-regulation of metalloproteinase 2

aleksandra.solecka@doctoral.uj.edu.pl

Aleksandra Solecka¹, Mateusz Wawro¹, Weronika Sowińska¹, Jakub Kochan¹, Aneta Kasza¹

¹. Department of Cell Biochemistry, Faculty of Biochemistry, Biophysics and Biotechnology, Jagiellonian University, Poland

Weronika Sowińska

Regnase-2 inhibits glioblastoma cell proliferation

weronika.sowinska@doctoral.uj.edu.pl

Weronika Sowińska¹, Mateusz Wawro¹, Aleksandra Solecka¹, Jakub Kochan¹, Aneta Kasza¹

¹. Department Of Cell Biochemistry, Faculty of Biochemistry, Biophysics and Biotechnology, Jagiellonian University, Poland

Dr Jakub Kochan

Construction of a set of novel transposon vectors for efficient silencing of protein and lncRNA genes via CRISPR interference

jakub.kochan@uj.edu.pl

Jakub Kochan¹, Maria Czarnek¹, Mateusz Wawro¹, Rafał Myrczek¹, Joanna Bereta¹

¹. Department of Cell Biochemistry, Faculty of Biochemistry, Biophysics and Biotechnology, Jagiellonian University in Kraków, Kraków, Poland.

Dr Mateusz Wawro

A novel transposon-based platform for fluorescent imaging and analysis of stress granules in eukaryotic cells

mateusz.wawro@uj.edu.pl

Mateusz Wawro¹, Natalia Limberger¹, Kornelia Kłosińska¹, Aneta Kasza¹, Jakub Kochan¹

¹. Department of Cell Biochemistry, Faculty of Biochemistry, Biophysics and Biotechnology, Jagiellonian University in Kraków, Kraków, Poland.

Dr Malgorzata Lasota

The use of a supramolecular carrier with a tyrosine kinase inhibitor (nilotinib) in targeted anticancer therapy of bladder cancer

malgorzata.lasota@uj.edu.pl

Malgorzata Lasota^{1,2}, Anna Misterka^{1,2}, Daniel Jankowski², Marta Kaczor-Kaminska¹, Leszek Konieczny¹

1. Chair of Medical Biochemistry, Jagiellonian University Medical College, Cracow, Poland; 2. SSG of Targeted Therapy and Supramolecular Systems, Jagiellonian University Medical College, Cracow, Poland

Dr Malgorzata Piechota

Understanding Nucleolar Stress Management through the Lens of CHIP Ubiquitin Ligase

mpiechota@iimcb.gov.pl

Malgorzata Piechota¹, Lilla Biriczova¹, Konrad Kowalski¹, Wojciech Pokrzywa¹

1. Laboratory of Protein Metabolism, International Institute of Molecular and Cell Biology in Warsaw, Poland

Prof. dr hab. Paweł Pomorski

P2Y2 nucleotide receptor as the regulator of glioma motility

p.pomorski@nencki.edu.pl

Damian Matyśniak, Vira Chumak, Paweł Pomorski

Laboratory of Molecular Basis of Cell Motility, Nencki Institute of Experimental Biology PAS, Warsaw, Poland

Weronika Machelak

The role of GDF11 in the gastrointestinal tract

w.machelak@gmail.com

Weronika Machelak¹, Emilia Januszkiewicz¹, Mikołaj Mierzejewski¹, Wojciech Król¹, Marta Zielińska¹

1. Department of Biochemistry, Faculty of Medicine, Medical University of Lodz, Poland

Dr Angelika Długosz-Pokorska

New Uracil Analog- U-359 Can Reverse Resistance to Taxol in MCF-7 Cancer Cells

angelika.dlugosz@umed.lodz.pl

Angelika Długosz-Pokorska^{1*}, Renata Perlikowska¹, Tomasz Janecki², Anna Janecka¹

1. Department of Biomolecular Chemistry, Medical University of Lodz, Mazowiecka 6/8, 92-215, Lodz, Poland; 2. Institute of Organic Chemistry, Lodz University of Technology, Lodz, Żeromskiego 116, 90-924 Lodz, Poland

IX. CLINICAL BIOCHEMISTRY

Thursday, 14 SEPT 2023

11:35-13:05

Hall 117

Prof. dr hab. Andrzej Ciechanowicz

Prof. dr Hab. Leszek Kalinowski

11:35-12:05 Dr Agata Płoska

Multimodal Imaging Agent for theranostic approach into endothelial pathologies (Lecture)

agata.ploska@gumed.edu.pl

Agata Płoska¹, Marcin Woźniak¹, Anna Siekierzycka¹, Jamila Hedhli², Christian Konopka², Iwona T. Dobrucki^{2,3}, Lawrence W. Dobrucki^{1,2,3,4}, Leszek Kalinowski^{1,5}

1. Department of Medical Laboratory Diagnostics - Fahrenheit Biobank BBMRI.PI, Medical University of Gdansk, Gdansk, Poland; 2. Department of Bioengineering, University of Illinois at Urbana-Champaign, Urbana, IL, USA; 3. University of Illinois at Urbana-Champaign, Beckman Institute for Advanced Science and Technology, Urbana, IL, USA; 4. Department of Biomedical and Translational Sciences, Carle-Illinois College of Medicine, Urbana, IL, USA; 5. BioTechMed Centre, Department of Mechanics of Materials and Structures, Gdansk University of Technology, Gdansk, Poland

12:05-12:25 Prof. Patrizia Proia

Hematological and coordination skills evaluations in response to a High-Intensity Interval Training in MS patients (Oral presentation)

patrizia.proia@unipa.it

Patrizia Proia^{1*}, Carlo Rossi¹, Anna Alioto¹, Alessandra Amato², Andrea Pagliaro¹, Paolo Ragonese³, Giuseppe Schirò³, Giuseppe Salemi³, Sonya Vasto⁴ and Sara Baldassano⁴

1. Sport and Exercise Sciences Research Unit, Department of Psychology, Educational Science and Human Movement, University of Palermo, Palermo, 90100, Italy; 2. Department of Biomedical and Biotechnological Sciences, Section of Anatomy, Histology and Movement Science, School of Medicine, University of Catania, Via S. Sofia n°97, 95123 Catania, Italy; 3. Department of Biomedicine, Neuroscience and Advanced Diagnostics, University of Palermo, Palermo, Italy; 4. Department of Biological Chemical and Pharmaceutical Sciences and Technologies (STEBICEF), University of Palermo, Palermo, 90128, Italy

12:25-12:45 Prof. dr hab. Barbara Dołęgowska

Lipoxygenase-derived hydroxyeicosatetraenoic acids—novel perioperative markers of early post-transplant allograft function?(Oral presentation)

basia.dolegowska@gmail.com

Department of Laboratory Medicine, Pomeranian Medical University in Szczecin, Poland

12:45-13:05 Prezentacja – Nano Temper Technology

POSTERS

Dr Elżbieta Cecerska-Heryć

Renalase, dopamine and norepinephrine – potential markers of the development of hypertension in patients with chronic kidney disease

elzbieta.cecerska.heryc@pum.edu.pl

Małgorzata Goszka², Patrycja Stodolak², Aleksandra Polikowska², Natalia Serwin², Rafał Heryć¹, Magda Wiśniewska¹, Elżbieta Cecerska Heryć²

1. Department of Nephrology, Transplantology and Internal Diseases, PUM; 2. Department of Laboratory Medicine PUM

Patrycja Stodolak

The importance of selected arachidonic acid derivatives as potential biomarkers of survival and course in COVID-19 patients

patrycjastodolak23@gmail.com

Patrycja Stodolak¹, Aleksandra Polikowska¹, Małgorzata Goszka¹, Alicja Zenka¹, Natalia Serwin¹, Elżbieta Cecerska-Heryć¹

1. Department of Laboratory Medicine Pomeranian Medical University in Szczecin

Sara Trzos

N-glycosylation of CD4+ T cells correlates with TNF α and IL-4 levels in Hashimoto's thyroiditis

sara.trzos@doctoral.uj.edu.pl

Sara Trzos^{1,2}, Paweł Link-Lenczowski³, Marta Ząbczyńska¹, Maria Piórkowska⁴, Grzegorz Sokołowski⁵, Katarzyna Bocian⁴, Ewa Pocheć¹

1. Department of Glycoconjugate Biochemistry, Institute of Zoology and Biomedical Research, Faculty of Biology, Jagiellonian University, Krakow, Poland; 2. Doctoral School of Exact and Natural Sciences, Faculty of Biology, Jagiellonian University, Krakow, Poland; 3. Department of Medical

Physiology, Faculty of Health Sciences, Jagiellonian University Medical College, Krakow, Poland; 4. Department of Immunology, Institute of Functional Biology and Ecology, Faculty of Biology, University of Warsaw, Warsaw, Poland; 5. Department of Endocrinology, Faculty of Medicine, Jagiellonian University Medical College, Krakow, Poland

X. STEM CELLS BIOCHEMISTRY

Thursday, 14 SEPT 2023

9:50-11:20

Hall 117

Prof. dr hab. Leonora Bużańska
Prof. dr hab. Bogusław Machaliński

9:50-10:10 Prof. Zaal Kokaia

Functional integration of reprogrammed human neurons and oligodendrocytes in the stroke-damaged brain network (Lecture)

zaal.kokaia@med.lu.se

Stem Cell Center, Department of Clinical Sciences, Lund University, Lund, Sweden.

