

7th International PhD Student Conference

Nencki Institute of Experimental Biology

Scientific Programme



nencki institute
of experimental biology



Warsaw-4-PhD
Warsaw Doctoral School
In Medical and BioMedical Sciences

Warsaw, October 19-20, 2023

Thursday, 19.10

Session 1 (chair: Dominika Malińska)

- 9:30 Welcome note (PROF. JOANNA SZCZEPANOWSKA, PROF. DANIEL WÓJCIK)
- 9:40 **LAURA TUROS-KORGUL** (LABORATORY OF CYTOMETRY)
Microenvironment matters – the role of stroma-derived CD44 protein in leukemia drug resistance
- 9:55 **KAROL JACEK** (LABORATORY OF MOLECULAR NEUROBIOLOGY)
Immune cell composition and functionality in murine glioblastoma microenvironment at single cell and spatial resolution
- 10:10 **PAULINA BORKOWSKA** (LABORATORY OF CELL BIOPHYSICS)
Interaction between fusion peptide and transmembrane domain of influenza hemagglutinin
- 10:25 Speed talks:
- MAGDALENA SZPONAR** (LABORATORY OF NEUROPHYSIOLOGY OF MIND)
Classification of mental disorders from brain waves
- JACEK WRÓBEL** (LABORATORY OF NEUROINFORMATICS)
MK801-enhanced high-frequency oscillations in the piriform cortex are driven by the olfactory bulb in the freely moving rats
- JUSTYNA WIŚNIEWSKA** (LABORATORY OF NEURONAL PLASTICITY)
Does a mouse need NR2B receptors to feel good?
- JULIA MASTERNAK** (LABORATORY OF CELL BIOPHYSICS)
The place does matter – differences in neuronal plasticity in hippocampal subregions
- URSZULA WŁODKOWSKA** (LABORATORY OF SPATIAL MEMORY)
Activity of the retrosplenial cortex during navigation using partial cues of different complexity
- FARZAD KHANIPOUR** (LABORATORY OF EMOTIONS NEUROBIOLOGY)
Induced mTOR hyperactivity in dentate gyrus granule cells leads to the impairment of pattern separation in mice
- 10:45 **Coffee break**

Session 2 (chair: Beata Siemiątkowska)

- 11:15 **MAGDA KRAKOWCZYK** (LABORATORY OF PROTEIN HOMEOSTASIS)
OMA1 protease releases arrested protein import intermediates from mitochondria
- 11:30 **ISMAIL GBADAMOSI** (LABORATORY FOR TRANSLATIONAL RESEARCH IN NEUROPSYCHIATRIC DISORDERS)
Motor Neuron Energy Metabolic Reprogramming in TDP43 loss-of-function: implication for ALS and FTLD
- 11:45 **KATIA ALGHOZ** (DIOSCURI CENTRE FOR METABOLIC DISEASES)
Proteomic approach unravels E3 ligase, TRIM32, as a central mediator β -adrenergic signalling in adipocytes
- 12:00 *Opportunity in diversity: all you need to know before applying for a fellowship*
Humboldt Foundation Fellowships – DR. EWA WIERZBICKA (FACULTY OF ADVANCED TECHNOLOGIES AND CHEMISTRY, MILITARY UNIVERSITY OF TECHNOLOGY)

The Fulbright Programme – *PATRYCJA DONABURSKA (FULBRIGHT POLAND)*

EMBO Fellowships and Grants – *DR. OLGA SUMARA (OFFICE OF INTERNATIONAL RELATIONS AND PROJECT MANAGEMENT, NENCKI INSTITUTE)*

12:40 **Lunch**

Session 3 (chair: Marzena Stefaniuk)

13:40 **PEGAH TAHERI** (LABORATORY OF MOLECULAR BASIS OF BEHAVIOUR)
Arc in central amygdala regulates alcohol seeking during cue relapse by changing the synaptic strength

13:55 **ALICJA OLSZEWSKA** (LABORATORY OF BRAIN IMAGING)
Training-Induced Neuroplasticity Dynamics in the Motor System of Adult Novice Pianists

