

Cell Biology of the Nervous System: Cellular Mechanisms of Communication

5 – 8 May 2025 | Heraklion, Greece

Programme



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EMBO Workshop: Molecular neurobiology

Day 1 | 5 May 2025

08:30-09:00 Registration Opens

Session : Young Scientists Session

09:00-09:10 Introduction to the program (Chairs)

09:10-10:00 Flash talks : All attendees introduce themselves and their poster/talk

10:00-11:00 [Coffee Break](#)

11:00-11:40 Round Tables : Identifying topics of interest of the Free group Therapy evening

11:40-12:00 General Discussion, vote on the topics, conclusion

12:00-13:00 [Lunch](#)

Session 1: Novel viewpoints inside the neuron - Dr. Ines Hahn

13:00-13:10 Welcome and Opening Remarks

13:10-13:35 Mechanisms regulating mitochondrial homeostasis in neurons

[Erika Holzbaur](#)

13:35-13:50 Visualizing Microtubule Turnover & In-Lattice Integrations in Polarizing Neurons

[Ciarán Butler-Hallisey](#)

13:50-14:05 Ciliary ectosome biogenesis as a homeostatic response to disrupted cilia trafficking and signaling

[Patrick Laurent](#)

14:05-14:30 Navigating microtubule diversity in neurons

[Lukas Kapitein](#)

14:30-15:10 [Coffee Break](#)

Session 2: Sculpting the nervous system - an evolutionary perspective - Dr. Angeliki Sotiriou

15:10-15:35 Mechanisms of Neurofilament release, spread, and toxicity after neuronal injury

[Casper Hoogenraad](#)

15:35-15:50 AFF-1 mediates neuronal self-fusion to sculpt a toroid morphology in the C. elegans I5 neuron

[Lachlan Lu](#)

15:50-16:05 Cell-extrinsic controls over neocortical neuron fate and diversity

[Iliaria Morassut](#)

16:05-16:20 A molecular switch downstream of Tolls from innate immunity signalling to gliogenesis and neurogenesis in the brain

[Alicia Hidalgo](#)

16:20-16:35 Human-specific activity-dependent regulation of cortical connectivity

[Eirini Christopoulou](#)

16:35-17:00 Flash Talks - Short Presentations of the session I posters (2 min, max 2 slides)

17:00-19:00 Poster Session I - [Refreshments offered at the posters](#)

19:30-21:00 [Dinner](#)

21:00-23:00 "Speed dating" Participants get to introduce themselves and have short discussion with the speakers

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Day 2 | 6 May 2025

Session 3: Communication in the nervous system: new insights across evolution-Part I - Ms. Emma Theisen

- 09:00-09:25 Tunneling Nanotubes: Reshaping connectivity in brain development and disease
[Chiara Zurzolo](#)
- 09:25-09:40 The ASD-linked kinase NUA1 controls a neuronal splicing program through its interaction with nuclear speckle proteins
[Julien Courchet](#)
- 09:40-09:55 Alterations of cortical circuits in mice following premature brain injuries
[Olivier Raineteau](#)
- 09:55-10:20 Molecular mapping of neural circuits in octopus
[Bill Schafer](#)
- 10:20-11:00 [Coffee Break](#)

Session 4: Communication in the nervous system: new insights across evolution-Part II - Ms. Eirini Christopoulou

- 11:00-11:25 Syncytial nerve net in a ctenophore: a different view of neural organization and signaling
[Pawel Burkhardt](#)
- 11:25-11:40 Activity-dependent transcriptome remodeling at synapses
[Eva Kaulich](#)
- 11:40-11:55 Endocytome profiling captures dynamic cell-surface protein regulation underlying neuronal connectivity
[Colleen McLaughlin](#)
- 11:55-12:20 UNC-40/DCC netrin receptor stabilization leads to sex-specific, selective dopaminergic neuron degeneration
[Meital Oren-Suissa](#)
- 12:20-15:30 [Lunch & Free Time](#)

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Day 2 | 6 May 2025

Session 5: Mitochondria as a communication hub in neurons - Part I - Ms Karolina Doubkova

- 15:30-15:55 Restoration of vision in autosomal dominant optic atrophy by harnessing mitochondria-to-autophagy signals
[Luca Scorrano](#)
- 15:55-16:10 Mitochondrial dysfunction promotes tunneling nanotubes between neurons and microglia
[Ranabir Chakraborty](#)
- 16:10-16:25 Genome-wide mapping of neuronal RNA organization and condensation
[Lindsay A. Becker](#)
- 16:25-16:50 Mitochondria-ER contact sites in neurons as hubs of local translation
[Angelika Harbauer](#)
- 16:50-17:20 [Coffee Break](#)

Session 6: Mitochondria as a communication hub in neurons - Part II - Dr. Anthony Procès

