



**The European Society for Neurochemistry (ESN)**

**24<sup>th</sup> ESN Biennial Meeting and 8<sup>th</sup> Conference on  
«Molecular and Cellular Mechanisms of Regulation in the Nervous  
System»**

**May 22-25, 2022**

**Saint Petersburg, Russia**

# Preliminary Programme

MAY 22nd

## Parallel Satellite symposia

9.00-14.00

### **Satellite symposium I** **Molecular Mechanisms of Intellectual Disabilities**

*Chair: Illana Gozes (Israel)*

- Genes and behavior: CHD8 - *Albert Basson (UK)*
- Value-guided remapping of sensory cortex by lateral orbitofrontal cortex - *Abhishek Banerjee (UK)*
- Age-related changes in brain phospholipids and bioactive lipids in the APP knock-in mouse model of Alzheimer's disease - *Marianne Schultzberg (Sweden)*
- Novel ADNP syndrome mice reveal dramatic sex-specific biomarkers with brain synaptic and Tau pathologies reversed by NAP treatment – *Illana Gozes (Israel)*
- The S100B protein as a biomarker and effector in neural disorders: a potential novel therapeutic target – *Fabrizio Michetti (Italy)*
- Insight from Christianson syndrome on how deficits of endosomal pH impair cognition - *Anne McKinney (Canada)*
- Overcompensation of cellular excitability in the Fmr1-/-y mouse - *Samuel Booker (UK)*
- The neuropeptidase neprilysin in brain development, memory and disease - *Natalia N Nalivaeva (Russia/UK)*

### **Satellite Symposium II** **Symposium of the Russian Society for Neurochemistry**

#### **"Neurochemical Mechanisms of Brain Diseases"**

*Chair: Natalia Gulyaeva (Russia)*

- Protective and antioxidant effects of insulin and alpha-tocopherol on brain neurons and their molecular mechanisms (in vitro and in vivo) - *Natalia Avrova (Sechenov Institute of Evolutionary Physiology and Biochemistry RAS, St Petersburg)*
- Neurochemical and behavioral aspects of chemogenetic modulation of neuronal activity in the brain regions– *Nikolai Nikolay Dygalo (Institute of Cytology and Genetics, Siberian Branch of RAS, Novosibirsk)*
- Sigma-1 receptor – a role in neuronal signaling and neurodegeneration – *Ilya Bezprozvanny (Southwestern Medical Center, Dallas, USA; St Petersburg State Polytechnical University, St Petersburg, Russia)*
- Neurochemical mechanisms of migraine pain. – *Rashid Giniatullin (Kazan Federal University, Kazan, Russia; University of Eastern Finland, Kuopio, Finland)*
- Astrocytic calcium correlates of animal behaviour - *Alexey Semyanov (Institute of Bioorganic Chemistry RAS, Moscow, Russia)*
- Early dysfunction of glial cells as a possible premise of Alzheimer's disease - *Ekaterina Rudnitskaya (Institute of Cytology and Genetics, Siberian Branch of RAS,*

*Novosibirsk)*

- Can NGF protect against behavioral impairments caused by hippocampal cholinergic deficit? - *Alexey Bolshakov (Institute of Higher Nervous Activity & Neurophysiology RAS, Moscow, Russia)*
- Prenatal hypoxia activates the mechanisms of nicotine addiction - *Viktor Stratilov, Oleg Vetrovoy, Ekaterina Tyulkova (Pavlov Institute of Physiology RAS, St Petersburg, Russia)*
- Search for and comparative analysis of biomarkers in body fluids of patients with Parkinson's disease and animal models: A new approach to early diagnosis - *Viktor Blokhin (Institute of Developmental Biology RAS, Moscow)*
- Antibodies and neurochemical changes in autoimmune encephalitis: goals for the future. – *Vera Fominykh (Bujanov Moscow City Clinical Hospital, Moscow)*

**Young Neurochemists' informal welcome**

**"My first conference"**

**15.00-16.00**

*Chairs: Sara Grassi & Riccardo Cristofani (Italy)*

- *Sara Grassi (Italy)*
- *Anna Churilova (Russia)*
- *Riccardo Cristofani (Italy)*
- *Matteo Audano (Italy)*
- *Kadri Seppa (Estonia)*
- *Rui Rodrigues (Portugal)*

