



Regional Physiology Meeting 2025

Ljubljana, Slovenia
24-26 September

Advancing Physiology:
Bridging Education, Research and Practice

Scientific Programme

WEDNESDAY, SEPTEMBER 24

09:00-13:00 PRE-CONFERENCE EDUCATIONAL WORKSHOP

Fiziologija brez meja: Delovanje organizmov v ekstremnih okoljih
(Lecture Room 2)

Chairs: Anemari Horvat, Urška Černe, Andraž Stožer

Rok Kostanjšek: Prilagoditve človeške ribice na podzemno okolje

Damjana Rozman: Fiziološki izzivi pomanjkanja teme

Leja Dolenc Grošelj: Spanje v ekstremnih okoljih

ODMOR

Lidija Križančič Bombek: Prilagoditve telesa na višjo nadmorsko višino

Boštjan Rituper: (Pato)fiziološke prilagoditve delovanja kardiovaskularnega sistema na bivanje v mikrogravitaciji

13:00-19:00 REGISTRATION DESK OPEN (Hall)

14:00-14:15 WELCOME AND OPENING (Lecture Room 1)

14:15-15:00 KEYNOTE LECTURE 1 (Lecture Room 1)

Chair: Robert Zorec (SI)

Michela Matteoli (IT): *Microglial and TREM2 Dialogues in the Developing Brain*

15:00-16:30 S01: Innovations in Cardiovascular Physiology: From Mechanisms to Therapeutics (Lecture Room 1)

Chairs: Francesco Moccia (IT), Marta Cvijić (SI)

Francesco Moccia (IT): The Role of Endothelial Ca^{2+} Signalling in Ca^{2+} -Dependent Nitric Oxide Production at the Neurovascular Unit

Francesco Lodola (IT): Light-Controlled Modulation of Cardiac Excitable Cell Activity via a Membrane-Targeted Photoswitch

Carmine Rocca (IT): Key Implications of the FcγRIIA Receptor in Fc Region-Dependent Cardiotoxicity of Trastuzumab

Marta Cvijić (SI): RV Hemodynamics and Understanding RV-PA (un)Coupling in Clinical Practice

15:00-16:30 S02: Bed Rest Studies as a Model for Disuse and Microgravity (Lecture Room 2)

Chairs: Bruno Grassi (IT), Marco Narici (IT)

Bruno Grassi (IT): Oxidative Metabolism and Mitochondria in Disuse and Microgravity: Functional Impairments, Bottlenecks, Basic Science, Consequences on Health

Igor Mekjavić (SI): The Slovene Bedrest Research Programme: Past, Present and Future

Rado Pišot (SI): The Effects of Prolonged Bed Rest: Influence of Age, Duration and Countermeasures - Experience of Bedrest Center Koper

Marco Narici (IT): Neuromuscular Impairment with Chronic Inactivity

16:30-17:00 REFRESHMENT BREAK & Poster Viewing (Hall)

17:00-17:15 POSTER BLITZ 1 (*Lecture Room 1*)

Chairs: Justina Mihaljević (CR), Anemari Horvat (SI)

17:15-19:15 S03: Neurophysiology in Health and Disease & Andrej O. Župančič Symposium
(*Lecture Room 1*)

Chairs: Robert Zorec (SI), Evelin Szabó (HU)

Giampiero Leanza (IT): Acetylcholine, Noradrenaline and their Peculiar Involvement in Alzheimer's Disease

Akinori Nishi (JP): p11 in Cholinergic Interneurons in the NAc is Essential for Dopamine Response to Rewards: Insight into the Dentate Gyrus-NAc Circuit

Mitsuhiro Morita (JP): AQP4-Dependent ATP/Adenosine Release and Psychiatric Disorders

Bayram Yilmaz (TU): Neuronal Circuits of the Arcuate Nucleus in Obesity: Classical and Novel Perspectives

Evelin Szabó (HU): The Effect of Prolactin-releasing Peptide (PrRP) on Depression-like Behaviour in Rats

19:15-22:00 WELCOME RECEPTION & 70 years of Slovenian Physiological Society
(*Lecture Room 1/Hall*)

THURSDAY, SEPTEMBER 25

08:00-12:00 REGISTRATION DESK OPEN (*Hall*)

09:00-10:30 S04: Cerebrovascular Impairment in Aging and Disease (*Lecture Room 1*)

Chairs: Eszter Farkas (HU), Anna Csiszár (HU)