10:10-10:30 Prof. Gustav Steinhoff

Stem cell switch and angiogenesis (Lecture)

gustavsteinhoff@aol.com

University Rostock, Germany

10:30-10:50 Prof. dr hab. Leonora Bużańska

Mitochondrial Biogenesis and Early Brain Development in the Model of Human Brain Organoids (Lecture)

buzanska@imdik.pan.pl

Leonora Buzanska, Michał Liput, Zuzanna Kuczynska, Paweł Leszczynski, Valery Zayat

Department of Stem Cell Bioengineering, Mossakowski Medical Research Institute Polish Academy of Sciences, Warsaw, Poland

10:50-11:05 Dr hab. Małgorzata Maj

Extracellular vesicles-mediated communication between normal and cancer cells (Oral presentation)

m.maj@cm.umk.pl

Department of Tissue Engineering, Ludwik Rydygier Collegium Medicum in Bydgoszcz, Nicolaus Copernicus University in Torun, Poland

11:05-11:20 Marek Michałowski, MSc

Modern technologies for stem cells and organoids imaging - an indispensable tool for biology understanding (Firm presentation)

waldemar.dziadul@pepolska.pl

Pro-Environment Polska Sp. z o.o., Warsaw, Poland

Stem cells and organoid biology is recently one of the most developing area of cellular sciences. Automated Imaging Cytometry and High Content Screening Microscopy offers standardized and quantitative tools for imaging, measuring and analyzing stem cells differentiation, 3D structure formulation and organoid behavior. Both technologies are very useful for basic research as well as for therapy or drug development. Automated Image Cytometry is dedicated for basic analysis of cells and spheroids giving opportunity to choose experimental conditions for High Content Screening samples imaging. Separately Imaging Cytometry and High Content Screening are powerful tools for advanced stem cells and organoids study. The lecture covers presentation of AIC and HCS technology and applications.

POSTERS

Łukasz Tytuła

Osteogenic potential of human stromal fibroblast HS-27A cell line

lukasz.tytula@student.uj.edu.pl

Łukasz Tytuła¹, Kinga Palla¹, Karolina Truchan¹, Anna Maria Osyczka¹

¹. Department of Cell Biology and Imaging, Institute of Zoology and Biomedical Research, Faculty of Biology, Jagiellonian University in Krakow, Poland

Dr Marta Orlicka-Płocka

The role of angiomiotin-like 2 (AMOTL2) in human pluripotent stem cells and its effects on the Hippo signaling pathway and mitochondrial dynamics and functionality

marorl5@amu.edu.pl

Marta Orlicka-Płocka¹, Małgorzata Grabowska¹, Anna Jędrzejak¹, and Małgorzata Borwiak¹

¹. Department of Gene Expression, Stem Cell Laboratory, Faculty of Biology, Adam Mickiewicz University in Poznań, Poland

Ashwini Khaladkar

Unraveling the regulatory role of the splicing factor 3 complex in hematopoietic stem cell aging

a.khaladkar@imol.institute

Ashwini Khaladkar¹, Maciej Cieśla¹

¹. The International Institute of Molecular Mechanisms and Machines, Polish Academy of Sciences, Poland

XI. NEW TRENDS IN MEDICINE – DIAGNOSTICS AND THERAPY

Thursday, 14 SEPT 2023

11:35-13:05

Main Auditorium

Prof. dr hab. Bogdan Solnica

Dr Katarzyna Fischer

11:40 – 12:00 Małgorzata Oczko-Wojciechowska.

The role of molecular diagnostics for targeted therapy in oncology

12:00 – 12:20 Dr Karol Serwin

HIV transmission networks and variability

karol.serwin@pum.edu.pl

Karol Serwin, Miłosz Parczewski

Department of Infectious, Tropical Diseases and Acquired Immunodeficiency; Pomeranian Medical University in Szczecin

12:20 – 12:40 Prof dr hab. Bogdan Solnica.

Triglyceride-rich lipoproteins in atherogenesis – clinical implications

bogdan.solnica@uj.edu.pl

Department of Clinical Biochemistry Jagiellonian University Medical College, Krakow, Poland

12:40 – 12:50 Dr Jakub Nowak

Roche-digital PCR-Take the leap from research to producing clinically viable assays

jakub.nowak@roche.com

Roche Diagnostics Polska Sp z o.o, Ul. Bobrowiecka 8, 00-728 Warszawa

12:50 – 13:00 Dr Anna Wierzbicka-Woś

Metagenomic approach in microbiomes analysis

anna.wierzbicka@sanprobi.pl

Anna Wierzbicka-Woś¹, Danuta Cembrowska-Lech^{1,2}, Karolina Skonieczna-Żydecka^{1,3},
Mariusz Kaczmarczyk¹, Igor Łoniewski^{1,3}

¹Research and Development Centre, Sanprobi Sp. Z o.o. sp.k., Szczecin, Poland; ²Department of Physiology and Biochemistry, Institute of Biology, University of Szczecin, Szczecin, Poland; ³Department of Biochemical Science, Pomeranian Medical University, Szczecin, Poland

13:00 – 13:10 Dr Karolina Pierzynowska

Correction of symptoms of Huntington disease in the mouse R6/1 model by genistein through the FOXO3-mediated autophagy stimulation

karolina.pierzynowska@ug.edu.pl

Karolina Pierzynowska, Magdalena Podlacha, Lidia Gaffke, Estera Rintz, Karolina Wiśniewska, Zuzanna Cyske, Grzegorz Węgrzyn

Department of Molecular Biology, Faculty of Biology, University of Gdansk, Wita Stwosza 59, 80-308 Gdansk, Poland

POSTERS

Mgr Krzysztof Sitko

The role of heat shock protein 90 in atopic dermatitis

krzysztof.sitko@phdstud.ug.edu.pl

Krzysztof Sitko¹, Magdalena Trzeciak², and Stefan Tukaj¹

¹ Department of Molecular Biology, Faculty of Biology, University of Gdańsk, Gdańsk, Poland.

² Department of Dermatology, Venerology and Allergology, Medical University of Gdańsk, Gdańsk, Poland.

Mgr Anna Edyta Sciuk

L-asparaginases in cancer cell proliferation and apoptosis

anna.sciuk@doctoral.uj.edu.pl

Anna Ściuk^{1,2*}, Kinga Wątor¹, , Izabela Staroń¹, , Izabela Pieróg¹, Mariusz Jaskolski^{3,4} ,
Marcin Surmiak⁵, Joanna Loch¹

¹ Faculty of Chemistry, Jagiellonian University, Krakow, Poland; ²Jagiellonian University, Doctoral School of Exact and Natural Sciences, Cracow, Poland;

3Institute of Bioorganic Chemistry, Polish Academy of Sciences, Poznan, Poland;4Faculty of Chemistry, A. Mickiewicz University, Poznan, Poland;
5Department of Internal Medicine, Jagiellonian University Medical College, Krakow, Poland

Dr Zuzanna Tracz-Gaszewska

Cellular degradome in the multiple myeloma biology research and new drug design

ztracz@ihit.waw.pl

Zuzanna Tracz-Gaszewska, Paweł Tyrna, Marta Pelon, Irena Misiewicz-Krzemińska

Institute of Hematology and Blood Transfusion, Department of Experimental Hematology, Warsaw, Poland

Mgr Marta Pelon

Gankyrin protein as a modulator of response to bortezomib in multiple myeloma

martapelon@gmail.com

Marta Pelon¹, Filip Garbicz¹, Maria Czyżewska³, Marcin Rymko³, Joanna Barankiewicz⁴, Aleksander Salomon-Perzyński⁴, Agnieszka Druzd-Sitek⁵, Zuzanna Tracz-Gaszewska¹, Julia Ostrowska¹, Norma Gutierrez², Irena Misiewicz-Krzemińska¹

¹Institute of Hematology and Transfusion Medicine, Warsaw

²Centro de Investigación del Cáncer, Salamanca, Spain

³Department of Hematology and Bone Marrow Transplantation, M. Copernicus Specialized City Hospital in Toruń

⁴Department of Hematology, Institute of Hematology and Transfusion Medicine, Warsaw

⁵Marie Skłodowska-Curie National Cancer Institute, Warsaw

Mgr Aleksandra Chorążewska

Streptavidin-based FGF1 oligomer as HSPGs targeting agent – toward novel drug carrier for treatment of pancreatic cancer

aleksandra.chorazewska@uwr.edu.pl

Aleksandra Chorążewska¹, Krzysztof Ciura¹, Natalia Porębska¹ and Łukasz Opaliński¹

¹Faculty of Biotechnology, Department of Protein Engineering, University of Wrocław, Joliot-Curie 14a, 50-383 Wrocław, Poland

Mgr Krzysztof Ciura

Coiled coil and GFPp-based assemblies of FGF1 – precise targeting of HSPGs and promising drug delivery agents for pancreatic cancer cells

krzysztof.ciura@uwr.edu.pl

Krzysztof Ciura¹, Aleksandra Chorążewska¹, Natalia Porębska¹ and Łukasz Opaliński¹

¹Faculty of Biotechnology, Department of Protein Engineering, University of Wrocław, Joliot-Curie 14a, 50-383 Wrocław, Poland

Dr Katarzyna Regulska

Ramipril may overcome platinum resistance in ovarian cancer – bioinformatic analysis of TCGA datasets

katarzyna.regulska@wco.pl

Katarzyna Regulska^{1, 2}, Tomasz Kolenda^{4,5}, Joanna Kozłowska-Masłoń ^{4,5,6#}, Kacper Guglas ^{4,5,7,#}, Katarzyna Lamperska ^{4,5}, Marcin Michalak³, Beata Stanisiz⁸

1 Pharmacy, Greater Poland Cancer Centre, 15th Garbary Street, 61-866 Poznań, Poland, e-mail: katarzyna.regulska@wco.pl, phone.: 486188506704

2 Department of Clinical Pharmacy and Biopharmacy, Poznan University of Medical Sciences, Poznan, Poland, Collegium Pharmaceuticum, Rokietnicka 3 Street, 60-806 Poznań