**OPENING CEREMONY**

**17.00-19.00**

**Opening Lecture (Chair: LOC)**

**Michael Ugrumov (Russia)**

"The fight against neurodegenerative diseases as a global challenge of the 21st century"

**Plenary Lecture (Chair: ESN President)**

**Klaus Armin Nave (Germany)**

"Novel roles of oligodendrocytes in brain energy metabolism and neurodegenerative diseases"

**Opening reception**

**19.00-21.00**

**MAY 23rd**

**Plenary ISN Lecture (Chair: ISN President)**

**9.00-10.00**

**Nancy Ip (China, Hong Kong)**

"Understanding Innate Immunity in Alzheimer's Disease – Insights for Therapeutic Development"

**Coffee break**

**10.00-10.30**

**Parallel Sessions**

**10.30-12.30**

**“Optical dissection of neuronal and glial functions”**

Chairs: Piotr Bregestovski (France) & Alla Salmina (Russia)

- Modulation of inhibitory synaptic transmission by light-controlled compounds - *Piotr Bregestovski (France)*
- Control of endogenous G protein-coupled receptors with light - *Pau Gorostiza (Spain)*
- Monitoring and targeting of astroglial activity in the brain - *Alla Salmina (Russia)*
- Neuron-microglia crosstalk: signaling mechanism and control of synaptic transmission - *Davide Ragozzino (Italy)*

**“Plasticity of glutamatergic and GABAergic synapses”**

Chair: Carlos B. Duarte (Portugal)

- Regulation of NMDA receptor dynamics by brain-derived neurotrophic factor in hippocampal neurons - *Carlos B. Duarte (Portugal)*
- Arc as a master regulator of synaptic plasticity at excitatory synapses: Hub protein or retrovirus-like capsid - *Clive Bramham (Norway)*
- Spatial regulation of coordinated excitatory and inhibitory plasticity - *Andrea Barberis (Italy)*
- GABAergic synapse plasticity trigger microglia activation and synapse loss after stroke - *Shiva Tyagarajan (Switzerland)*

**“Role of insulin signalling in the brain”**

Chairs: Eugenio Barone (Italy) & João MN Duarte (Sweden)

- Transport of insulin across the blood-brain barrier - *Elizabeth Rhea (USA)*
- Role of early alterations of brain insulin signalling in neurodegenerative processes - *Eugenio Barone (Italy)*
- Impact of insulin resistance on brain function and neuron-astrocyte metabolic interactions - *João MN Duarte (Sweden)*
- Insulin resistance of the brain and systemic metabolism in humans - *Martin Heni (Germany)*

**Lunch/Posters**

**12.30-14.30**

<b>Parallel Sessions 14.30-16.30</b>		
<p><b>“Role of bioactive lipids in cerebrovascular diseases”</b> <i>Chairs: Laura Gatti (Italy) &amp; Riccardo Ghidoni (Italy)</i></p> <ul style="list-style-type: none"> <li>• Phospholipid disbalance in cognitive impairment and vascular dementia - <i>Gloria Patricia Cardona-Gomez (Colombia)</i></li> <li>• Changes in lipidomics after stroke in the peri-infarct region (or “Endoplasmic reticulum lumen resident factor MANF and its interactions with lipids: studies with stroke”) - <i>Mikko Airavaara (Finland)</i></li> <li>• Pathogenesis of Moyamoya angiopathy: the role of lipid imbalance - <i>Anna Bersano (Italy)</i></li> </ul>	<p><b>“Selective vulnerability of hippocampal neurons: Molecular and cellular mechanisms”</b> <i>Chair: Natalia Gulyaeva (Russia)</i></p> <ul style="list-style-type: none"> <li>• The mechanisms of hippocampal susceptibility to hypoxia. - <i>Elena Rybnikova (Russia)</i></li> <li>• Searching for new therapies for perinatal hypoxia-ischemia - focusing on neuroprotection - <i>Elzbieta Salinska (Poland)</i></li> <li>• Infection induced neuroinflammation contributing to hippocampal decline - <i>Martin Korte (Germany)</i></li> <li>• Molecular details of stress-adaptation in the hippocampus: comparison early postnatal period with adulthood - <i>Dóra Zelena (Hungary)</i></li> <li>• Mechanisms of hippocampal vulnerability to stress underlie comorbidity between neurological and psychiatric disorders - <i>Natalia Gulyaeva (Russia)</i></li> </ul>	<p><b>“Critical role of Dopamine transporter for brain homeostasis”</b> <i>Chair: Raul Gainetdinov (Russia)</i></p> <ul style="list-style-type: none"> <li>• Pronounced Hyperactivity, Cognitive Dysfunctions, and BDNF Dysregulation in Dopamine Transporter Knock-out Rats – <i>Damiana Leo (Belgium)</i></li> <li>• Removal of the dopamine transporter reorganizes the glutamate synapse in rat striatum – <i>Fabio Fumagalli (Italy)</i></li> <li>• Action of Permanent Hyperdopaminergia on Rats’ Behaviour: Operant Conditioning and Progressive Ratio Schedules - <i>Ilya Sukhanov (Russia)</i></li> </ul>
<b>Coffee break 16.30-17.00</b>		
	<b>Young Neurochemists’ Session 17.00-19.00</b>	
	<b>“The first publication: Experiences, expectations and guidelines”</b>	