Éva Pál (HU): Disruption of Vitamin D Signalling Impairs Cerebrovascular Adaptation to Carotid Artery Occlusion

Eszter Farkas (HU): Impaired Neurovascular Coupling after Acute Ischemic Stroke in the APP/PS1 Transgenic Mouse Model of Alzheimer's Disease

Anna Csiszár (US/HU): Age-related Vascular Cognitive Impairment: Role of Neurovascular Senescence

László Hricisák (HU): Roles of NOS Isoforms in the Adaptation of the Cerebrocortical Circulation to Unilateral Carotid Artery Occlusion

09:00-10:30 S05: Organelle Dynamics and Metabolism in Health and Disease
(*Lecture Room 2*)

Chairs: Toni Petan (SI), Eva Jarc Jovičič (SI)

Tomaž Martini (SI/CH): A Sexually Dimorphic Hepatic Cycle of Periportal VLDL Generation and Subsequent Pericentral VLDLR-mediated Re-uptake

Marko Šestan (CR): Neuro-endocrino-immune Regulation of Metabolic Homeostasis

Eva Jarc Jovičič (SI): Lipid Droplets Control Membrane Integrity and Mitochondrial Homeostasis in Starvation and Ferroptosis

Short Talk **Ivo Kosmačič** (SI): Chronic 5-HT_{2A} Receptor Activation Differentially Affects Mitochondrial Biogenesis and Stress Tolerance in Neonatal and Adult Rat Cortical Astrocytes

Short Talk **Lara Batičič** (CR): Dynamic Changes of Interleukin-18 Concentration in Peripheral and Coronary Circulation Following Coronary Artery Bypass Surgery

10:30-10:45 POSTER BLITZ 2 (*Lecture Room 1*)

Chairs: Simona D'Aprile (IT), Jurij Dolenšek (SI)

10:45-12:00 REFRESHMENT BREAK with POSTER SESSION 1 (Hall)

12:00-12:45 KEYNOTE LECTURE 2 (Lecture Room 1)

Chair: Andraž Stožer (SI)

Lydie Plecita-Hlavata (CZ): *Redox Signalling in Pancreatic β -Cells: Balancing Health and Dysfunction*

12:45-13:45 LUNCH (Hall)

13:45-15:15 S06: Impact of Nutrients and Lifestyle on Microvascular Function (Lecture Room 1)

Chairs: Helena Lenasi (SI), Ines Drenjančević (CR)

Ines Drenjančević (CR): High Salt Diet Affects the Microvascular Reactivity – is there a Salvage Way? – Comparative Studies in Animals and Humans

Lana Kralj (SI): Time-dependent Microvascular and Autonomic Nervous System Alterations after Oral Glucose Loading in Young Healthy Individuals

Eszter Mária Horváth (HU): Ivabradine Induced Vasorelaxation in a Hyperandrogenic Rat Model of Polycystic Ovarian Syndrome, Effect of Vitamin D Supplementation

Henrique Silva (PT): The Impact of Acute Mental Stress on Microvascular Reactivity

Martin Hultman (SE): Towards a Standardized Framework for Microvascular Flowmotion Analysis

13:45-15:15 S07: Insect Neurobiology and Neuroethology (Lecture Room 2)

Chairs: Gregor Belušič (SI), Anemari Horvat (SI)

Nataša Stritih Peljhan (SI): Beyond Spectral Overlap: an Integrative Study Reveals a Novel Mechanism of Vibrational Masking in Insects

Monika Kos (SI): Connectome of the Early Visual Pathway of a Putterfly Elucidates the Neural Toolkit for the Green-red Colour Opponent Axis

Domen Lazar (IT): The Role of Vision and Visual Cues in Host Plant Location by the Meadow Spittlebug *Philaenus spumarius*

Anemari Horvat (SI): Age-Related Dysregulation of Octopaminergic Ca^{2+} Signalling and Metabolism in *Drosophila* Brain

15:15-16:30 REFRESHMENT BREAK with POSTER SESSION 2 (Hall)

16:30-18:00 S08: New Frontiers in Cardiovascular Research (Lecture Room 1)

Chairs: Simon Sedej (AT), Nina Kaludercic (IT)

Nina Kaludercic (IT): Mitochondrial ROS Formation in Cardiac Disease

Zoltán Varga (HU): Immune Checkpoint Signalling and Heart Failure

Natasa Djalinać (IT): Human Microtissue Models for Studying Cardiomyopathies

Senka Holzer (AT): Calcium Signalling in Early and Late Hypertensive Cardiac Remodelling