3 Surgical, Oncological and Endoscopic Gynaecology Department, Greater Poland Cancer Center Poznan 61-866, Poland.

4 Laboratory of Cancer Genetics, Greater Poland Cancer Centre, Poznan, Poland

5 Greater Poland Cancer Center, Research and Implementation Unit, Garbary Street 15, 61-866 Poznan, Poland.

6 Postgraduate School of Molecular Medicine, Medical University of Warsaw, Zwirki and Wigury Street 61, 02-091 Warsaw, Poland

7 Institute of Human Biology and Evolution, Faculty of Biology, Adam Mickiewicz University, Uniwersytetu Poznańskiego 6, 61-614 Poznań, Poland

8 Poznan University of Medical Sciences, Chair and Department of Pharmaceutical Chemistry, 6th Grunwaldzka Street., 60-780 Poznan, Poland, e-mail:.bstanisz@ump.edu.pl

Mgr Emilia Samborowska

Serum metabolites as a potential biomarkers in children with type 1 diabetes

sambor@ibb.waw.pl

Emilia Samborowska¹, Mariusz Radkiewicz¹, Damian Dyńka², , Agnieszka Ochocińska³, Jakub Karczmarzski¹, Karolina Skubisz^{2,4}, Marta Wysocka-Mincewicz⁴, and Bożena Cukrowska⁶, Agnieszka Paziewska ²

1 Mass Spectrometry Laboratory, Institute of Biochemistry and Biophysics, Polish Academy of Sciences, Warsaw, Poland

2 Institute of Health Sciences, Faculty of Medical and Health Sciences, University of Natural Sciences and Humanities, Siedlce, Poland

3 Department of Biochemistry, Radioimmunology and Experimental Medicine, The Children's Memorial Health Institute, Warsaw, Poland

4 Department of Laboratory Diagnostics and Clinical Immunology of Developmental Age, Pediatric Hospital of Medical University of Warsaw, Warsaw, Poland,

5 Clinic of Endocrinology and Diabetology, The Children's Memorial Health Institute, Warsaw, Poland

6 Department of Pathomorphology, The Children's Memorial Health Institute, Warsaw, Poland

Mgr Kamila Ostrowska

RNA methylation signatures as potential regulators of HNSC pathogenesis

kamila.ostrowska@wco.pl

Kamila Ostrowska^{1,3}, Julia Ostapowicz^{2,3}, Katarzyna Kulcenty³, Wiktoria M. Suchorska^{2,3},
Wojciech Golusiński¹

1 Department of Head and Neck Surgery, Poznan University of Medical Sciences, Poznan, Poland; 2 Department of Electroradiology, University of Medical Sciences, Poznan, Poland 3 Radiobiology Laboratory, The Greater Poland Cancer Centre, Poznan, Poland

XII. ION TRANSPORTS ACROSS BIOLOGICAL MEMBRANES

Friday, 15 SEPT 2023

11:35-13:05

Hall 117

Prof. dr hab. Jerzy Mozrzymas
Dr hab. prof. SGGW Piotr Bednarczyk

11:35-12:00 Prof. Andrea Barberis

Short-range interaction of dendritic excitatory and inhibitory synapses (Lecture)

andrea.barberis@iit.it

Massimo Ruben, Tiziana Ravasenga, Vincenzi Regio and Andrea Barberis

Fondazione Istituto Italiano di Tecnologia

12:00-12:25 Prof. dr hab. Marcin Szczot

The Role of Mechanosensitive Ion Channel Piezo2 in Pain Sensation (Lecture)

marcin.szczot@liu.se

Linköping University, Linköping, Sweden;

12:25-12:45 Dr Agata Wawrzekiewicz-Jalowiecka

Ion channels' cooperativity - model, complexity, and experimental insights (Lecture)

agata.wawrzekiewicz-jalowiecka@polsl.pl

Agata Wawrzekiewicz-Jalowiecka¹, Paulina Trybek², Beata Dworakowska³, Piotr Bednarczyk³

1. Silesian University of Technology, Department of Physical Chemistry and Technology of Polymers, Gliwice, Poland; 2. University of Silesia, Institute of Physics, Chorzów, Poland; 3. Warsaw University of Life Sciences, Department of Physics and Biophysics, Institute of Biology, Warsaw, Poland;

12:45-13:05 Prof. dr hab. Jerzy W. Mozrzymas

Function and plasticity of GABAergic transmission (Lecture)

jerzy.mozrzymas@umw.edu.pl

Jerzy W. Mozrzymas¹, Grzegorz Wiera¹, Katarzyna Lebida¹, Patrycja Brzdąk¹, Jadwiga Jabłońska¹, Anna Lech¹, Marcin Wyroślak¹, Przemysław Gmerek¹

¹. Department of Biophysics and Neuroscience, Wrocław Medical University, Wrocław, Poland

POSTERS

User Name: Agnieszka Łukasiak

User e-mail: agnieszka_lukasiak@sggw.edu.pl

Abstract title:

Effect of Quercetin on mitoBKCa Channel and Mitochondrial Function in Human Bronchial Epithelial Cells Exposed to Particulate Matter

Abstract authors:

Agnieszka Lukasiak¹, Adrianna Dabrowska¹, Mirosław Zajac¹, Bednarczyk Piotr¹

Corresponding author e-mail:

agnieszka_lukasiak@sggw.edu.pl

Abstract affiliations:

¹Department of Physics and Biophysics, Institute of Biology, Warsaw University of Life Sciences-SGGW, Warsaw, Poland

Abstract:

Exposure to air pollution and airborne particulate matter (PM) has been linked to many health risks involving diseases of respiratory and cardiovascular system. The deleterious effect is linked to reactive oxygen species (ROS) and can lead to subsequent inflammatory response and cell damage. It is well known that mitochondrial potassium channels play important role in cytoprotective response. It has been recently reported that mitochondrial large conductance potassium channel (mitoBKCa) is present in the inner mitochondrial membrane of human

bronchial epithelial cell line (HBE) and is activated by quercetin. Here we tried to verify the cytoprotective role of mitoBKCa in particulate matter (PM<4μM) induced HBE cell damage.

It was observed that PM decreased TEER of HBE cells and the effect was partially abolished by quercetin. In mitochondria quercetin increased oxygen consumption rate and decreased mitochondrial membrane potential. The ROS measurements revealed decrease in PM-induced ROS level after quercetin administration. Additionally, it was observed that PM decreases cell viability, which can be partially restored by quercetin. The toxic effect of PM is also manifested in reduced mitochondrial function.

In summary, PM has toxic effect in HBE cells on cellular and mitochondrial level, which can be partially abolished by quercetin, involving mitoBKCa activation.

This work was supported by National Science Center (NCN) Poland no. 2019/35/B/NZ1/02546 (to PB)

Abstract type: Poster

User Name: Piotr Bednarczyk

User e-mail: piotr_bednarczyk@sggw.edu.pl

Abstract title:

The role of the potassium channel in damage caused by urban particulate matters.

Abstract authors:

Piotr Bednarczyk¹, Kamila Maliszewska-Olejniczak¹, Karolina Pytlak², Adrianna Dąbrowska¹, Agnieszka Łukasiak¹, Mirosław Zając¹, Bogusz Kulawiak²

Corresponding author e-mail:

piotr_bednarczyk@sggw.edu.pl

Abstract affiliations:

¹Department of Physics and Biophysics, Institute of Biology, Warsaw University of Life Sciences – SGGW, Warsaw, Poland

2Laboratory of Intracellular Ion Channels, Nencki Institute of Experimental Biology, Polish Academy of Sciences, Warsaw, Poland

Abstract:

Proper functioning of epithelium is essential for maintaining lung health. Recently, potassium channels (BKCa) has been identified in the inner mitochondrial membrane of the epithelium. These proteins control potassium fluxes between mitochondrial intermembrane space and mitochondrial matrix which directly regulates mitochondrial and cell functions. It has been found that activation of mitoBKCa channels preserves against damage induced by various factors including ischemia/reperfusion. Despite intensive research, the exact mechanism of proper cell function involving the influx of potassium still remains under investigation.

To verify the role of potassium channel in cytoprotection in response to stress induced by PM, we used wild-type epithelium cells (HBE wt) and cells with the deletion of the alpha subunit of the BKCa channel (HBE $\Delta\alpha$ BKCa). Using the patch-clamp, it has been shown that in HBE $\Delta\alpha$ BKCa cells model, BKCa channel activity is not observed. Additionally, HBE $\Delta\alpha$ BK cells displayed mitochondrial dysfunction, lower transepithelial electrical resistance and reduced clone formation capabilities. To determine whether reduced clone formation capabilities are associated with cell cycle phase distribution changes, we conducted a cell cycle analysis. In summary, obtained results indicate that the BKCa channel is important for bronchial epithelium barrier function.

This work was supported by National Science Center (NCN) Poland 2019/35/B/NZ1/02546 (to PB).

Abstract type: Poster

User Name: Piotr Koprowski

User e-mail: p.koprowski@nencki.edu.pl

Abstract title:

Investigating the impact of mutations on ROMK channel activity: a novel bacterial assay and in silico model

Abstract authors:

Mariusz Możejew^{1,2}, Przemysław Miszta², Sławomir Filipek², Piotr Koprowski¹

Corresponding author e-mail:

p.koprowski@nencki.edu.pl

Abstract affiliations:

1 Laboratory of Intracellular Ion Channels, Nencki Institute of Experimental Biology PAS, Warsaw, Poland

2 Faculty of Chemistry, Biological and Chemical Research Centre, University of Warsaw, Warsaw, Poland

Abstract:

The renal outer medullary potassium channel (ROMK) is vital for K⁺ transport in the nephron. Mutations in ROMK are linked to antenatal Bartter syndrome type II (aBSII) and contribute to blood pressure variations. Certain aBSII-causing mutations exhibit insensitivity to phosphatidylinositol 4,5-bisphosphate (PIP₂), a ROMK activity stimulator. Thus, understanding the functional impact of these mutations is crucial. We developed an in silico model to explore ROMK-PIP₂ interaction and introduced the Potassium Uptake PIP₂ Activation assay (PUPA assay) using a simple bacterial growth system. The PUPA assay combined a growth complementation screen in K⁺-transport deficient *Escherichia coli* expressing the K⁺ channel with PIP₂ synthesis pathway introduction. Screening ROMK mutants with aBSII mutations via the PUPA assay revealed bacterial growth phenotypes reflecting the mutations' impact on channel function. Additionally, the PUPA assay experimentally validated the ROMK-PIP₂ complex model. Mutants affecting crucial amino acids for PIP₂ interaction confirmed the PIP₂ binding site structure and emphasized the significance of a unique lysine residue. Interestingly, our findings suggest that PIP₂ is not essential for primary ROMK activity and other anionic lipids partially substitute its function. Overall, our study comprehensively investigates ROMK mutations enhancing understanding of their functional consequences, PIP₂'s role, and alternative anionic lipids in ROMK activity regulation.

