



The European Society for Neurochemistry (ESN)

**24th ESN Biennial meeting and 8th 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

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-/- 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 Disease"**

Chair: Natalia Gulyaeva (Russia)

- Protective and antioxidant effects of insulin and α -tocopherol on brain neurons and their molecular mechanisms (in vitro and in vivo) - *Natalia Avrova (St Petersburg)*
- Neurobiology of migraine and modern treatments - *Rashid Giniatullin (Kazan)*
- *Neurochemical aspects of chemogenetic modulation of neuronal activity in brain regions* – *Nikolai N. Dygalo (Novosibirsk)*
- Can NGF protect against behavioral impairments caused by hippocampal cholinergic deficit? – *Alexey Bolshakov, (Moscow)*.
- Prenatal hypoxia activates the mechanisms of nicotine addiction. *Viktor Stratilov, (St Petersburg)*
- 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. – *Alexander Kim (Moscow)*
- Antibodies and neurochemical changes in autoimmune encephalitis: goals for the future. – *Vera Fominykh (Moscow)*

Young Neurochemists' informal welcome

“My first conference”

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

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

MAY 23rd

Plenary ISN Lecture (Chair: ISN President)

Nancy Ip (China, Hong Kong)

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

Parallel Sessions

"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

Parallel Sessions

“Role of bioactive lipids in cerebrovascular diseases”

Chairs: Laura Gatti (Italy) & Riccardo Ghidoni (Italy)

- Phospholipid disbalance in cognitive impairment and vascular dementia - *Gloria Patricia Cardona-Gomez (Colombia)*
- 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”) - *Mikko Airavaara (Finland)*
- Plasma ceramides and ceramide ratios as biomarkers of specific cerebrovascular pathology - *Michelle Mielke (USA)*
- Pathogenesis of Moyamoya angiopathy: the role of lipid imbalance - *Anna Bersano (Italy)*

“Selective vulnerability of hippocampal neurons: Molecular and cellular mechanisms”

Chair: Natalia Gulyaeva (Russia)

- The mechanisms of hippocampal susceptibility to hypoxia. - *Elena Rybnikova (Russia)*
- Searching for new therapies for perinatal hypoxia-ischemia - focusing on neuroprotection - *Elzbieta Salinska (Poland)*
- Infection induced neuroinflammation contributing to hippocampal decline - *Martin Korte (Germany)*
- Molecular details of stress-adaptation in the hippocampus: comparison early postnatal period with adulthood - *Dóra Zelena (Hungary)*
- Mechanisms of hippocampal vulnerability to stress underlie comorbidity between neurological and psychiatric disorders - *Natalia Gulyaeva (Russia)*

“Critical role of Dopamine transporter for brain homeostasis”

Chair: Raul Gainetdinov (Russia)

- Pronounced Hyperactivity, Cognitive Dysfunctions, and BDNF Dysregulation in Dopamine Transporter Knock-out Rats – *Damiana Leo (Belgium)*
- Removal of the dopamine transporter reorganizes the glutamate synapse in rat striatum – *Fabio Fumagalli (Italy)*
- Action of Permanent Hyperdopaminergia on Rats’ Behaviour: Operant Conditioning and Progressive Ratio Schedules - *Ilya Sukhanov (Russia)*

	Young Neurochemists' Session	
	<p data-bbox="779 296 1317 400">“The first publication: Experiences, expectations and guidelines” <i>Chair: Sara Grassi (Italy)</i></p> <ul data-bbox="752 443 1344 1262" style="list-style-type: none"><li data-bbox="752 443 1344 512">• What a Journal expects from an author - <i>Laura Hausmann (Germany)</i><li data-bbox="752 555 1344 624">• Experiences as a first authors - <i>Natasha Schaefer (Germany)</i><li data-bbox="752 667 1344 775">• How to prepare an article for publication - <i>Anastasia Sharapkova (Russia)</i><li data-bbox="752 818 1344 999">• Web of Science information platform: content, features, application for searching, analysing and managing bibliographic information - <i>Valeria Kurmakayeva (Russia)</i><li data-bbox="752 1042 1344 1110">• The role of publishers and publishing facts - <i>Jackie Jones (UK)</i><li data-bbox="752 1153 1344 1262">• How to deal with reviewers' comments and write a rebuttals from an author's perspective - <i>Nico Mitro (Italy)</i>	
<p data-bbox="1003 1342 1120 1374" style="text-align: center;">Aperitif</p>		

MAY 24th

YSLA Lecture I and II

Parallel Sessions

“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)*

Lunch/Posters

Young Members' Symposia

Young Member Symposium I

Young Member Symposium II

Parallel Sessions

“New mechanisms and therapeutic approaches to enhance remyelination”
Chair: Davide Lecca (Italy)

- Adenosine and sphingosine-1-phosphate receptors modulate K⁺ currents and cell maturation in cultured oligodendrocyte precursor cells - *Elisabetta Coppi (Italy)*
- The receptor GPR17 as a new player in driving oligodendrocyte precursor cells to myelinating oligodendrocytes - *Davide Lecca (Italy)*
- Dual role of microglia in white matter lesions in multiple sclerosis - *Claudia Verderio (Italy)*
- Fibronectin aggregates: an obstacle for remyelination in multiple sclerosis - *Wia Baron (The Netherlands)*

“Hyperhomocysteinemia-Related Pathologies of the Nervous System”
Chairs: Arutjunyan A.V. (Russia) & Lehotsky Jan (Slovakia)

- Ischemic brain injury in hyperhomocysteinemia and development of Alzheimer disease - *Lehotsky Jan (Slovakia)*
- Mechanisms of neurotoxicity of prenatal hyperhomocysteinemia – *Arutjunyan A. V. (Russia)*
- Neuroprotective effects of hydrogen sulfide against neurotoxicity in rat model of prenatal hyperhomocysteinemia - *Sitdikova G.F. (Russia)*
- Hydrogen Sulfide as a Potential Therapeutic Molecule in Treatment of Psychiatric Disorders involving Inflammation - *Sandhir Rajat (India)*

“Mechanisms of neuropathology initiation: the role of energy metabolism and oxidative stress.”
Chair: Irina Popova (Russia)

- The role of KATP channels in Alzheimer’s Disease - *Shannon L. Macauley-Rambach (USA)*
- Metabolic alterations associated with neurodegeneration - *Helle Waagepetersen (Denmark)*
- NOX2-induced oxidative stress behind glucose hypometabolism and network dysfunction in Alzheimer’s disease - *Misha Zilberter (USA)*
- Epilepsy initiation: a role of brain glucose hypometabolism and oxidative stress - *Irina Popova (Russia)*

Conference Dinner

MAY 25th

Bachelard Award Lecture

Parallel Sessions

“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 α -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)*
- Neurodegenerative diseases as channelopathies - *Spyros Georgopoulos (Greece)*
- Neuroinflammation in Alzheimer's disease; 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)*
- Understanding the role of the blood-brain barrier during disrupted brain fluid dynamics in neurological disease - *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