14:10 **AGNIESZKA GLICA** (LABORATORY OF LANGUAGE NEUROBIOLOGY)
Sex differences in low-level multisensory integration in developmental dyslexia

14:25 **Speed talks:**

RAMAN SAMUSEVICH (INSTITUTE OF ORGANIC CHEMISTRY AND BIOCHEMISTRY, CZECH ACADEMY OF SCIENCES)
Discovery and Characterization of Terpene Synthases Powered by Machine Learning

MARKÉTA ŠOLTYSOVÁ (INSTITUTE OF ORGANIC CHEMISTRY AND BIOCHEMISTRY, CZECH ACADEMY OF SCIENCES)
The mechanism of the SorC protein family revealed

KRUTIKA THAKKUR (LABORATORY OF PROTEIN HOMEOSTASIS)
Split GFP reporter to track factors affecting membrane translocation of ubiquitinated mitochondrial proteins

DOMINIKA WOJTON (LABORATORY OF MOLECULAR BASIS OF CELL MOTILITY)
Lack of myosin VI affects skeletal muscle energy metabolism

DEBADEEP CHAUDHURY (DIOSCURI CENTRE FOR CHROMATIN BIOLOGY AND EPIGENOMICS)
Mapping evolution of the genetic landscape in primate astrocytes

14:45 **Coffee break**

Session 4 (chair: Dorota Dymkowska)

15:15 **Keynote lecture**

PROF. MATHIAS SCHMIDT (MAX PLANK INSTITUTE OF PSYCHIATRY, MUNICH)

From stress resilience to psychopathology – how can we bridge the translational gap?

16:00 – 18:00 **Poster Session I**

Discussions and snacks

Friday, 20.10

Session 5 (chair: Pilar Rodriguez-Viso)

- 9:30 **JUSTYNA RÓG** (LABORATORY OF CELLULAR METABOLISM)
ATP-activated receptors in the *pathophysiology* of Duchenne Muscular Dystrophy (DMD) – mouse model of DMD
- 9:45 **CARLOS ACOSTA** (DIOSCURI CENTRE FOR METABOLIC DISEASES)
Role MK5 in the *Regulation* of skeletal muscle biology
- 10:00 **ADRIAN SÓWKA** (LABORATORY OF MOLECULAR MEDICAL BIOCHEMISTRY)
Role of *stearoyl*-CoA desaturase 1 in the regulation of perivascular adipose tissue function
- 10:15 **MAGDALENA GOMÓŁKA** (LABORATORY FOR TRANSLATIONAL RESEARCH IN NEUROPSYCHIATRIC DISORDERS)
The role of lipid metabolism and circulating miRNAs in the intergenerational transmission of the effects of parental adverse childhood experiences
- 10:30 **Speed talks:**
- ZEINAB BEDROOD** (LABORATORY OF CELL BIOPHYSICS)
Neural Mechanisms Behind Chronic Stress Resilience
- BEATA KUCHARZ** (LABORATORY OF NEUROMUSCULAR PLASTICITY)
Modulation of the injured nerve microenvironment to support axon regeneration in rat newborns
- MAGDALENA STAŃCZYK** (LABORATORY OF NEUROPHYSIOLOGY OF MIND)
Clock in our brain. The role of temporal processing across different time scales
- MATEUSZ RYCERZ** (LABORATORY OF EMOTIONS NEUROBIOLOGY)
Measuring individual preferences for diverse tastes in group-housed mice
- ROKSANA KAPŁON** (LABORATORY OF ELECTROPHYSIOLOGY)
Tonic GABAAR inhibition in layer 2/3 somatostatin interneurons of somatosensory cortex
- ANJALY YADAV** (LABORATORY OF EMOTIONS NEUROBIOLOGY)
Coming together - the neural dynamics of transition from out-group reserve to in-group fellowship
- 10:50 **Coffee break**

Session 6 (chair: Anna Stroynowska-Czerwińska)