Abstract type: Poster

User Name: Jakub Hoser

User e-mail: d003227@sggw.edu.pl

Abstract title:

The role of ion transport in the prevention of epithelial damage

Abstract authors:

Jakub Hoser¹, Kamila Maliszewska-Olejniczak¹, Bogusz Kulawiak², Mirosław Zając¹, Piotr Bednarczyk¹

Corresponding author e-mail:

d003227@sggw.edu.pl

Abstract affiliations:

¹Department of Physics and Biophysics, Institute of Biology, Warsaw University of Life Sciences – SGGW, Warsaw, Poland

²Laboratory of Intracellular Ion Channels, Nencki Institute of Experimental Biology, Polish Academy of Sciences, Warsaw, Poland

Abstract:

It has been reported that active chloride transport across cell membranes is very important and regulates many cellular functions. It plays a key role in the process of epithelial water secretion which impairment leads to many diseases such as asthma, COPD or cystic fibrosis. Since the apical membrane potential is close to the reversal potential for chloride, the activation of other channels could provide the driving force for chloride secretion improving the airway surface liquid hydration. One of the possible targets is calcium-activated potassium channel (BKCa) present on apical surface of bronchial epithelium.

To assess the influence of BKCa channel activation on chloride transport we performed series of Ussing chamber experiments on WT human bronchial epithelial cells line (16HBE14 σ) and generated variant of this cell line with CRISPR/Cas9 BKCa channel deletion. Also, we used a naturally derived activator (quercetin) and synthetic blocker (penitrem A) of BKCa channel to assess its role in chloride secretion in both cell lines. Interestingly and unexpectedly, our results show that quercetin decreases the chloride currents in both cell lines. This effect could be used for further experiments regarding modifying-activating or blocking protein channels and is expanding our knowledge about cellular and epithelial electrophysiology.

This work was supported by National Science Center (NCN) Poland 2019/35/B/NZ1/02546 (to PB).

Abstract type: Poster

User Name: JOANNA JASIŃSKA

User e-mail: j.jasinska@nencki.edu.pl

Abstract title:

The role of infrared light in modulation of mitochondrial large-conductance calcium-activated potassium channel

Abstract authors:

Joanna Jasińska¹, Piotr Bednarczyk², Barbara Kalenik¹, Bogusz Kulawiak¹, Antoni Wrzosek¹, Adam Szewczyk¹

Corresponding author e-mail:

j.jasinska@nencki.edu.pl

Abstract affiliations:

¹Laboratory of Intracellular Ion Channels, Nencki Institute of Experimental Biology PAS, Pasteur 3 St., 02-093 Warsaw

²Department of Physics and Biophysics, Institute of Biology, Warsaw University of Life Sciences -SGGW Nowoursynowska 159 St. 02-776 Warsaw

Abstract:

Mitochondria are not only a cellular source of ATP. They play a significant regulatory role in apoptosis and necrosis pathways, taking part in Ca²⁺ buffering and ROS production. Opening of mitochondrial potassium channels present in the inner mitochondrial membrane has a cytoprotective effect, therefore, they are seen as potential drug targets. Several pharmacological modulators have been proposed. Unfortunately, many of them affect alternative targets, what exposes the need for exploring other approaches to regulate activity of the channels, such as photobiomodulation (PBM). Mitochondria are able to absorb infrared (IR) light, making them potential targets for PBM. Particularly intriguing is the absorption of specific wavelengths in IR band: 820 nm and 760 nm by metal centres of cytochrome c oxidase (COX): oxidised CuA and reduced CuB, respectively. Taking into consideration possible functional connection of mitochondrial large-conductance calcium-activated potassium (mitoBKCa) channel with COX in the astrocytoma U87 cell line, we conducted patch-clamp experiments with illumination system. In oxidizing conditions induced by ferricyanide, we observed an inhibition of mitoBKCa channel. However, when the channel was illuminated with 820 nm wavelength, its activity was restored. Importantly, this restorative effect was immediate and durable. This study was supported by the Polish National Science Centre (grants No. 2019/34/A/NZ1/00352 to AS).

Abstract type: Poster

User Name: Karolina Pytlak

User e-mail: k.pytlak@nencki.edu.pl

Abstract title:

Lack of BKCa channel affects mitochondrial function in human bronchial epithelial cells

Abstract authors:

Karolina Pytlak¹, Kamila Maliszewska – Olejniczak², Aleksandra Sęk^{1,3}, Adam Szewczyk¹, Piotr Bednarczyk², Bogusz Kulawiak¹

Corresponding author e-mail:

k.pytlak@nencki.edu.pl

Abstract affiliations:

1 Laboratory of Intracellular Ion Channels, Nencki Institute of Experimental Biology, Poland; 2 Department of Physics and Biophysics, Institute of Biology, Warsaw University of Life Sciences – SGGW, Poland; 3 Faculty of Chemistry, University of Warsaw, Poland.

Abstract:

Airways are exposed on various factors including urban dust, which contain particulate matters (PMs). Recent studies described that PM cytotoxicity might be related to the mitochondrial dysfunction. Pharmacological activation of mitochondrial potassium (mitoK) channels induces cytoprotective mechanisms. This phenomenon was observed during ischemia/reperfusion of brain and heart. Transport of K⁺ across the inner mitochondrial membrane is important for regulation of oxidative phosphorylation, reactive oxygen species synthesis and membrane potential. Here, we describe the large conductance calcium-activated potassium (mitoBKCa) channel in the IMM of human bronchial epithelial (16HBE14o-, HBE) cells. We focused on the potential role of the mitoBKCa channels in cytoprotection against damage induced by PMs. We used the CRISPR/Cas9 technology to develop 16HBE14o- cell line with BKCa a pore-forming subunit knockout. Loss of mitoBKCa/BKCa channel changes expression of selected mitochondrial genes and mitochondrial respiration. We also observed that lack of channel leads to loss of monolayer integrity of HBE cells. We also checked effect of BKCa channel loss on PMs induced cytotoxicity. In conclusion, in our project we want to test whether the mitoBKCa/BKCa channel is a suitable pharmacological target for cytoprotection against PMs induced damage.

This study was supported by a grant (2019/35/B/NZ1/02546) from the National Science Centre, Poland.

Abstract type: Poster

XIII. BIOPHYSICS IN LIFE SCIENCES

Friday, 15 SEPT 2023

15:50-17:20

Hall 117

Dr hab. Beata Wielgus-Kutrowska

Dr hab. prof. SGGW Piotr Bednarczyk

15.50 – 16.15 Prof. dr hab. Wojciech Dzwolak

Liquid-Liquid Phase Separation in ATP-Incorporating Amyloidogenic Peptides (Lecture)

wdzwolak@chem.uw.edu.pl

Faculty of Chemistry, Biological and Chemical Research Centre, University of Warsaw, Poland

16-15 – 16.40 Prof. dr hab. Małgorzata Lekka

Mechanomarkers of various diseases (Lecture)

malgorzata.lekka@ifj.edu.pl

Institute of Nuclear Physics Polish Academy of Sciences, PL-31342 Krakow, Poland

16.40 – 17.00 Dr hab. Beata Wielgus-Kutrowska

Analytical ultracentrifugation in the study of biological macromolecules (Lecture)

Beata.Wielgus-Kutrowska@fuw.edu.pl

Faculty of Physics, Division of Biophysics, University of Warsaw, Warsaw, Poland

17.00 – 17.20 Marta Pacia

New aspects of the pathophysiology of lipid droplets in inflammation of an isolated blood vessel (Oral presentation)

marta.z.pacia@gmail.com

Marta Z. Pacia¹, Natalia Chorazy^{1,2}, Kamila Wojnar-Lason^{1,3}, Magdalena Sternak¹, Stefan Chlopicki^{1,3}

¹. Jagiellonian University, Jagiellonian Centre for Experimental Therapeutics, Bobrzynskiego 14, Krakow, Poland

². Jagiellonian University, Doctoral School of Exact and Natural Sciences, Lojasiewicza 11, Krakow, Poland

³. Jagiellonian University, Chair of Pharmacology, Grzegorzeczka 16, Krakow, Poland

POSTERS

Patrycja Beldzińska

Platinum nanoparticles as cisplatin modulators – direct interactions and biological effects

patrycja.beldzinska@phdstud.ug.edu.pl

Patrycja Beldzińska¹, Kamila Butowska^{1,2}, Grzegorz Gołuński¹, Marcin Zakrzewski¹, Barbara Galikowska-Bogut³, Rafał Sądej³, Augustyn Moliński^{4,5}, Jacek Piosik¹

