

NENS PhD Course

Mitochondrial Biology in the Nervous System: From Mechanisms to Disease

September 7–11, 2026 – Turin, Italy

Organized by the **PhD in Neuroscience of the University of Turin**

Scientific committee: S. Bonzano; S. De Marchis; T. Mongini; G. Urbano (in alphabetical order)

Program

Monday, September 7

08:30–9:30 **Registration**

9:30–10:00 **Welcome & Course Presentation**

Calvo A., Dipartimento di Neuroscienze "Rita Levi Montalcini" PhD in Neuroscience Coordinator; **Mongini T.** Neuromuscular Unit, Department of Neuroscience Rita Levi Montalcini, University of Torino, Turin, Italy , **De Marchis S.** Department of Life Sciences and Systems Biology & Neuroscience Institute Cavalieri Ottolenghi, University of Torino, Turin, Italy

10:00–11:00 **Zeviani M.** (Institute for Maternal and Child Health IRCCS Burlo Garofolo, Trieste, Italy) "Mitochondria: What they are and what they do"

11:00–12:00 **Porporato P.** (Department of Molecular Biotechnology and Health Sciences, Molecular Biotechnology Center "Guido Tarone", University of Torino, Turin, Italy) "Mitochondrial biology: Beyond the Cell Powerhouse"

12:00–13:00 **Prigione A.** (Department of General Pediatric University Children's Hospital Heinrich-Heine-University, Düsseldorf Nordrhein-Westfalen, Germany) "Brain organoids to accelerate drug discovery of mitochondrial disorders".

Light Lunch

14:30–15:30 **Round Table** (Mongini T. Zeviani M.)

15:30–16:30 **Student Activity I:** Research Pictionary (Ice-breaking)

16:30–17:30 **Student Activity II:** Chair Training Session

Tuesday, September 8

09:00–10:00 **Courchet J.** (Institut NeuroMyoGène, CNRS UMR 5261 -INSERM U1315 Université de Lyon, France) “Mitochondria (de)regulation in the (mis)wiring of the brain”

10:00–11:00 **Ardissone A.** (Dip di Neuroscienze Pediatriche, Istituto Besta, Milan, Italy) “An overview to PMD Pediatric Phenotypes”

Coffee Break

11:20–12:20 **Bottani E.** (Department of Diagnostics and Public Health, Section of Pharmacology, University of Verona) “Mitochondrial dysfunction in thyroid hormone-associated neurodevelopmental alterations”

12:20–13:00 **Bonzano S.** (Department of Life Sciences and Systems Biology & Neuroscience Institute Cavalieri Ottolenghi, University of Torino, Turin, Italy) “Mitochondrial involvement in NR2F1-related Neurodevelopmental Disorder”

Light Lunch

14:30–15:30 **Poster Session I** (with 3' flash presentations)

15:30–16:30 **Brunetti D.** (Dipartimento di Scienze Cliniche e di Comunità, University of Milano, Milan, Italy) “Modeling Mitochondrial Disease: Insights from the SURF1 pig model”

16:30–17:30 **Viscomi C.** (Dipartimento di Bioscienze, University of Milan, Italy) “Preclinical therapy for mitochondrial diseases”

17:30–18:00 **Round Table:** Career development

Wednesday, September 9

09:00–10:00 **Carelli V.** (IRCCS Istituto delle Scienze Neurologiche di Bologna, Programma di Neurogenetica, Bologna, Italy) “Optic Neuropathies: Clinical features, Diagnosis, and Therapy”

10:00–10:50 **Indrieri A.** (Institute of Genetic and Biomedical Research (IRGB), Telethon Institute of Genetics and Medicine, Pozzuoli, Italy; National Research Council (CNR), Milan, Italy) “Towards a Gene-Agnostic Therapy for Mitochondria-Mediated Neurodegeneration”