- 17:20-17:45 Dendrite architecture determines mitochondrial distribution patterns in vivo
[Erin Barnhart](#)
- 17:45-18:00 Most axonal mitochondria in neurons of the mammalian central nervous system lack mitochondrial DNA and consume ATP
[Yusuke Hirabayashi](#)
- 18:00-18:15 A neuromodulatory feedback loop mediated by the neuronal membrane proteasome, NMDA receptors, and CaMKII
[Taylor Church](#)
- 18:15-18:40 Regulation of Mitochondrial Stress Signalling Across the Body
[Steven Zuryn](#)
- 19:00-20:00 Meet the Editors & Free Group Therapy : Each invited speaker and attending editor meets a small group of young scientists to discuss science, career development etc.
- 20:00-21:00 [Dinner](#)
- 21:30-23:00 Open discussion - drinks at the poster area

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Day 3 | 7 May 2025

Session 7: New roles for key players: lipid metabolism in the nervous system - Ms. Taylor Church

- 09:00-09:25 Axonal control of presynapse function
Volker Haucke
- 09:25-09:40 Nuclear hormone receptor SEX-1 promotes neuronal lipid homeostasis
Dikaia Tsagkari
- 09:40-09:55 Glial lipid droplets boost developmental brain growth
Anna B Ziegler
- 09:55-10:20 Protecting the nervous system across generations with the maternal diet
Roger Pocock
- 10:20-10:50 Coffee Break - 30 min dedicated to meet and discuss over coffee

Session 8: Close partners: cellular interactions in the nervous system - Dr. Iris Hardege

- 10:50-11:15 Molecular heterogeneity and mechanisms of glia-neuron interactions
Aakaksha Singhvi
- 11:15-11:30 Teneurin-4 dictates neuronal migration via structurally exclusive interactions
Miguel Berbeira-Santana
- 11:30-11:45 Paw posture is a robust indicator for injury, pain, and age
Letizia Marvaldi
- 11:45-12:10 Neuronal and glial cell intertwined mechanisms in assembly and integrity of circuit architecture
Georgia Rapti
- 12:10- 12:15 Group Photo
- 12:15-15:15 Lunch & Free Time

Session 9: A developmental view on disease mechanisms - Dr. Nathalie Higgs

- 15:15-15:40 Mechanisms of axon growth and regeneration
Frank Bradke
- 15:40-15:55 The conserved FGFR signalling is required for dendrite regeneration
Anindya Ghosh Roy
- 15:55-16:10 4D MORPHS to Characterise Spatiotemporal Features of Dendritic Spines in ASD
Barbora Vidimova
- 16:10-16:35 Leveraging Evolved Proteostasis Mechanisms to Promote Brain Health
Mauro Costa Mattioli
- 16:35-17:00 Flash Talks - Short presentations of the Session II posters
- 17:00-19:00 Poster Session II
- 20:00 Gala Dinner (for all participants)

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Day 4 | 8 May 2025

Session 10: Cellular mechanisms of disease in the nervous system - Dr. Julien Courchet

- 09:30-09:55 RNA regulation in neurons and neurodegeneration
Marina Chekuleva
- 09:55-10:10 Spatiotemporal Regulation of CXCR4 in Nerve Regeneration: H₂O₂ as Key Factor
Marika Tonellato
- 10:10-10:25 Understanding neuronal vulnerability during ageing
Natalia Sanchez-Soriano
- 10:25-10:50 Time to wake up: Regulations of neural stem cell quiescence
Andrea Brand
- 10:50-11:20 Coffee Break - 30 min dedicated to meet & discuss over coffee
- 11:20-11:35 TECPR2 neuropathy mice reveal endolysosomal dysfunction in neurons and microglia
Debjani Bhattacharya
- 11:35-12:00 Phenotypic landscape of autism spectrum disorder models at single-cell resolution
Gaia Novarino
- 12:00-12:20 Prize Ceremony : Short Talk Prize, Poster Prize, Travel Awards
- 12:20-12:30 Concluding Remarks
- 12:30 End of conference



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Invited Speakers

Erin Barnhart

Columbia, NY, USA

Frank Bradke

DZNE, Bonn, DE

Andrea Brand

NYU Grossman School of Medicine, USA

Pawel Burkhardt

University of Bergen, NO

Marina Chekuleva

MDC, Berlin, DE

Mauro Costa Mattioli

Altos Labs, USA

Angelika Harbauer

MPI Munich, DE

Volker Haucke

FMP Berlin, DE

Erika Holzbauer

University of Pennsylvania, PA, USA

Casper Hoogenraad

Genentech, CA, USA

Lukas Kapitein

University Utrecht, NL

Gaia Novarino

ISTA, Vienna, AT

Meital Oren-Suissa

Weizmann, IL

Roger Pocock

Monash University, AU

Georgia Rapti

EMBL, Heidelberg, DE

Bill Schafer

MRC Cambridge, UK

Luca Scorrano

Veneto Institute of Molecular Medicine, IT

Aakaksha Singhvi

Fred Hutch Cancer Center, Seattle, USA

Steven Zuryn

University of Queensland, AU

Chiara Zurzolo

Institut Pasteur, Paris, FR

EMBO Workshop: Cell Biology of the Nervous System

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