¹Laboratory of Biophysics, Intercollegiate Faculty of Biotechnology UG&MUG, Gdańsk, Poland; ²Department of Cellular and Molecular Medicine, University of California San Diego, USA; ³Department of Molecular Enzymology and Oncology, Intercollegiate Faculty of Biotechnology UG&MUG, Gdańsk, Poland; ⁴Department of Biomedical Physics, Adam Mickiewicz University in Poznań, Poland; ⁵NanoBioMedical Centre, Adam Mickiewicz University in Poznań, Poland

Marcin Zakrzewski

Platinum nanoparticles and their interactions with daunorubicin

marcin.zakrzewski@phdstud.ug.edu.pl

Marcin Zakrzewski¹, Patrycja Beldzińska¹, Grzegorz Gołuński¹, Jacek Piosik¹

¹ Laboratory of Biophysics, Intercollegiate Faculty of Biotechnology UG&MUG, Gdańsk, Poland

Monika Moskwa

Dynamics of S-adenosyl-L-homocysteine hydrolase from Pseudomonas aeruginosa revealed by frequency-domain measurements of fluorescence anisotropy

monmos3@st.amu.edu.pl

Monika Moskwa^{1,2}, Katarzyna Woźniak¹, Gotard Burdziński³, Tomasz Pędziński⁴, Krzysztof Brzeziński

¹Department of Structural Biology of Prokaryotic Organisms, Institute of Bioorganic Chemistry, Polish Academy of Sciences, Poznan, Poland; ²Faculty of Biology, Adam Mickiewicz University, Poznan, Poland; ³Faculty of Physics, Adam Mickiewicz University, Poznan, Poland; ⁴Faculty of Chemistry, Adam Mickiewicz University, Poznan, Poland.

Kamil Pluciennik

Changes in human erythrocyte morphology under the influence of non-functionalized polystyrene nanoparticles with different diameters

kamil.pluciennik@edu.uni.lodz.pl

Kamil Pluciennik¹, Paulina Sicińska¹, Bożena Bukowska¹

¹Department of Biophysics of Environmental Pollution, Faculty of Biology and Environmental Protection, University of Lodz, Pomorska Str. 141/143, 90-236 Lodz, Poland

Helena Cichocka

Anchoring of the Respiratory Syncytial Virus (RSV) fusion peptide depends on the membrane composition

r.worch@nencki.edu.pl

Helena Cichocka^{1,2}, Bartłomiej Garbacz², Remigiusz Worch²

¹Department of Physics, University of Warsaw, , 5 Pasteur Street, 02-093 Warsaw, Poland

²Nencki Institute of Experimental Biology PAS, Laboratory of Cell Biophysics, 3 Pasteur Street, 02-093 Warsaw, Poland

XIV. BIOMATERIALS, CELLS AND THEIR INTERACTIONS

Friday, 15 SEPT 2023

9:50-11:20

Hall 116

Dr hab. prof. UJ Anna M. Osyczka

Dr hab. prof. UJ Grzegorz Tylko

9:50-10:20 Prof. dr hab. Izabela Radecka

Bacterial engineers - using microbes to engineer valuable biomaterials (Lecture)

i.radecka@wlv.ac.uk

Iza Radecka*¹, Fideline Tchuenbou-Magaia¹, Mattia Parati¹, Abhishek Gupta², Ibrahim Khalil¹, Barbara Mendrek³, Grazyna Adamus³, Marek Kowalczyk³

1. Faculty of Science & Engineering, University of Wolverhampton, United Kingdom; 2. Faculty of Education, Health and Wellbeing, University of Wolverhampton, United Kingdom; 3. Centre of Polymer and Carbon Materials, Polish Academy of Sciences, Poland

10:20-10:35 Prof. dr hab. Jakub Rybka

Development of a Porcine Decellularized Extracellular Matrix (dECM) Bioink for 3D Bioprinting of Meniscal Implants: Formulation, Characterization and Biological Evaluation (Oral presentation)

e-mail: jrybka@amu.edu.pl

Filip Porzucek¹, Monika Mankowska¹, Julia Anna Semba^{1,2}, Piotr Cywoniuk¹, Adam Augustyniak¹, Anna Maria Mleczko¹, Tomasz Szymański^{1,2}, Adam Aron Mieloch¹, Jakub Dalibor Rybka^{1,*}

1. Center for Advanced Technology, Adam Mickiewicz University, Poznan, Poland; 2. Faculty of Biology, Adam Mickiewicz University, Poznan, Poland.

10:35-10:50 Dr hab. Marta Fiolka

Death pathways of Candida albicans cells after the action of Venetin-1 nanoparticles from the coelomic fluid of Dendrobaena veneta earthworm (Oral presentation)

marta.fiolka@mail.umcs.pl

Sylwia Wójcik- Mieszawska¹, Kinga Lewtak², Czaplewska Paulina³, Fiolka Marta¹

1. Department of Immunobiology, Institute of Biological Sciences, Maria Curie-Skłodowska University, Lublin, Poland; 2. Department of Cell Biology, Institute of Biological Sciences, Maria Curie-Skłodowska University, Lublin, Poland; 3. Gdansk, Poland.

10:50-11:05 Dr Marzena Zychowicz

Design of hydrogel scaffolds for studying stem cells mechanotransduction (Oral presentation)

mzychowicz@imdik.pan.pl

Marzena Zychowicz¹, Ewa Walejewska², Marcin Heljak², Wojciech Świążkowski², Leonora Bużańska¹

1. Department of Stem Cell Bioengineering, Mossakowski Medical Research Institute, Polish Academy of Sciences; 2. Biomaterials Group, Materials Design Division, Faculty of Materials Science and Engineering, Warsaw University of Technology

11:05-11:20 Bartosz Wierzbicki

IKA Habitat - new approach in cell growth and fermentation (Oral presentation)

IKA Poland Sp. z o.o.

POSTERS

Dr Kinga Lewtak

Seeds of Virginia mallow as a source of antifungal and antibacterial compounds

kinga.lewtak@mail.umcs.pl

Kinga Lewtak¹, Paulina Czaplewska², Weronika Sofińska-Chmiel³, Marta Fiołka⁴

1. Department of Cell Biology, Institute of Biological Sciences, Maria Curie-Skłodowska University, Lublin, Poland; 2. Intercollegiate Faculty of Biotechnology UG-MUG Laboratory of Mass Spectrometry, Gdańsk, Poland; 3. Analytical Laboratory, Institute of Chemical Sciences Maria Curie-Skłodowska University, Lublin, Poland; 4. Department of Immunobiology, Institute of Biological Sciences, Maria Curie-Skłodowska University, Lublin, Poland.

Karolina Truchan

BMP-2 with ERK inhibitor and Phenamil effectively enhance osteogenesis of human adipose-derived stem cells cultured on SrO or ZnO modified bioactive glass-PLGA composites in static and dynamic cultures

karolina.truchan@doctoral.uj.edu.pl

Karolina Truchan¹, Barbara Zagrajczuk², Katarzyna Cholewa-Kowalska² and Anna Maria Osyczka¹

1. Jagiellonian University, Faculty of Biology, Institute of Zoology and Biomedical Research, Department of Biology and Cell Imaging, Gronostajowa 9, 30-387 Krakow, Poland; 2. AGH University of Science and Technology, Faculty of Materials Science and Ceramics, Department of Glass Technology and Amorphous Coatings, Mickiewicza Ave. 30, 30-059 Krakow, Poland

Agata Poniewierska-Baran

Growth of mesenchymal stem cells (MSC), gingival fibroblasts (GF) and periodontal cells (PDL) on semi-crystalline PEEK and PEKK polymers as potential materials in dental implantology - preliminary study.

agata.poniewierska-baran@usz.edu.pl

Agata Poniewierska-Baran^{1,2}, Małgorzata Tomasik³, Katarzyna Grocholewicz³, Ewa Sobolewska⁴, Andrzej Pawlik², Marcin Królikowski⁵

1. Institute of Biology, University of Szczecin, Szczecin, Poland; 2. Department of Physiology, Pomeranian Medical University, Szczecin, Poland; 3. Department of Integrated Dentistry, Pomeranian

Medical University, Szczecin, Poland; 4. Department of Prosthodontics, Pomeranian Medical University, Szczecin, Poland; 5. Department of Manufacturing Technology, ZUT, Szczecin, Poland;

Dr hab. Marcin Chmielewski

Hybrid support for scalable, high-performance oligonucleotide synthesis

Krzysztof Waligórski 2, Kamil Kamiński 2, Mikołaj Przybyła 2; Katarzyna Kolet 2 ; Oskar Kołacki 2, Stanisław Trzcíński 1 ; Mateusz Klarek 1; Jolanta Brzezińska 1; Marcin K. Chmielewski 1*

chmielewskimk@ibch.poznan.pl

1. Institute of Bioorganic Chemistry PAS, Poznań, Poland; 2. FUTUREsynthesis sp. z o.o., Poznań, Poland

Dr Magdalena Mnichowska-Polanowska

The new innovative method for the early detection of a blood-borne biomarker of an invasive fungal infection

rumianek1978@wp.pl

Magdalena Mnichowska-Polanowska¹, Bartosz Wojciuk², Ewa Mijowska³, Krzysztof Cendrowski³, Barbara Dołęgowska⁴

1. Independent Laboratory of Medical Microbiology, Pomeranian Medical University in Szczecin, Poland; 2. Department of Immunological Diagnostics, Pomeranian Medical University in Szczecin, Poland; 3. Department of Nanomaterials Physicochemistry, West Pomeranian University of Technology, Szczecin, Poland; 4. Department of Laboratory Medicine, Pomeranian Medical University in Szczecin, Poland;

XV. IMMUNOMETABOLISM AND EXTRACELLULAR VESICLES IN HEALTH AND DISEASE

Friday, 15 SEPT 2023

15:50-17:20

Main Auditorium

Dr hab. prof. UJ Elżbieta Kołaczowska

Dr hab. prof. UJ Małgorzata Przybyło

15:50-16:10 dr hab. Elżbieta Kołaczowska, prof. nadzw. UJ

Immunometabolism in control of immune responses during sepsis (Lecture)

ela.kolaczowska@uj.edu.pl

Laboratory of Experimental Hematology, Institute of Zoology and Biomedical Research, Jagiellonian University, Krakow, Poland