Coffee Break

11:10–12:00 **Chiabrando D.** (Department of Molecular Biotechnology and Health Sciences, Molecular Biotechnology Center “Guido Tarone”, University of Torino, Turin, Italy) “Mitochondrial energetic failure in FLVCR1-related diseases”

12:00–12:50 **Maltecca F.** (I.R.C.C.S. Ospedale San Raffaele, Milan, Italy)
“Mitochondria-mediated Integrated Stress Response (ISRmt) in neurodegeneration”

Light Lunch

14:00–15:00 **Poster Session II** (with 3' flash presentations)

15:00–15:50 **Urbano G.** (Neuromuscular Unit, Department of Neuroscience Rita Levi Montalcini, University of Torino, Turin, Italy) “An overview of PMD adult phenotypes”

16:00–17:00 **Dominguez C.** (Neurology Department, Neuromuscular Unit, imas12 Research Institute, Hospital Universitario 12 de Octubre, Madrid, Spain) “TK2 deficiency: toward precision medicine in mitochondrial diseases” (online)

17:00 *Social Activity*

Thursday, September 10

09:00–10:00 **Spinazzola A.** (University College London, Queen Square Institute of Neurology, London, United Kingdom): “Mitochondrial DNA disorders: from disease mechanisms to small molecule therapeutic strategies”

10:00–10:50 **Urbano G.** (Neuromuscular Unit, Department of Neuroscience Rita Levi Montalcini, University of Torino, Turin, Italy) “Therapeutic approaches and perspectives in mitochondrial disorders”

Coffee Break

11:10–13:00 **Case Studies Activity** (Urbano G., Spinazzola A.)

Light Lunch

14:00–15:00 **McFarland R.** (Translational and Clinical Research Institute, The Medical School University of Newcastle Newcastle, United Kingdom) “Reproductive options for mtDNA related diseases ”

15:00–16:00 **Mancuso M.** (Neurological Institute, Department of Clinical and Experimental Medicine, University of Pisa, Pisa, Italy) “Registries and international network”

16:00–17:00 **Mongini T.** (Neuromuscular Unit, Department of Neuroscience Rita Levi Montalcini, University of Torino, Turin, Italy) Discussion and Final Remarks

Friday, September 11

9:00–13:00 **Multiscale Imaging of Mitochondria in Neural Cells**

This activity will be organized into three complementary hubs introducing different imaging approaches to study mitochondria in neural cells across multiple scales:

- 3D electron microscopy (SBEM) for ultrastructural reconstruction - **Cali C.** and **Chiappini V.** (Department of Neuroscience Rita Levi Montalcini & NICO, University of Torino, Turin, Italy)
- High-resolution confocal microscopy **Bonzano S.** and **Dallorto E.** (Department of Life Sciences and Systems Biology & NICO, University of Torino, Turin, Italy)
- "On the Move: High-Resolution Tracking of Mitochondrial Mobility in Living Motor Neurons" **Stanga S.** and **Scimia N.** (Department of Neuroscience Rita Levi Montalcini, & NICO, University of Torino, Turin, Italy)

Together, the activity will provide an overview of current multiscale imaging strategies used to investigate mitochondrial dynamics, organization, and function in the nervous system.

12:00–12:30 **De Marchis S.** (Department of Life Sciences and Systems Biology & Neuroscience Institute Cavalieri Ottolenghi, University of Torino, Turin, Italy) Discussion and Final Remarks

Location

- from Monday September 7 to Thursday September 10
Aula De Filippi- Department of Life Sciences and Systems Biology (DBIOS) - Via Accademia Albertina 13, 10123 Turin, Italy
- Friday September 11 - Neuroscience Institute Cavalieri Ottolenghi (NICO) - Regione Gonzole, 10 - 10043 Orbassano (To), Italy - Transfer from and to DBIOS provided by the organization.

Credits Recognition

PhD students participating in the workshop will be awarded 5 ECTS credits by the PhD Programme in Neuroscience, University of Turin. Recognition of these credits by other institutions is subject to their respective regulations.