- 11:30 **GREGORY PETRAZZO** (LABORATORY OF MOLECULAR BASES OF AGING)
Combination of Dasatinib and Quercetin rejuvenate the gut-brain axis in aged Wistar rats
- 11:45 **DIANA LEGUTKO** (LABORATORY OF NEUROBIOLOGY)
Role of MMP-9 in plasticity of individual dendritic spines
- 12:00 **ERYK DUŃSKI** (DIOSCURI CENTRE FOR CHROMATIN BIOLOGY AND EPIGENOMICS)
Characterisation of regulome in human astrocytes, based on iPSC-derived astrocyte models
- 12:15 **ZIEMOWIT SŁAWIŃSKI** (LABORATORY OF NEUROINFORMATICS)
Exploring dendritic plasticity: how synaptic and ion channel adaptations enable single neurons to rival artificial neural network complexity

12:30 Speed talks:

SOLMAZ KARIMI (LABORATORY OF MITOCHONDRIAL BIOLOGY AND METABOLISM)

Exploring of the metabolic reprogramming in Hepatocellular carcinoma cells: insights from HepG2 and HepG2/C3A models

MICHAELA VONDRÁČKOVÁ (INSTITUTE OF PHYSIOLOGY, CZECH ACADEMY OF SCIENCES)

LORA: Lipid Over-Representation Analysis Based on Structural Information

EDYTA BULANDA (LABORATORY OF HOST-MICROBE INTERACTIONS)

The influence of microbial metabolites on brain immunity

ZUZANNA M. LUCZAK-SOBOTKOWSKA (LABORATORY OF MOLECULAR NEUROBIOLOGY)

Heterogeneity and morphology of microglia after transient depletion and repopulation at different ages

WERONIKA TOMASZEWSKA (LABORATORY FOR TRANSLATIONAL RESEARCH IN NEUROPSYCHIATRIC DISORDERS)

Interplay of serum lipids and microglia in the susceptibility to the long-term behavioral effects of adverse childhood experiences

12:55 **MATEUSZ KOSTECKI** (LABORATORY OF EMOTIONS NEUROBIOLOGY)

Learn open science tools with Nencki Open Lab.

13:00 – 15:00 Poster Session II

Discussions and snacks

Session 7 (chair: Justyna Janikiewicz)

15:00 Keynote lecture

PROF. ANDRZEJ DRAGAN (FACULTY OF PHYSICS, UNIVERSITY OF WARSAW)

Will AI eat us?