16:10-16:30 dr hab. Małgorzata Przybyło, prof. nadzw. UJ

Towards understanding the role of glycosylation in melanoma-derived extracellular vesicles
(Lecture)

malgorzata.przybylo@uj.edu.pl

Department Of Glycoconjugate Biochemistry. Jagiellonian University, Krakow, Poland

16:30-16:45 Dr Katarzyna Piwocka

Leukemic extracellular vesicles drive immunosuppressive T cell-mediated microenvironment and progression of myeloid leukemia (Oral presentation)

k.piwocka@nencki.edu.pl

Katarzyna Piwocka¹, Julian Swatler¹, Domenico Lo Tartaro², Sara De Biasi², Laura Turos-Korgul¹, Milena Wiech¹, Agata Kominek¹, Grzegorz Basak³, Wioletta Grabowska-Pyrzewicz¹, Urszula Wojda¹, Andrea Cossarizza²

¹, Nencki Institute of Experimental Biology, Warsaw, Poland

², Department of Medical and Surgical Sciences for Children and Adults, University of Modena and Reggio Emilia, Modena, Italy

³, Department of Hematology, Transplantation and Internal Medicine, Medical University of Warsaw, Warsaw

16:45-17:00 Dr Agnieszka Strzelecka-Kiliszek

The comparison of extracellular vesicles with matrix vesicles derived from human vascular smooth muscle and bone cells (Oral presentation)

a.strzelecka-kiliszek@nencki.edu.pl

Agnieszka Strzelecka-Kiliszek¹, Lilianna Weremiejczyk¹, Joanna Gasik², Sławomir Pikula¹

¹Laboratory of Lipid Biochemistry, Nencki Institute of Experimental Biology, Polish Academy of Sciences, Warsaw, Poland; ²Department of Chemistry, University of Warsaw, Poland

17:00-17:15 Karolina Soroczyńska

Single vesicle imaging flow cytometry approach to unravel the molecular profile of endometriosis-related extracellular vesicles as a source of potential biomarkers
(Oral presentation)

karolina.soroczynska@wum.edu.pl

K. M. Soroczynska¹, T. Tertel², B. Giebel², M. Czystowska-Kuzmich¹

¹ Medical University of Warsaw, Warsaw, Poland ² Institute for Transfusion Medicine, University Hospital Essen, University of Duisburg-Essen, Essen, Germany

17:15-17:20 Discussion/Summary of the Session

POSTERS

Kamil Adamiak

Markers of toxicity and cell-cell communication through extracellular vesicles in primary astrocytes exposed to polystyrene nanoparticles

kadamiak@imdik.pan.pl

Kamil Adamiak, Marta Sidoryk-Węgrzynowicz, Beata Dąbrowska-Bouta, Grzegorz Sulkowski, Lidia Strużyński

Laboratory of Pathoneurochemistry, Department of Neurochemistry, Mossakowski Medical Research Institute, Polish Academy of Sciences, Warsaw, Poland.

Alicja Targońska

Autophagy inhibition promotes increased exosomes secretion in vascular smooth muscle cells, what imitates senescence phenotype.

a.targonska@nencki.edu.pl

Alicja Targońska¹, Karolina Staniak^{1,2}, Grażyna Mosieniak¹

¹Laboratory of Molecular Bases of Aging, Nencki Institute of Experimental Biology PAS, Poland; ²Laboratory of Biomolecular Interactions Studies, Faculty of Chemistry, Warsaw University of Technology, Poland.

Katarzyna Piszczatowska

Role of plasma – derived small extracellular vesicles (sEVs) in the pathogenesis of chronic rhinosinusitis

katarzyna.piszczatowska@wum.edu.pl

Katarzyna Piszczatowska¹, Katarzyna Czerwaty², Karolina Dżaman², Mirosław J. Szczepański^{1,2}

¹ Department of Biochemistry, Medical University of Warsaw, 02-097, Warsaw, Poland, ² Department of Otolaryngology, The Medical Centre of Postgraduate Education, 01-813 Warsaw, Poland

Patrycja Kupnicka

The effect of perinatal fluoride exposure on morphine-related neuroinflammation

patrycja.kupnicka@pum.edu.pl

Patrycja Kupnicka, Kamil Janawa, Michał Tomaszek, Małgorzata Król, Mateusz Bosiacki,
Dariusz Chlubek

Department of Biochemistry and Medical Chemistry, Pomeranian Medical University in
Szczecin, Powstańców Wielkopolskich. 72 St., 70-111 Szczecin, Poland.

XVI. INDUCED PLURIPOTENT STEM CELLS AND ORGANIDS FOR DISEASE MODELLING

Friday, 15 SEPT 2023

9:50-11:20

Hall 114

Prof. dr hab. Józef Dulak

Prof. dr hab. Agnieszka Łoboda

9.50 – 10.15 Dr hab. Małgorzata Borowiak, prof. UAM

Towards better understanding of atypical diabetes using human pluripotent stem cell technology (Lecture)

malgorzata.borowiak@amu.edu.pl

Institute of Molecular Biology and Biotechnology, Adam Mickiewicz University, Poznań,
Poland

10:15-10:40 – Prof. Francesco Saverio Tedesco

Engineering human muscle stem cells for advanced modelling of neuromuscular diseases and therapeutics (Lecture)

f.s.tedesco@ucl.ac.uk

Department of Cell and Developmental Biology, University College London, London, UK

10:40–10:55 - Prof. dr hab. Józef Dulak

Modelling cardiomyopathy with iPSC-derived heart cells and organoids (Lecture)

jozef.dulak@uj.edu.pl

Department of Medical Biotechnology, Faculty of Biochemistry, Biophysics and
Biotechnology, Jagiellonian University, Kraków, Poland; email: This email address is being
protected from spambots. You need JavaScript enabled to view it. ;
web: https://zbm.wbbib.uj.edu.pl/en_GB/

10:55– 11:10 - Prof. dr hab Agnieszka Łoboda

Human iPSC for modelling endothelial cell dysfunction in Duchenne muscular dystrophy (Lecture)

agnieszka.loboda@uj.edu.pl

Agnieszka Łoboda^{1*}, Katarzyna Kaziród¹, Olga Mucha¹, Paulina Podkalicka¹, Dawid Skoczek^{2,3}, Kalina Andrysiak¹, Sławomir Lasota⁴, Neli Kachamakova-Trojanowska², Jacek Stępniewski¹, Józef Dulak^{1*}

¹ Department of Medical Biotechnology, Faculty of Biochemistry, Biophysics and Biotechnology; Jagiellonian University, Krakow, Poland; ² Malopolska Centre of Biotechnology, Jagiellonian University, Kraków, Poland; ³ Doctoral School of Exact and Natural Sciences, Jagiellonian University, Kraków, Poland; ⁴ Department of Cell Biology, Faculty of Biochemistry, Biophysics and Biotechnology; Jagiellonian University, Krakow, Poland;

POSTERS

Marta Przymuszała

Efficient CRISPR/Cas9-mediated correction of DMD exon deletion in Becker muscular dystrophy patient-derived induced pluripotent stem cells

jozef.dulak@uj.edu.pl

Marta Przymuszała¹, Alicja Martyniak¹, Joanna Kwiatkowska², Jarosław Meyer-Szary², Karolina Śledzińska³, Jolanta Wierzba³, Jacek Stępniewski¹, Urszula Florczyk-Soluch¹, Józef Dulak¹

¹Department of Medical Biotechnology, Faculty of Biochemistry, Biophysics, and Biotechnology, Jagiellonian University, Krakow, Poland

²Department of Paediatric Cardiology and Congenital Heart Defects, Medical University of Gdańsk, Poland

³Department of Pediatrics, Hematology and Oncology, Medical University of Gdańsk, Poland

XVII. BIOCHEMISTRY AND BIOTECHNOLOGY OF FUNGI

Thursday, 14 SEPT 2023

15:05-16:35

Hall 116

Prof. dr hab. Bożena Muszyńska

Dr hab. prof. UMCS Grzegorz Janusz

15.05 – 15.35 Dr hab. Anna Pawlik

Spotlight on the Fungi: from photoreception to biotechnology (Lecture)

anna.pawlik@mail.umcs.pl

Department of Biochemistry and Biotechnology, Institute of Biological Sciences, Maria Curie-Skłodowska University, Poland

15.35 -15.55 Dr Andonis Karachitos

An Effective Inhibitor of SARS-CoV-2 Main Protease Revealed by Yeast System (Lecture)

andonis@amu.edu.pl

Wojciech Grabiński¹, Anna Kicińska¹, Ewa Kosicka¹, Martyna Baranek-Grabińska¹, Ewelina Hejenkowska², Joanna Budzik¹, Paulina Śliska¹, Weronika Śliwińska¹, Andonis Karachitos

¹Department of Bioenergetics, Faculty of Biology, Institute of Molecular Biology and Biotechnology, Adam Mickiewicz University, Poznań, Poland.

