

European Brain Research Institute (EBRI)

**Rita Levi-Montalcini Lecture  
2019**



**2nd Joint Symposium**

**Emerging concepts  
on synaptic dynamics  
and their dysfunction  
in neurological disorders**

**The Rita Levi-Montalcini Lecture 2019  
is sponsored by**



**Symposium Scientific Planning Committee**

Antonino Cattaneo (EBRI)  
Enrico Cherubini (EBRI)  
Avihu Klar (Huj)  
Stefano Stifani (McGill University)



**Venue of the Meeting**

**Accademia Nazionale dei Lincei**  
Palazzo Corsini  
Via della Lungara 10 - Rome

**Meeting Secretariat**

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**Rome  
28-29 October 2019**

**Meeting Venue**

**Accademia Nazionale dei Lincei**  
Palazzo Corsini, Rome, Italy



# Program

## ▲ Monday, 28 October

- 08.15 Arrival & Registration
- 08.45 Introduction and Welcome Addresses

### Rita Levi-Montalcini Lecture 2019 (Chair: Antonino Cattaneo, EBRI)

- 09.00 Paola **ARLOTTA**, (Harvard University, USA)  
From embryos to organoids: understanding human brain development
- 09.45 Erin **SCHUMAN**, (Max Planck Institute for Brain Research, Germany) Local Protein Synthesis in Neurons
- 10.30 Silvia **ARBER**, (Biozentrum, University of Basel, and FMI, Basel, Switzerland) Circuit Solutions for Programming Actions

### 11.15 Coffee break

2nd Joint EBRI - McGill University - The Hebrew University of Jerusalem - Symposium

### Session 1 - Development, function and dysfunction of motor networks (Chair: Anne McKinney, McGill University)

- 11.40 Avihu **KLAR** (The Hebrew University of Jerusalem)  
Evolution of spinal neuronal circuits underlying species-specific motor behavior
- 12.00 Gary **ARMSTRONG** (McGill University)  
Zebrafish ALS knockin models of TDP-43 and FUS have a degenerative phenotype
- 12.20 Aharon **LEV-TOV** (The Hebrew University of Jerusalem)  
Sacral control of lumbar pattern generators in the mammalian spinal cord
- 12.40 Stefano **STIFANI** (McGill University)  
Human iPSC-derived neurons and glia to model ALS

### 13.00 Lunch

### Session 2 - Synaptic dynamics: physiological and pathological conditions (Chair: Avihu Klar, The Hebrew University of Jerusalem)

- 14.30 Derek **BOWIE** (McGill University)  
NMDA receptor dysfunction in the Fragile X brain
- 14.50 Yael **STERN-BACH** (The Hebrew University of Jerusalem)  
Regulation of AMPA-type glutamate receptors by auxiliary proteins
- 15.10 Antonino **CATTANEO** (EBRI)  
New tools to study synaptic engrams: local expression of optogenetic probes and other reporters at potentiated synapses.
- 15.30 Anne **McKINNEY** (McGill University)  
The function of the sodium hydrogen exchanger in plasticity and learning

### 15.50 Coffee break

- 16.10 Silvia **MARINELLI** (EBRI)  
Cannabinoid receptor Type 2 as a hub of GABAergic transmission
- 16.30 Ariel **GILAD** (The Hebrew University of Jerusalem)  
Wide-field imaging of cortical dynamics during learning and short-term memory
- 16.50 Massimo **AVOLI** (McGill University)  
Involvement of inhibitory interneurons in focal seizures and epileptogenesis : an optogenetic approach

## ▲ Tuesday, 29 October

### Session 3 - Development and function of sensory systems

(Chair: Enrico Cherubini, EBRI)

- 09.00 Jean-Francois **CLOUTIER** (McGill University)  
Wiring the nervous system to regulate innate social behaviors

- 09.20 Yoram **BEN-SHAUL** (The Hebrew University of Jerusalem)  
Vomeronasal representations of innately relevant stimuli

- 09.40 Ed **RUTHAZER** (McGill University)  
Neuron-glia interactions in the developing visual system
- 10.00 Ivan **ARISI** (EBRI)  
A monoclonal anti-TrkA antibody in neuropathic pain: transcriptomics and epigenomics of a long-lasting analgesia
- 10.20 Dan **ROKNI** (The Hebrew University of Jerusalem)  
The olfactory cocktail party problem

### 10.40 Coffee break

- 11.00 Alexander **BINSHTOK** (The Hebrew University of Jerusalem)  
The SIZ of Pain: Inflammation induced plasticity of action potential initiation in peripheral nociceptive neurons

### Session 4 - New Approaches to Neurodegeneration

(Chair: Stefano Stifani, McGill University)

- 11.20 Ayal **BEN-ZVI** (The Hebrew University of Jerusalem)  
Neurodegeneration, autoimmunity and brain barriers
- 11.40 Giovanni **MELI** (EBRI)  
Subcellular mechanisms and targeting of Amyloid beta oligomers: a new perspective in the amyloid hypothesis of Alzheimer's Disease
- 12.00 Edward **FON** (McGill University)  
Harnessing the biology of PD genes for therapeutics
- 12.20 Cristina **MARCHETTI** (EBRI)  
Mechanisms underlying early hyperexcitability in the hippocampus of an animal model of Alzheimer's disease
- 12.40 General Discussion & Closing Remarks