15:40 Closing remarks and best talks/posters awards

16:00 **Get together at the Exhibition Hall**

Posters list - Poster Session I

- 1.1. **MISBAH ABBAS** (DIOSCURI CENTRE FOR CHROMATIN BIOLOGY AND EPIGENOMICS) *Cell type specific impact of DDX5 on gene expression and splicing.*
- 1.2. **MONIKA DŹWIGOŃSKA** (LABORATORY OF MOLECULAR NEUROBIOLOGY) *Hypoxia shapes the chromatin accessibility changes in glioma-reprogrammed microglial cells.*
- 1.3. **BARBORA OPLETALOVA** (INSTITUTE OF PHYSIOLOGY, CZECH ACADEMY OF SCIENCES) *The crucial role of HIF-1 α and mitophagy in cardioprotection induced by chronic hypoxia.*
- 1.4. **ALICJA TARGOŃSKA** (LABORATORY OF MOLECULAR BASES OF AGING) *Autophagy inhibition promotes increased exosomes secretion in vascular smooth muscle cells, what imitates senescence phenotype.*
- 1.5. **ALEKSANDRA MIELNICKA** (LABORATORY OF NEUROBIOLOGY) *Exocytosis in astrocytes.*
- 1.6. **AGATA PYTYŚ** (LABORATORY OF CELL BIOPHYSICS) *Protein S-palmitoylation in synaptic plasticity.*
- 1.7. **ADAM DATTA** (LABORATORY OF NEUROINFORMATICS) *Deep learning approaches in observer-independent exploration of cytoarchitectural properties of the non-human primate cerebral cortex.*
- 1.8. **PAWEŁ JAKUSZYK** (LABORATORY OF BRAIN IMAGING) *Imaging white matter fibre density to discriminate between MS and NMO/D.*
- 1.9. **MARIA WRZOSEK** (LABORATORY OF NEUROPHYSIOLOGY OF MIND) *Role of dopaminergic neurons in substantia nigra in working memory - preliminary study.*
- 1.10. **STANISLAVA RAKUSANOVA** (INSTITUTE OF PHYSIOLOGY OF THE CZECH ACADEMY OF SCIENCES) *Exploring mouse plasma metabolome and lipidome changes upon chow and high-fat diet.*
- 1.11. **MAGDALENA WIT** (DIOSCURI CENTRE FOR METABOLIC DISEASES) *PKD2 determines lipid-evoked remodeling of LD proteome in small intestine.*
- 1.12. **AGATA WYDRYCH** (LABORATORY OF MITOCHONDRIAL BIOLOGY AND METABOLISM) *Metabolic profiling of fibroblasts derived from patients suffering from MPAN subtype of Neurodegeneration with Brain Iron Accumulation.*
- 1.13. **MARINA MOROZOVOVÁ** (INSTITUTE OF ORGANIC CHEMISTRY AND BIOCHEMISTRY OF THE CZECH ACADEMY OF SCIENCES) *Quantitative analysis of permeability of neurotherapeutics through the in vitro blood-brain-barrier using mass spectrometry.*
- 1.14. **WING-SZE TSE** (LABORATORY OF CELL BIOPHYSICS) *Evaluation of NitroSynapsin on synaptic plasticity in a mouse model of depression.*
- 1.15. **WIKTORIA PODOLECKA** (LABORATORY OF NEUROINFORMATICS) *Short-lasting anosmia in rats after gadolinium infusion to the nares: Preliminary findings.*
- 1.16. **KAROLINA PROTOKOWICZ** (LABORATORY OF NEUROBIOLOGY) *MMP-9 mediates behavioral alterations after bacteria-like inflammation in early life.*
- 1.17. **ŁUKASZ BIJOCH** (LABORATORY OF NEURONAL PLASTICITY) *DRD1- and DRD2-positive neurons in the central nucleus of the amygdala for natural and pharmacological reward processing.*
- 1.18. **NATHALIE CMARKOVÁ** (INSTITUTE OF PHYSIOLOGY, CZECH ACADEMY OF SCIENCES) *Selective Modulation of Effort-Based Decision Making by 8-OH-DPAT but not PCPA in Rats.*
- 1.19. **JULIA ŚWIDERSKA** (LABORATORY OF MOLECULAR BASIS OF BEHAVIOUR) *Choosing what to choose: a novel method to assess spatial choices.*

- 1.20. OMID SABERI** (LABORATORY OF CALCIUM BINDING PROTEIN) *Interaction of CacyBP/SIP and Ribosomal Protein L6 in neuroblastoma NB2a cells.*
- 1.21. SALMAN AHMADI** (LABORATORY OF CYTOSKELETON AND CILIA BIOLOGY) *The role of DRC2 protein in cilia beating regulation and interactions between DRC2 and other N-DRC subunits.*
- 1.22. BONDITA DEHINGA** (DIOSCURI CENTRE FOR CHROMATIN BIOLOGY AND EPIGENOMICS) *RNA binding proteins contribute to the regulation of architectural function of CTCF during differentiation.*
- 1.23. ŁUCJA DORADZIŃSKA** (LABORATORY OF BRAIN IMAGING) *Perceptual Awareness Negativity - does it reflect awareness or attention?*