²Department of Pediatrics, University of Virginia, Charlottesville, VA 22903, USA;

15.55 – 16.15 Jan Pukalski

Fungal melanins – complexity and analytical challenges (Oral presentation)

jan.pukalski@doctoral.uj.edu.pl

Jan Pukalski¹, Natalia Marcol-Rumak¹, Shosuke Ito², Kazumasa Wakamatsu², Przemysław Mieszko Płonka³, Dariusz Latowski¹

¹Jagiellonian University, Faculty of Biochemistry, Biophysics and Biotechnology, Department of Plant Physiology and Biochemistry, Gronostajowa 7, 30-387 Kraków, Poland

²Institute for Melanin Chemistry, Fujita Health University, Toyoake, Aichi 470-1192, Japan

³Jagiellonian University, Faculty of Biochemistry, Biophysics and Biotechnology, Department of Biophysics and Cancer Biology, Gronostajowa 7, 30-387 Kraków, Poland

16.15 – 16. 35 Dr hab. Dariusz Latowski

A new model for fungal dual cultures (Oral presentation)

dariusz.latowski@uj.edu.pl

Jan Pukalski¹, Monika Olchawa-Pajor², Natalia Marcol-Rumak¹, Paweł Jedynek¹, Katarzyna Nawrot-Chorabik³, Dariusz Latowski¹

¹Jagiellonian University, Faculty of Biochemistry, Biophysics and Biotechnology, Department of Plant Physiology and Biochemistry, Gronostajowa 7, 30-387 Kraków, Poland

²University of Applied Sciences in Tarnow, Faculty of Mathematics and Natural Sciences, Department of Environmental Protection, Mickiewicza 8, 33-100 Tarnów, Poland;

³University of Agriculture in Krakow, Department of Forest Ecosystems Protection, 29-Listopada Ave. 46, 31-425 Kraków, Poland,

XVIII. REGULATION OF CELL METABOLISM

Friday, 15 SEPT 2023

9:50-11:20

Hall 117

Prof. dr hab. Agnieszka Dobrzyń

Dr Tomasz Wypych

9:50 – 10:20 Dr inż. Tomasz Wypych

Harnessing the microbiome to improve human health (Lecture)

t.wypych@nencki.edu.pl

Edyta Bulanda, Magdalena Wolska, Pilar Rodriguez-Vizo, Anna Świątkowska and Tomasz Wypych

Laboratory of Host-Microbiome Interactions, Nencki Institute of Experimental Biology, Polish Academy of Sciences, Warsaw, Poland

10:20 – 10:50 Dr Milena Sokółowska

Breathing with confidence: Interplay between Immunity and Metabolism in Asthma and COVID-19 (Lecture)

milena.sokolowska@siaf.uzh.ch

Swiss Institute of Allergy and Asthma Research, University of Zurich, Davos, Switzerland

10:50 – 11:05 Dr Toufic Kassouf

Impact of ubiquitin-dependent signaling events on the regulation of adipose tissue function (Lecture)

t.kassouf@nencki.edu.pl

Toufic Kassouf¹, Katia El Ghazal¹, Filip Dziaczkowski¹, Angel Loza-Valdes¹, and Grzegorz Sumara¹

¹Nencki Institute of Experimental Biology, Warsaw, Poland

11:05 – 11:20 Dr Elżbieta Kaja

Investigating the oral microbiome changes during chemotherapy in breast cancer patients (Lecture)

ekaja@ump.edu.pl

Elżbieta Kaja¹, Joanna Grupińska¹, Magdalena Budzyń¹, Joanna Ciomborowka-Basheer²,
Magdalena Regina Kubiak², Izabela Makałowska², Dorota Formanowicz¹

¹ Department of Medical Chemistry and Laboratory Medicine, Poznan University of Medical Sciences, 60-806 Poznan, Poland.

² Institute of Human Biology and Evolution, Faculty of Biology, Adam Mickiewicz University, 61-614 Poznan, Poland

XIX. RNA DEREGULATION IN DISEASE AND RNA THERAPEUTICS

Thursday, 14 SEPT 2023

15:05-16:35

Main Auditorium

Dr hab. prof. ICHB Agnieszka Fiszer

Dr hab. prof. UAM Dorota K. Raczyńska

15:05-15:30 dr hab. prof. ICHB PAN Agnieszka Fiszer

RNA dysfunction and deregulation in polyglutamine diseases
agnieszka.fiszer@ibch.poznan.pl

Emilia Kozłowska¹, Agata Ciołak¹, Grażyna Adamek¹, Julia Szcześniak¹, Agnieszka Fiszer¹
Corresponding author e-mail:

¹ Department of Medical Biotechnology, Institute of Bioorganic Chemistry, Polish Academy of Sciences, Poznań, Poland

15:30-15:50 dr hab. prof. UAMK. Dorota Raczyńska

Deregulated expression of noncoding RNAs resulted from mutations in FUS protein as a potential molecular mechanism underlying amyotrophic lateral sclerosis
doracz@amu.edu.pl

¹Laboratory of RNA Processing, Department of Gene Expression, Institute of Molecular Biology and Biotechnology, Faculty of Biology and Center for Advanced Technology, Adam Mickiewicz University in Poznan, Poland

15:50-16:05 dr Agata Lichawska-Cieślak

MCPIP1 as a modulator of the RNA landscape in cutaneous squamous cell carcinoma
agata.lichawska@uj.edu.pl

Agata Lichawska-Cieslar¹, Weronika Szukala^{1,2}, Gabriela Machaj³, Chiara Turco⁴, Giulia Fontemaggi⁴, Guillem Ylla³, Jolanta Jura¹

1Department of General Biochemistry, Faculty of Biochemistry, Biophysics and Biotechnology, Jagiellonian University, Krakow, Poland; 2Doctoral School of Exact and Natural Sciences, Jagiellonian University, Krakow, Poland; 3Laboratory of Bioinformatics and Genome Biology, Faculty of Biochemistry, Biophysics and Biotechnology, Jagiellonian University, Krakow, Poland; 4Oncogenomic and Epigenetic Unit, IRCCS Regina Elena National Cancer Institute, Rome, Italy

16:05-16:20 dr Tomasz Kolenda

lncRNA expression pattern in cell lines and in the TCGA model: searching of potential modifiers of response to radiation and biomarkers

tomasz.kolenda@wco.pl

Tomasz Kolenda^{1,2}, Kacper Guglas^{1,2,3}, Joanna Kozłowska-Masłoń^{1,2,4}, Alicja Braska², Anna Teresiak^{1,2}, Katarzyna Lamperska^{1,2}

Laboratory of Cancer Genetics, Greater Poland Cancer Center, 15 Garbary Street, 61-866 Poznan, Poland Research and Implementation Unit, Greater Poland Cancer Center, Garbary 15, 61-866 Poznan, Poland Postgraduate School of Molecular Medicine, 61 Żwirki i Wigury Street, 02-091 Medical University of Warsaw, Warsaw, Poland Faculty of Biology, Institute of Human Biology and Evolution, Adam Mickiewicz University, Uniwersytetu Poznańskiego 6, 61-614 Poznań, Poland

16:20-16:35 dr hab. prof. ICHB PAN Agnieszka Kiliszek

Structural studies of small ligands targeting disease-related RNA molecules

kiliszek@ibch.poznan.pl

Leszek Błaszczuk¹, Martyna Mateja-Pluta¹, Marcin Ryczek¹, Ronald Micura², Kazuhiko Nakatani³, Agnieszka Kiliszek¹

1 Institute of Bioorganic Chemistry, Polish Academy of Sciences, Poznan, Poland

2 Institute of Organic Chemistry and Center for Molecular Biosciences Innsbruck CMBI, Innsbruck, Austria

3 Institute of Scientific and Industrial Research, Osaka University, Japan

POSTERS

Dr Magdalena Woźna-Wysocka

Novel mouse models of Huntington's disease distinguishing transcript and protein toxicities

mwozna@ibch.poznan.pl

Magdalena Woźna-Wysocka^{1#*}, Magdalena Jazurek-Ciesiołka^{1#}, Łukasz Przybył^{1#}, Paweł Świtoński¹, Joanna Suszyńska-Zajczyk², Dorota Wronka¹, Julia Misiorek¹, Grzegorz Figura¹, Adam Ciesiołka¹, Paula Sobieszczkańska¹, Maciej Figiel¹, Anna Zeller³, Magdalena Niemira³, Agnieszka Fiszer¹

*poster presenting author, e-mail: mwozna@ibch.poznan.pl; # equal contribution

1 Institute of Bioorganic Chemistry, Polish Academy of Sciences, Poznan, Poland, 2 Department of Biochemistry and Biotechnology, Poznan University of Life Sciences, Poland, 3 Genomics and Epigenomics Laboratory, Clinical Research Centre, Medical University of Bialystok, Poland

Mgr Patrycja Świergiel

Deciphering the molecular mechanisms underlying the sdRNAs synthesis mediated by FUS
patswi2@amu.edu.pl

1Laboratory of RNA Processing, Department of Gene Expression, Institute of Molecular Biology and Biotechnology, Faculty of Biology, Adam Mickiewicz University in Poznan, Uniwersytetu Poznańskiego 6, 61-614, Poznan, Poland

2Center of Advanced Technologies, Adam Mickiewicz University in Poznan, Uniwersytetu Poznańskiego 10, 61-614, Poznan, Poland

Dr Mashooq Ahmad Dar

Alzheimer's disease biomarker candidate miR-200a-3p synchronizes the regulation of neurodegenerative pathways and the cell cycle.

m.dar@nencki.edu.pl

Mashooq Ahmad Dar, Katarzyna Laskowska-Kaszub, Urszula Wojda

Laboratory of Preclinical Testing of Higher Standard, Nencki Institute of Experimental Biology of Polish Academy of Sciences, Pasteur 3, 02-093, Warsaw, Poland

Dr Anna Teresiak

lncRNAs in neoplasms of the head and neck area and their biological and diagnostic significance

anna.teresiak@wco.pl

Tomasz Kolenda^{1,2}, Anna Teresiak^{1,2}, Kacper Guglas^{1,2,3}, Joanna Kozłowska-Masłoń^{1,2,4}, Katarzyna Lamperska^{1,2}

Laboratory of Cancer Genetics, Greater Poland Cancer Center, Poland Research and Implementation Unit, Greater Poland Cancer Center, Poland Postgraduate School of Molecular Medicine, Medical University of Warsaw, Poland Faculty of Biology, Institute of Human Biology and Evolution, Adam Mickiewicz University, Poland

XX. NEW TRENDS IN STRUCTURAL BIOLOGY

Saturday, 16 SEPT 2023

9:50-11:20

Main Auditorium

Dr hab. prof. ICHB Miłosz Ruskowski

Dr Michał Rawski

9.50-9.55. Introduction and presenting speakers

9.55 – 10.10 Dr hab. Marcin Nowotny

Molecular mechanisms of bacterial DNA repair

mnowotny@iimcb.gov.pl

Laboratory of Protein Structure, International Institute of Molecular and Cell Biology, Warsaw, Poland.

