SMM • Disease understanding and modeling using genomics, multi-omics, organoids and animal models

Autumn school 2025 (Curriculum – MODULE 2)

Organized by Doctoral School of Molecular Medicine, Nencki Institute, EMERALD

Day 1 | 5/11/2025 (Wednesday)

Location: Nencki Institute PAS, Warsaw, Pasteur 3 str.

Introduction Lecture Break PhD Workshop

TIME	LENGTH	TITLE	SPEAKER
09:00	10 min	**Introduction**	**Bożena Kamińska** Nencki Institute, PAS, Warsaw
09:10	50 min	**Lung dendritic-cell metabolism underlies susceptibility to viral infection in diabetes**	**Aleksandra Kołodziejczyk** International Institute of Molecular and Cell Biology, Warsaw
10:00	50 min	**Integrative epigenetic and transcriptomic profiling identifies novel regulators of human lung repair**	**Renata Jurkowska** Cardiff University, UK
10:50	30 min	**Coffee break**	
11:20	1 h 40 min	**Presentation of first-year PhD Students' research projects**	
13:00	30 min	**Lunch break**	
13:30	4 h	**Workshop for PhD Students** Introduction to scRNAseq technologies-wetlab practicals	**SMM Scientific Council Meeting** (14:45-16:00; hybrid mode)
17:30			

TOTAL LENGTH: 8 h 30 min

Day 2 | 6/11/2025 (Thursday)

Location: Nencki Institute PAS, Warsaw, Pasteur 3 str.

Lecture Break Workshop

TIME	LENGTH	TITLE	SPEAKER
09:00	50 min	**Hematopoiesis at the intersection of innate immunity and purinergic signaling.**	**Mariusz Ratajczak** Medical University of Warsaw University of Louisville, USA
9:50	50 min	**Mixed-Lineage Kinases as novel regulators of tumor microenvironment interactions and chemoresistance in breast cancer**	**Anna Marusiak** International Institute of Molecular Mechanisms and Machines, PAS, Warsaw
10:40	20 min	**Coffee break**	
11:00	50 min	**Molecular neurobiology of autism**	**Magdalena Dziembowska** University of Warsaw, Warsaw
11:50	50 min	**DNA methylation shapes transcriptomic patterns in cancer**	**Bartosz Wojtaś** Nencki Institute, PAS, Warsaw
12:40	50 min	**The effects of vitamin D on the whole human epigenome**	**Carsten Carlberg** Institute of Animal Reproduction and Food Research, PAS, Olsztyn
13:30	30 min	**Lunch break**	
14:00	50 min	**Maturation of chromatin topology in development**	**Aleksandra Pękowska** Nencki Institute, PAS/Dioscuri Center, Warsaw
14:50	50 min	**TBD**	**TBD**
15:40	20 min	**Coffee break**	
16:00	50 min	**Using iPSCs, iNeurons and organoids to understand brain diseases**	**Jacek Jaworski** International Institute of Molecular and Cell Biology, Warsaw
16:50	30 min	**Single-cell multiomic approaches to cancer immunity: focus on antigen processing in the tumor microenvironment**	**Natalia Ochocka** Institute of Physical Chemistry, PAS, Warsaw
17:20	30 min	**Advances in sc-omics**	**Anna Pastyria**
17:50			

TOTAL LENGTH: 8 h 50 min

Day 3 | 7/11/2025 (Friday)

Location: Nencki Institute PAS, Warsaw, Pasteur 3 str.

Lecture Break Workshop

TIME	LENGTH	TITLE	SPEAKER
9:00	25 min	**Introduction to Nanopore sequencing: Technology, applications and future horizons**	**Sebastian Ganschow** Nanopore, Germany
9.25	50 min	**Decoding heart development and disease through zebrafish genomics**	**Cecilia Lanny Winata** International Institute of Molecular and Cell Biology, Warsaw
10:15	50 min	**Immunity of allergy**	**Tomasz Wypych** Nencki Institute, PAS, Warsaw
11:05	20 min	**Coffee break**	
11:25	25 min	**Genomic reproducibility in the bioinformatics era - Metagenomics - Virus**	**Paweł Łabaj** Małopolska Biotechnology Center, Krakow, PL
11:50	50 min	**Advances in synthetic lethality for anticancer therapies**	**Michał Mikuła** Oncology Center, Warsaw
12:40	30 min	**Lunch break**	
13:10	50 min	**Inference of developmental trajectories and gene regulatory programs from single-cell and spatial multimodal data**	**Marcin Tabaka** Institute of Physical Chemistry, PAS, Warsaw
14:00	50 min	**Can genomics help us to understand the past?**	**Marek Figlerowicz** Institute of Bioorganic Chemistry, PAS, Poznan
14:50	20 min	**Coffee break**	
15:10	25 min	**Quantification of microbial composition and analysis of metabolic pathways**	**Łukasz Łaczmański** Hirszfeld Institute of Immunology and Experimental Therapy, PAS, Wrocław
15:35	25 min	**mRNA Vaccine (Re-adenylation by TENT5A enhances efficacy of SARS-CoV-2 mRNA vaccines)**	**Aleksandra Brouze** International Institute of Molecular and Cell Biology, Warsaw

16:00	40 min	**Uncovering post-transcriptional mechanisms driving energy dissipation in adipose tissue**	**Grzegorz Sumara** Nencki Institute, PAS Dioscuri Center, Warsaw
16:40	40 min	**TBD**	**Leonora Buzanska** Mossakowski Medical Research Center, Warsaw, PL

TOTAL LENGTH: 8 h 20 min