Chair: Sara Grassi (Italy)

- What a Journal expects from an author  
*Laura Hausmann (Germany)*
- How to prepare an article for publication - *Anastasia Sharapkova (Russia)*
- Web of Science information platform: content, features, application for searching, analysing and managing bibliographic information - *Valentin Bogorov (Russia)*
- The role of publishers and publishing facts - *Jackie Jones (UK)*
- How to deal with reviewers' comments and write a rebuttals from an author's perspective - *Nico Mitro (Italy)*

**Aperitif  
19.00-21.00**

**MAY 24th**

**YSLA Lecture I and II**

**9.00-10.00**

**Coffee break**

**10.00-10.30**

**Parallel Sessions**

**10.30-12.30**

**“Sphingolipids and brain: pathophysiology and therapeutics”**

*Chair: Vittorio Maglione (Italy)*

- Loss of dihydroceramide desaturase DEGS1 causes a leukodystrophy with therapeutic options -
- *Aurora Pujol (Spain)*
- Sphingolipids in learning and memory - *Christian P. Muller (Germany)*
- Sphingolipid-dependent membrane organization and signalling orchestrating myelin repair – *Sara Grassi (Italy)*
- A new role for glycolipids in neurodegeneration - *Dan Sillence (UK)*

**“Intracellular organelles and the regulation of the quality control systems in neurodegeneration”**

*Chairs: Olga Corti (France) & Angelo Poletti (Italy)*

- Parkin deficiency in Parkinson’s disease: mitophagy and beyond - *Olga Corti (France)*
- The mechanism of ROS-induced mitophagy - *Allen Kaasik (Estonia)*
- The role of autophago-lysosomes in the protein quality control in motor neuron diseases. - *Angelo Poletti (Italy)*
- New HSF1 inducers as pharmacological tool for treatment of neurodegenerative diseases - *Irina Guzhova (Russia)*

**“Neuronal polarization: emerging concepts linking cytoskeleton, membrane and organelle dynamics”**

*Chairs: Christian Gonzalez-Billault (Chile) & Marina Mikhaylova (Germany)*

- Axon specification and elongation mediated by small GTPases controlling membrane and actin dynamics - *Christian Gonzalez-Billault (USA)*
- Molecular mechanisms of axon initial segment assembly and plasticity - *Amélie Freal (The Netherlands)*
- Actin cytoskeleton maintains the order and functionality of an axon initial segment - *Pirta Hotulainen (Finland)*
- Role of processive myosins in the formation and targeting of specialized ER-derived structures in neurons - *Marina Mikhaylova (Germany)*