10.10-10.25 Dr Michał Rawski

Cryo-EM Facility at SOLARIS

michal.rawski@uj.edu.pl

Michał Rawski¹, Paulina Indyka¹, Grzegorz Ważny¹, Marcin Jaciuk^{1,2}, Sebastian Glatt²

¹National Synchrotron Radiation Centre Solaris, Jagiellonian University, Poland

²Malopolska Centre of Biotechnology, Jagiellonian University, Poland

10.25-10.40 dr hab., prof. ICHB PAN Krzysztof Brzeziński

Role of integrative structural biology in understanding the structure and dynamics of S-adenosyl-L-homocysteine hydrolase

kbrzezinski@ibch.poznan.pl

Katarzyna Woźniak¹, Paweł Drożdżał¹, Marlena Stępniewska¹, Barbara Imiołczyk¹, Piotr Małecki¹, Magdalena Gaweł¹, Monika Moskwa^{1,2}, Gotard Burdziński³, Tomasz Pędziński⁴, Joanna Śliwiak⁵, Jakub Barciszewski⁵, Miłosz Ruszkowski⁶, Krzysztof Brzeziński¹

¹Department of Structural Biology of Prokaryotic Organisms, Institute of Bioorganic Chemistry, Polish Academy of Sciences, Poznan, Poland; ²Faculty of Biology, Adam Mickiewicz University, Poznan, Poland; ³Quantum Electronics Laboratory, Faculty of Physics, Adam Mickiewicz University, Poznan, Poland; ⁴Department of Chemical Physics, Faculty of Chemistry, Adam Mickiewicz University, Poznan, Poland; ⁵Laboratory of Protein Engineering Institute of Bioorganic Chemistry, Polish Academy of Sciences, Poznan, Poland; ⁶Department of Structural Biology of Eukaryotes, Institute of Bioorganic Chemistry, Polish Academy of Sciences, Poznan, Poland.

10.40 – 10.55. dr hab., prof. ICHB PAN Miłosz Ruszkowski

Structural studies of the histidine biosynthetic pathway in plants toward the discovery of novel herbicides

mruszkowski@ibch.poznan.pl

Wojciech Witek¹, Joanna Sliwiak¹, Maria Rutkiewicz¹, Zbigniew Dauter², and Miłosz Ruszkowski^{1,2}

¹Institute of Bioorganic Chemistry, Polish Academy of Sciences, Poznan, Poland

²National Cancer Institute, Argonne, IL, USA

10.55 – 11.15 mgr Katarzyna Woźniak

Structural study of methylenetetrahydrofolate reductase from Pseudomonas aeruginosa

kawozniak@ibch.poznan.pl

Katarzyna Woźniak¹, Marlena Stępniewska¹, Piotr H. Małecki¹, Krzysztof Brzeziński¹

¹Institute of Bioorganic Chemistry Polish Academy of Sciences, Poznan, Poland

XXI. BIOPHYSICS APPLICATION

Saturday, 16 SEPT 2023

9:50-11:20

Hall 116

Dr hab. Beata Wielgus-Kutrowska

Dr hab. prof. SGGW Piotr Bednarczyk

9.50 – 10.05 Dr Kamila Maliszewska-Olejniczak

Novel insights into the role of BK_{Ca} channel in cellular DNA damage response induced by particulate matter (Oral presentation)

kamila_maliszewska-olejniczak@sggw.edu.pl

K. Maliszewska-Olejniczak¹, P. Bednarczyk¹

Department of Physics and Biophysics, Institute of Biology, Warsaw University of Life Sciences – SGGW, Warsaw, Poland

10.05 – 10.20 Dr Grzegorz Gołuński

Silver nanoparticles as doxorubicin carriers – direct interactions and modulation of biological effects (Oral presentation)

grzegorz.golunski@ug.edu.pl

Kinga Konkel^{1*}, Barbara Galikowska-Bogut², Patrycja Bęłdzińska¹, Katarzyna Bury³, Marcin Zakrzewski¹, Kamila Butowska^{1@}, Rajmund Kaźmierkiewicz¹, Rafał Sądej², Jacek Piosik¹, Grzegorz Gołuński

¹ Laboratory of Biophysics, Intercollegiate Faculty of Biotechnology UG-MUG, Gdańsk, Poland

² Laboratory of Molecular Enzymology and Oncology, Intercollegiate Faculty of Biotechnology UG-MUG, Gdańsk, Poland

³ Laboratory of Molecular Biology, Intercollegiate Faculty of Biotechnology UG-MUG, Gdańsk, Poland

* *current: Leibniz Forschungsinstitut für Molekulare Pharmakologie, Berlin, Germany*

@ *current: Department of Cellular and Molecular Medicine, School of Medicine, University of California San Diego, USA*

10.20 – 10.35 Dr Artur Kaczmarczyk

Tractor beams and single molecules: How to visualize and manipulate single biomolecules in real-time (Oral presentation)

a.kaczmarczyk@lumicks.com

Artur Kaczmarczyk, Roman Renger, Philipp Rauch, Emma Verver, Aida Llauro, Andrea Candelli

LUMICKS, Amsterdam, Netherlands

10.35 – 10.50 Dr Krzysztof Czamara

Spectroscopic characteristics of perivascular adipose tissue lipid profile and its alterations due to cardiometabolic diseases (Oral presentation)

krzysztof.czamara@uj.edu.pl

Krzysztof Czamara¹, Zuzanna Majka¹, Mateusz Wawro², Stefan Chlopicki^{1,3}, Agnieszka Kaczor⁴

¹Jagiellonian Centre for Experimental Therapeutics (JCET), Jagiellonian University, 14 Bobrzynskiego Str., 30-348 Krakow, Poland.

²Department of Cell Biochemistry, Faculty of Biochemistry, Biophysics and Biotechnology, Jagiellonian University, 7 Gronostajowa Str., 30-387 Kraków, Poland

³Chair of Pharmacology, Jagiellonian University Medical College, 16 Grzegorzeczka Str., 31-531 Krakow, Poland.

⁴Faculty of Chemistry, Jagiellonian University, 2 Gronostajowa Str., 30-387 Krakow, Poland.

10.50 – 11.05 Dr Anna-Karina Kaczorowska

Nanoscale Differential Scanning Fluorimetry (nanoDSF) as a valuable tool for characterising proteins derived from extremophilic sources (Oral presentation)

anna.kaczorowska@ug.edu.pl

Anna-Karina Kaczorowska¹, Daria Biernacka¹, Sebastian Dorawa², Olesia Werbowy², Magdalena Płotka² and Tadeusz Kaczorowski²

¹ Collection of Plasmids and Microorganisms | KPD, Faculty of Biology, University of Gdansk, Gdansk, Poland

² Laboratory of Extremophiles Biology, Department of Microbiology, Faculty of Biology, University of Gdansk, Gdansk, Poland

11.05 – 11.20 Dr Rafał Augustyniak

Multisite phosphorylation of human HP1a provides another layer of heterochromatin regulation by metal ions as demonstrated by solution NMR spectroscopy (Oral presentation)

rafal.augustyniak@uw.edu.pl

Emilia Markowska¹, Nicole Maurici², Wiktor Koźmiński¹, Alaji Bah² and Rafał Augustyniak¹

¹Faculty of Chemistry, University of Warsaw, Pasteura 1, 02-093 Warsaw

²Department of Biochemistry & Molecular Biology, SUNY Upstate Medical University, 750 E Adams Street, Syracuse, New York 13210

WOMEN IN SCIENCE

Friday, 15 SEPT 2023

9:50-11:20

Hall 116

Prof. dr hab. Ewa Łojkowska, Intercollegiate Faculty of Biotechnology University of Gdańsk & Medical University of Gdańsk

15:50-16:15 Prof. dr hab. Joanna Starowicz

Osteoarthritis: role of the endocannabinoid system and its overlap with cognitive function.

Department of Neurochemistry, Maj Institute of Pharmacology Polish Academy of Sciences, Kraków, Poland

16:15-17:10 Dr Karolina Jarzyniak,

Early stages of legume-rhizobia symbiosis are controlled by ABCG-mediated transport of active cytokinins

Poznań University of Life Sciences, Poznań, Poland

17:10-17:30 Dr Monika Ryndzionek

The importance of the gender dimension in research and innovation.

The National Centre for Research and Development, National Contact Point, Warszawa, Poland

17:30-17:50 Dr hab. Natasza Kosakowska-Berezecka, prof. UG

Why is it risky NOT to build diverse, inclusive and gender equal culture within academia?

Institute of Psychology, University of Gdańsk, Gdańsk, Poland

SATELLITE LECTURES

Wednesday, 13 SEPT 2023 (12:30-14:00, Main Auditorium)

POPULAR SCIENCE LECTURE FOR RESIDENTS OF SZCZECIN

Prof. dr hab. Ewa Stachowska

Zdrowa dieta – co to znaczy?

Healthy diet what does it mean

Wednesday, 13 SEPT 2023 (17:30-19:00 Main Auditorium)

PARNAS LECTURE

Prof. dr hab. Marcin Nowotny

Reverse transcriptases - a family of versatile and diverse DNA polymerases