

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. (Konorski room, 2nd floor)

■ 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 (room A, ground floor)		
11:20	1 h 40 min	Presentation of <u>first-year</u> PhD Students' research projects	5 min presentations + discussion	
		PhD Candidate	Research topic	Supervisor
		Bajewska Kaja	Analysis of selected Hippo signaling pathway proteins in the pathogenesis of glioma using cell models	prof. dr hab. n. med. Wiktoria Suchorska
		Burzyński Jacek	Whole-genome identification of constitutional variants predisposing to treatment-related toxicity in children	dr hab. n. med. Agata Pastorczak
				SMM Partner's Unit
				Greater Poland Cancer Centre
				Medical University of Lodz

		diagnosed with acute lymphoblastic leukemia.		
		Gromek Piotr	Integration of transcriptomic data from single-cell sequencing with exploratory analysis of newly discovered cell death mechanisms	dr hab. n.med. Elżbieta Pluciennik Medical University of Lodz
		Król Wojciech	The impact of Growth and Differential Factor 11 on the senescence and endocrine function of the pancreas	dr hab. n. med. Marta Zielińska Medical University of Lodz
		Lehman Natalia	Mechanisms of SPP1-dependent immune suppression in brain metastases and their therapeutic modulation	prof. dr hab. Bożena Kamińska-Kaczmarek Nencki Institute of Experimental Biology PAS
		Lesińska Dominika	Study of the neurobiological mechanisms of the anti-addictive effects of psychedelics	dr hab. Adam Hamed Nencki Institute of Experimental Biology PAS
		Oldak Maciej	Analysis of the functions, interactions, and impact on epigenetics of the transcription factors REST and KAISO in the context of glioblastoma	dr hab. Bartosz Wojtaś Institute of Computer Science PAS
		Pinczak Witold	The Impact of Anthropometric, Clinicopathological Parameters, and Intestinal Integrity Markers on the Risk of Perioperative Complications in Patients with Colorectal Cancer Undergoing Surgical Treatment	dr hab. n. med. Witold Kycler Greater Poland Cancer Centre
		Psujek Michał	The clinical role of long non-coding RNA in breast cancer	prof. dr hab. n. med. Izabela Zawlik University of Rzeszów
		Winiecki Tomasz	The use of spatially fractionated radiotherapy (SFRT) in the palliative treatment of advanced head and neck cancers – evaluation of treatment tolerance and effectiveness, analysis of molecular mechanisms of leukocyte activation and cytotoxic effects	dr hab. n. med. Joanna Kaźmierska Greater Poland Cancer Centre
		Ahamed Qasid	Molecular etiology of clubfoot	prof. dr hab. Przemysław Tylżanowski Medical University of Lublin
		Ullah Zabeeh	Molecular basis of craniofacial malformations	prof. dr hab. Przemysław Tylżanowski Medical University of Lublin
13:00	30 min	Lunch break (room A, ground floor)		
13:30	4 h	Workshop for PhD Students (Wojtczak room 1 st floor) Introduction to scRNAseq technologies-wetlab practicals		
17:30		SMM Scientific Council Meeting (14:45-16:00; hybrid mode) Konorski room, 2nd floor		

TOTAL LENGTH: 8 h 30 min

Day 2 | 6/11/2025 (Thursday)

Location: Nencki Institute PAS, Warsaw, Pasteur 3 str. (Neurobiology Center Hall)

■ Lecture ■ Break

TIME	LENGTH	TITLE	SPEAKER
09:00	40 min	Hematopoiesis at the intersection of innate immunity and purinergic signaling	Mariusz Ratajczak Medical University of Warsaw University of Louisville, USA
9:40	40 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
10:20	20 min	Coffee break	
10:40	40 min	Molecular neurobiology of autism	Magdalena Dziembowska University of Warsaw, Warsaw
11:20	40 min	DNA methylation shapes transcriptomic patterns in cancer	Bartosz Wojtaś Nencki Institute, PAS, Warsaw
12:00	40 min	The effects of vitamin D on the whole human epigenome	Carsten Carlberg Institute of Animal Reproduction and Food Research, PAS, Olsztyn
12:40	30 min	Lunch break	
13:10	40 min	Maturation of chromatin topology in development	Aleksandra Pękowska Nencki Institute, PAS/Dioscuri Center, Warsaw
13:50	40 min	Collective oscillations during embryonic development	Alexander Aulehla European Molecular Biology Laboratory, EMBL, Germany
14:30	20 min	Coffee break	
14:50	40 min	Advances in synthetic lethality for anticancer therapies	Michał Mikula Oncology Center, Warsaw
15:30	40 min	Inference of developmental trajectories and gene regulatory programs from single-cell and spatial multimodal data	Marcin Tabaka Institute of Physical Chemistry, PAS, Warsaw

16:10	20 min	Advances in single cell and spatial applications	Anna Pastyria Field Application Specialist, Analitik Genetyka
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16:30

TOTAL LENGTH: 7 h 30 min

Day 3 | 7/11/2025 (Friday) – Nanopore Day

Location: Nencki Institute PAS, Warsaw, Pasteur 3 str. (Neurobiology Center Hall)

■ Lecture ■ Break

TIME	LENGTH	TITLE	SPEAKER
9:00	40 min	The influence of the microbiome on immunity	Tomasz Wypych Nencki Institute, PAS, Warsaw
9:40	40 min	Decoding heart development and disease through zebrafish genomics	Cecilia Lanny Winata International Institute of Molecular and Cell Biology, Warsaw
10:20	20 min	Introduction to Nanopore sequencing: Technology, applications and future horizons	Sebastian Ganschow Nanopore, Germany
10:40	20 min	Coffee break	
11:00	40 min	Using iPSCs, iNeurons and organoids to understand brain diseases	Jacek Jaworski International Institute of Molecular and Cell Biology, Warsaw
11:40	40 min	Single-cell multiomic approaches to cancer immunity: focus on antigen processing in the tumor microenvironment	Natalia Ochocka Institute of Physical Chemistry, PAS, Warsaw
12:20	30 min	Genomic reproducibility in the bioinformatics era	Paweł Łabaj Małopolska Biotechnology Center, Krakow
12:50	30 min	Lunch break	
13:20	40 min	Can genomics help us to understand the past?	Marek Figlerowicz Institute of Bioorganic Chemistry, PAS, Poznan

14:00	20 min	Wykorzystanie sekwencjonowania nanoporowego do identyfikacji czynnika biologicznego podczas zdarzeń CBRNE	Łukasz Łaczmański Hirsfeld Institute of Immunology and Experimental Therapy, PAS, Wrocław
14:20	20 min	mRNA Vaccine (Re-adenylation by TENT5A enhances efficacy of SARS-CoV-2 mRNA vaccines)	Paweł Krawczyk International Institute of Molecular and Cell Biology, Warsaw
14:40	20 min	Coffee break	
15:00	30 min	Long read versus short read, clinical advantages and applications	Ugur Sezerman Sabanci University, Türkiye
15:30	40 min	Uncovering post-transcriptional mechanisms driving energy dissipation in adipose tissue	Grzegorz Sumara Nencki Institute, PAS Dioscuri Center, Warsaw
16:10	40 min	Bridging fundamental and translational research with human brain organoids	Leonora Bużańska Mossakowski Medical Research Center, Warsaw
16:50			

TOTAL LENGTH: 7 h 50 min