<b>Lunch/Posters 12.30-14.30</b>		
<b>Young Members' Symposia 14.30-16.30</b>		
<b>Young Member Symposium I</b>		<b>Young Member Symposium II</b>
<b>Coffee break 16.30-17.00</b>		
<b>Parallel Sessions 17.00-19.00</b>		
<p><b>“New mechanisms and therapeutic approaches to enhance remyelination”</b> <i>Chair: Davide Lecca (Italy)</i></p> <ul style="list-style-type: none"> <li>• Adenosine and sphingosine-1-phosphate receptors modulate K<sup>+</sup> currents and cell maturation in cultured oligodendrocyte precursor cells - <i>Elisabetta Coppi (Italy)</i></li> <li>• The receptor GPR17 as a new player in driving oligodendrocyte precursor cells to myelinating oligodendrocytes - <i>Davide Lecca (Italy)</i></li> <li>• Dual role of microglia in white matter lesions in multiple sclerosis - <i>Claudia Verderio (Italy)</i></li> <li>• Fibronectin aggregates: an obstacle for remyelination in multiple sclerosis - <i>Wia Baron (The Netherlands)</i></li> </ul>	<p><b>“Hyperhomocysteinemia-Related Pathologies of the Nervous System”</b> <i>Chairs: Arutjunyan A.V. (Russia) &amp; Lehotsky Jan (Slovakia)</i></p> <ul style="list-style-type: none"> <li>• Ischemic brain injury in hyperhomocysteinemia and development of Alzheimer disease - <i>Lehotsky Jan (Slovakia)</i></li> <li>• Mechanisms of neurotoxicity of prenatal hyperhomocysteinemia – <i>Arutjunyan A. V. (Russia)</i></li> <li>• Neuroprotective effects of hydrogen sulfide against neurotoxicity in rat model of prenatal hyperhomocysteinemia - <i>Sitdikova G.F. (Russia)</i></li> <li>• Hydrogen Sulfide as a Potential Therapeutic Molecule in Treatment of Psychiatric Disorders involving Inflammation - <i>Sandhir Rajat (India)</i></li> </ul>	<p><b>“Mechanisms of neuropathology initiation: the role of energy metabolism and oxidative stress.”</b> <i>Chair: Irina Popova (Russia)</i></p> <ul style="list-style-type: none"> <li>• The role of KATP channels in Alzheimer's Disease - <i>Shannon L. Macauley-Rambach (USA)</i></li> <li>• Metabolic alterations associated with neurodegeneration - <i>Helle Waagepetersen (Denmark)</i></li> <li>• NOX2-induced oxidative stress behind glucose hypometabolism and network dysfunction in Alzheimer's disease - <i>Misha Zilberter (USA)</i></li> <li>• Epilepsy initiation: a role of brain glucose hypometabolism and oxidative stress - <i>Irina Popova (Russia)</i></li> </ul>
<b>Conference Dinner 20.00</b>		

**MAY 25th**

**Bachelard Award Lecture**

**9.00-10.00**

**Coffee break**

**10.00-10.30**

**Parallel Sessions**

**10.30-12.30**

**“Regulatory peptides”**

*Chair: Illana Gozes (Israel)*

- Convergence of big data approaches and bench research identifies VGF as a key driver of Alzheimer’s disease pathogenesis and progression - *Stephen Salton (USA)*
- PACAP and Aging - *Dora Reglodi (Hungary)*
- Regulatory role of TRPA1 receptor in neurodegenerative disorders - *Erika Pinter (Hungary)*
- Neurodevelopment and neurodegeneration – peptides, microtubules and Tau, from mouse to human. - *Illana Gozes (Israel)*

**“Sowing the seeds of Death: Protein misfolding and Neurodegenerative Disease progression”**

*Chair: Kostas Vekrellis (Greece)*

- Post translational modifications of alpha-synuclein: therapeutic targets and biomarkers in Parkinson’s disease - *Tiago Flemming Outeiro (Germany)*
- Modulating  $\alpha$ -synuclein aggregate-dependent calcium derangements protects against neurodegeneration in vivo - *Poul Henning Jensen (Denmark)*
- Hitching a ride to the next cell: Extracellular vesicles and the spread of disease pathology - *Kostas Vekrellis (Greece)*
- Neuroinflammation in Alzheimer’s disease - *Spyros Georgopoulos (Greece)*
- Neurodegenerative diseases as channelopathies - a potent new therapeutic target - *Evangelia Emmanouilidou (Greece)*

**“Sensing and targeting blood brain barrier for central nervous system diseases”**

*Chair: Sikha Saha (UK)*

- Blood brain barrier damage in cerebral ischaemia - *Sikha Saha (UK)*
- Modelling discontinuous flow patterns on the blood-brain barrier in vitro - *Adjanie Patabendige (Australia)*
- iPSC-derived vascular cells - *Lino Ferreira (Portugal)*
- Optimization of human organs-on-a-chip model of neurovascular unit - *Virginia Pensabene (UK)*

**City tour**

**14.00**