DAY ONE

Winter School of FBBB, JU

Feb 22, 2022

8.00 - 9.00 Registration
9.00 - 9.10 Opening ceremony

OPENING LECTURES

9.10 -11.00 **prof. Krzysztof Meissner** (Faculty of Physics, UW) **Prostota i złożoność: od fizyki do biologii**
prof. Paweł Golik (Faculty of Biology, UW) **Czego nie wiemy — wyzwania i problemy genomiki**

11.00 -11.30 Coffee break

TOPICS: GENOMICS & TRANSCRIPTOMICS

11.30 -13.30 Training Session 1: **Genomics**
Wojciech Branicki (MCB & IZBR, JU), **Introduction to human genome variation analysis and beyond.**
Rezvan Noroozi (MCB, JU), **DNA microarray techniques in genomics and epigenomics research.**
Wiesław Babik (IES, JU), **Population-scale whole-genome and targeted resequencing in non-model organisms.**
Piotr Łukasik (IES, JU), **High-throughput characterization of microbiomes, host-microbe interactions, and beyond.**
Agata Jarosz (MCB, JU), **BioS Genomics Core Facility - what we can do for you.**

13.30 -14.30 Lunch break

14.30 -16.30 Training Session 2: **Transcriptomics**
Maja Kosecka-Strojek (FBBB, JU) **RNA processing and preparation of NGS libraries**
Michał Bukowski (FBBB, JU) **From short reads to differential expression**
Sandra Sierankowska (Analityk Genetyka) **Transcriptomics on Illumina platforms**
Guillem Ylla (FBBB, JU) **Small RNAs: when the small rule the bigger**

DAY TWO

Winter School of FBBB, JU

Feb 23, 2022

TOPICS: PROTEOMICS & METABOLOMICS

9.00 - 11.15 Training Session 3: **Proteomics: Principles, Techniques and Applications**

Emilia Bonar (FBBB, JU) **Gel-based comparative proteomics**

Sylwia Kędracka-Krok (FBBB, JU) **Mass-spectrometry based protein identification and quantification**

Piotr Tarnowski (Spektrometria) **The Zenotof 7600 system – the new, flexible tool for advanced proteomics**

Kristina Marx (Bruker Daltonics) **Proteomics challenges - overcoming sample complexity and beyond**

11.15 - 11.45 Coffee break

11.45 - 13.45 Training Session 4: **Introduction to metabolomics and its application in life-sciences**

Michał Markuszewski (Medical University of Gdańsk) **Metabolomics in modern bioanalysis**

Mariola Olkowicz (JCET, JU) **Recent advances and trends in miniaturized sample preparation techniques for MS-based metabolomic analyses**

Simonas Rudys (Thermo Scientific, Anchem) **Thermo Scientific solutions for untargeted metabolomic**

Mariola Olkowicz (JCET, JU) **Novel Applications of Metabolomics in Personalized Medicine**

13.45 - 14.45 Lunch break

DAY TWO

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Feb 23, 2022

TOPICS: PROTEOMICS & METABOLOMICS

14.45 -16.30 Oral Session 1: **Nucleic acids**

Mirosław Zarębski Mechanism of induction of single- and double-strand DNA breaks by visible laser light

Katarzyna Łagosz-Ćwik The DNMT inhibitor decitabine has detrimental effects on gingival fibroblasts but sheds light on the role of DNA methylation in periodontitis.

Przemysław Malec The function of photosystem I oligomerization in cyanobacteria: a lesson from transcryptomic profiling of *Synechocystis* PCC 6803 PSAL-mutant

Aleksandra Liszka Transcriptional control of the wood formation process

Jan Łyczakowski Molecular and genetic basis of wood resistance to enzymatic degradation

Gabriela Machaj A novel transcriptomic role of E93 in insect embryogenesis

Natalia Pydyn Multiomic analysis of primary biliary cholangitis-associated pathways in MCPIP1FL/FLALBCRE mice

16.30 -17.30 Poster Session No 1*

17.30 Snacks and drinks

INTEGRATION event

*for poster topics please refer to the poster programme

DAY THREE

Winter School of FBBB, JU

Feb 24, 2022

TOPICS: PROTEINS & CELLS

9.00 -11.00 Oral Session 2: **Proteins**

Alex Matsuda Assaying COVID-19 – from hit to lead toolbox

Antonia Łobodzińska An omics approach to investigate cyanophage infection in freshwater cyanobacteria

Kinga Chlebicka Staphylococcal toxin-antitoxin systems in proteomic studies

Jan Majta Microbial ability to metabolize HOMs as a functional background of distinctive profiles of the infant gut microbiome in northern Europe

Justyna Karkowska-Kuleta Proteomic characteristic of extracellular vesicles produced by *Candida* pathogenic yeasts

Aleksandra Kopacz The role of fibrillin-1 and TGFβ in the formation of abdominal aortic aneurysm

Małgorzata Bodaszewska-Lubaś The expression of dominant-negative SIGIRRΔE8 promotes colorectal cancer by increasing cell metabolism.

Mateusz Szwalec Unexpected spectral and redox properties of hemes b in cytochrome b6f

Svitlana Levchenko Fluorescence lifetime imaging as a tool for sensing nuclear protein assembling

11.00 -11.30 Coffee break

11.30 -12.30 Poster Session No 2*

12.30 -13.30 Lunch break

*for poster topics please refer to the poster programme

DAY THREE

Winter School of FBBB, JU

Feb 24, 2022

TOPICS: PROTEINS & CELLS

13.30 -15.30 Oral Session 3: **Cells**

Krzysztof Szade How the bone marrow vasculature regenerate? Regeneration of bone marrow endothelial cells at single cell and clonal level

Elżbieta Karnas Extracellular vesicles from human ips cells enhance reconstitution capacity of cord blood-derived hematopoietic stem and progenitor cells

Milena Paw Cx43 regulates the pro- and anti-fibrotic tgf-β/smad signalling during myofibroblastic transitions in asthma

Paulina Marona Tumor initiation – the role of mcpip1 protein

Paweł Stalica (SHIM-POL) Selection guide metabolite analysis. metabolomics and proteomics product portfolio

Elwira Nieboga The interplay between oral pathogens and inflammatory cytokines in gingival fibroblast activation in periodontitis.

Aleksandra Wielento Accessory subunits of *P. gingivalis* major fimbriae potentially modified by ppad are vital tlr2 agonists

Paweł Żbik, Przemysław Malec Identification of myxoxantophyll isomers in *Anabaena* (*Nostoc*) PCC7120

Ariel Kamiński Searching of bioactive secondary metabolites from five cyanobacterial species

15.30 - 16.00 Closing ceremony

18.00 Dinner in Old Town