Posters list - Poster Session II

- 2.1. MAGDALENA WOLSKA** (LABORATORY OF HOST-MICROBIOME INTERACTIONS) *The influence of microbial metabolites on lung immunity.*
- 2.2. MARKO MITROVIĆ** (INSTITUTE OF PHYSIOLOGY OF THE CZECH ACADEMY OF SCIENCES) *Effects of acute exercise on adipose tissue lipolysis and FAHFA metabolism in relation to obesity and age status.*
- 2.3. SABAHAT GULZAR** (LABORATORY OF CELLULAR METABOLISM) *Isolation and characterisation of endothelial cells isolated from dystrophic mice (mdx and mdxbetageo).*
- 2.4. WERONIKA FICERMAN** (LABORATORY OF MOLECULAR BASIS OF CELL MOTILITY) *Role of unconventional myosin VI in the heart.*
- 2.5. SUMITA MAJHI** (LABORATORY OF CYTOSKELETON AND CILIA BIOLOGY) *Unravelling the structural details of the ciliary Nexin-Dynein Regulatory Complex.*
- 2.6. VĚRA SCHRENKOVÁ** (INSTITUTE OF ORGANIC CHEMISTRY AND BIOCHEMISTRY OF THE CZECH ACADEMY OF SCIENCES) *Characterization of sofosbuvir polymorphs by polarized Raman microscopy.*
- 2.7. JOANNA JASIŃSKA** (LABORATORY OF INTRACELLULAR ION CHANNELS) *Infrared light modulates activity of mitochondrial large conductance potassium channel.*
- 2.8. MAGDALENA PIETRUCH** (LABORATORY OF BRAIN IMAGING) *Efficacy of psychotherapeutic interventions for procrastination: Preliminary results of a randomized controlled trial with different cognitive behavioral therapy protocols.*
- 2.9. MONIKA PUCHALSKA** (LABORATORY OF MOLECULAR BASIS OF BEHAVIOR) *Spatial choice in young and aged mice.*
- 2.10. KATARZYNA SAWICKA** (LABORATORY OF SPATIAL MEMORY) *Cortical Reinstatement: a direct approach to testing hippocampal indexing theory.*
- 2.11. KLAUDIA KRYSZECKA** (LABORATORY OF NEUROPHYSIOLOGY OF MIND) *The Relationship Between Temporal Information Processing and P300 Component.*
- 2.12. KINGA NAZARUK** (LABORATORY OF EPILEPTOGENESIS) *Alterations in Aquaporin 4 (AQP4) immunofluorescence in the hippocampus in a rat model of epilepsy.*
- 2.13. KONRAD KOWALSKI** (LABORATORY OF SPATIAL EPIGENETICS) *The role of the intrinsically disordered regions of MyoD in cell fate determination.*
- 2.14. MAŁGORZATA MILEWSKA-PUCHAŁA** (DIOSCURI CENTRE FOR CHROMATIN BIOLOGY AND EPIGENOMICS) *Ctcf modulates gene expression in a tissue specific manner.*

- 2.15. MARTYNA PEKAŁA** (LABORATORY OF NEUROBIOLOGY) *The role of lipocalin 2 in the regulation of brain development during prenatal infection.*
- 2.16. PAULINA KAMIŃSKA** (LABORATORY OF MOLECULAR NEUROBIOLOGY) *Good cells gone bad – the role of SorLA receptor in shaping pro-tumorigenic properties of microglia during glioma progression.*
- 2.17. ELISKA HAASOVA** (INSTITUTE OF PHYSIOLOGY, CZECH ACADEMY OF SCIENCES) *Plasma Leptin Surge during Early Postnatal Development as Indicator of Subsequent Body Weight Progression in Mice.*
- 2.18. KAROLINA PYTLAK** (LABORATORY OF INTRACELLULAR ION CHANNELS) *Mitochondrial BKCa channel in bronchial epithelium damage caused by urban dust.*
- 2.19. SAJJAD IQBAL** (DIOSCURI CENTRE FOR CHROMATIN BIOLOGY AND EPIGENOMICS) *Non-canonical functions of ATP in gene regulation.*
- 2.20. PATRYCJA ROSA** (LABORATORY OF MOLECULAR NEUROBIOLOGY) *Single-cell transcriptomics reveals the functional heterogeneity of repopulated microglia after pharmacological depletion.*
- 2.21. MARCO NINGHETTO** (LABORATORY OF BRAIN IMAGING) *Dark side of peripheries - behavioral and fMRI evidence of negative contrast impairment in Retinitis Pigmentosa.*
- 2.22. KATARZYNA WASILEWSKA** (LABORATORY OF LANGUAGE NEUROBIOLOGY) *Investigating Water Concentration Dynamics in fMRS Studies.*