16:30-18:00 S09: Endocrine Physiology: From Mechanisms to Phenotypes (Lecture Room 2)

Chairs: Andraž Stožer (SI), Viktoria Venglovecz (HU)

Viktoria Venglovecz (HU): Endocrine-Exocrine Interactions in the Pancreas: Impact of Diabetes on Ductal Function

- Morten Gram Pedersen** (IT): Dynamical Time-to-event Analysis Provides Insight into the Role of Syntaxin in Docking of Insulin Granules
- Nadine Ortner** (AT): Preclinical Models for a Rare Cav1.3 Channelopathy: Insights into the Pathophysiology and Therapeutic Option
- Short talk **Nastja Murko** (AT/SI): Effects of Arginine Vasopressin on Pancreatic α and β Cells: Glucose-Dependent Modulation and Receptor-Specific Responses
- Short talk **Marko Gosak** (SI): Integrating Imaging and Network Science to Decode Capillary Architecture in Health and Disease

18:00-18:45 KEYNOTE LECTURE 3 (*Lecture Room 1*)

Chairs: Eva Jarc Jovičič (SI), Toni Petan (SI)

Thomas McWilliams (FN): *Physiological Mitophagy Dynamics in Healthy Brain Aging*

19:00-22:00 NETWORKING EVENT with Boat Tour and Social Dinner at Livada (*meet in the Hall at 19:00 for a boat tour or 19:30 at Livada, Hladnikova cesta 15*)

FRIDAY, SEPTEMBER 26

08:30-11:30 REGISTRATION DESK OPEN (*Hall*)

09:00-09:45 KEYNOTE LECTURE 4 (*Lecture Room 1*) *

Chair: Nina Vardjan (SI)

Viacheslav O. Nikolaev (DE): *Illuminating Cardiac cAMP Microdomains for Better Heart Failure Therapies*

09:45-10:55 S10: Workshop on Structural Biology and Physiology (*Lecture Room 1*) *

Chairs: Nina Vardjan (SI), Robert Zorec (SI)

Dušan Turk (SI): All Roads Lead to Cathepsins

Nataša Lindič (SI): Engineering Endogenous Cathepsin Inhibitor for Subcellular Targeting and Antiviral Intervention

Robert Zorec (SI): Searching for a New Lactate Receptor Mediating Metabolic Excitability in Astrocytes

10:55-11:30 REFRESHMENT BREAK & Poster Viewing (*Hall*)

11:30-13:00 S11: Pathways in Physiology: From Wellness to Illness (*Lecture Room 1*)

Chairs: Aleksanda Dugandzić (CR), Lana Ružič Švegl (CR)

Aleksanda Dugandzić (CR): The Role of Uroguanylin in Genetic Predisposition and the Development of Severe Forms of Diabetes Type 2

Dora Višnjić (CR): The Physiology of Differentiation under Stress: Insights from Nucleotide Metabolism

Hrvoje Lalić (CR): Monocyte-Driven Pathways in Chronic Graft-versus-Host Disease

Lana Ružič Švegl (CR): Are Widespread Hypoxic Chambers Undermining the Use of Hypobaric Altitude Training and Its Associated Adaptations?

11:30-13:00 S12: Cellular Strategies in Cancer and Neural Pathologies (*Lecture Room 2*)

Chairs: Jernej Jorgačevski (SI), Maja Potokar (SI)

Helena H. Chowdhury (SI): Autologous Immunohybridoma Therapy: A Platform for Solid Tumour Treatment

Maja Potokar (SI): Insights into Plectin's Potential as a Glioblastoma Biomarker

Nunzio Vicario (IT): Connexin 43-based Intercellular Communication and Its role in Neuropathic Pain

Short Talk **Luka Lapajne** (SI): Neuropsin, TRPV4 and Intracellular Calcium Mediate Intrinsic Photosensitivity in Corneal Epithelial Cells

13:00-13:45 KEYNOTE LECTURE 5 (*Lecture Room 1*)

Chair: Zoltan Benyo (HU)

Akos Koller (HU): *The Brain Flow: Regulation of Fluids in and out of the Brain to Maintain Intracranial Pressure*

13:45-14:00 POSTER AWARDS AND CLOSING (*Lecture Room 1*)

14:00-15:00 LUNCH (*Hall*)

Slovenian language

*In collaboration with Instruct-ERIC Consortium