

**CISSN Catania International Summer School of Neuroscience**

**INTERNATIONAL SUMMER SCHOOL OF NEUROSCIENCE**

**“SYNAPTIC FUNCTION AND DYSFUNCTION:  
NEW TARGETS FOR BRAIN DISEASES PHARMACOLOGY”**

**Hotel Villa Paradiso dell’Etna, San Giovanni La Punta**

**Catania, Italy**

**16-20 July, 2018**

Synapses are the major sites of information processing in the brain. The complexity of the synapse has been described in the past few years in great molecular details and major achievements have been made in the understanding of networks of proteins occurring at the pre-synaptic cytomatrix and the postsynaptic compartment of both excitatory and inhibitory synapses. Synaptic dysfunction is a central aspect of many brain disorders (“synaptopathies”) and synapses are and potentially will be the main target of drugs for brain diseases. Synapses integrate complex signals through temporal and spatial codes and undergo rapid structural and functional changes (synaptic plasticity) that underlie the formation of engrams in the brain. Maladaptation of such processes can lead to aberrant perception, cognitive dysfunction or neurodegeneration. The study of the molecular mechanisms of synaptic function and -plasticity are the key to understanding how the brain works and what goes wrong in brain disease. The International PhD Program of Neuroscience, University of Catania organizes the third Catania International Summer School of Neuroscience, CISSN (July 16-20, 2018), focused on "SYNAPTIC FUNCTION AND DYSFUNCTION: NEW TARGETS FOR BRAIN DISEASES PHARMACOLOGY". The main aim of the CISSN 2018 is to bring together junior European neuroscientists and principal investigators working on synaptic functions and synaptopathies and to provide a forum for new directions and ideas in synapse research. This serves to create a research community with an active role in promoting synaptic research and its funding. The meeting will combine research lectures by leading neuroscientists from Europe and aims to encourage lively discussions and the free exchange of information and ideas.

## Program

### 16th July

#### Synaptic function and neuronal plasticity (1)

09.00-09.30 Opening

*Filippo Drago, Fabrizio Gardoni, Monica di Luca*

09.30-11.00 Synapse to nucleus signalling in health and disease

*Monica di Luca, Department of Pharmacological and Biomolecular Sciences, University of Milan, Milan, Italy:*

11.00-12.00 Interactive discussion

12.00 *Light lunch*

15.30-17.00 Molecular dynamics of the postsynaptic density in disease

*Michael R. Kreutz, RG Neuroplasticity, Leibniz Institute for Neurobiology, Magdeburg, Germany*

17.00-18.00 Interactive discussion

18.00-19.00 General discussion

19.00 *Dinner*

### 17th July

#### Synaptic function and neuronal plasticity (2)

09.00-10.30 Role of the scaffolding molecules Bassoon and Piccolo in presynaptic organization and plasticity in health and disease

*Eckart D. Gundelfinger, Department Neurochemistry and Molecular Biology, Leibniz Institute for Neurobiology Magdeburg, Germany*

10.30-11.30 Interactive discussion

12.00 *Light lunch*

15.30-17.00 Role of the signaling molecules in the dynamic organization of synapses: from basic mechanisms to pathophysiological consequences

*Nathalie Sans, INSERM, Neurocentre Magendie, Unité U1215, Bordeaux, France*

17.00-18.00 Interactive discussion

18.00-19.00 General discussion

19.00 *Dinner*

**18th July**

**Synaptic dysfunction in neurological disorders (1)**

**09.00-10.30 Amyloid and synapses: an inner dialogue in the frame of Alzheimer's Disease**

*Elena Marcello, Department of Pharmacological and Biomolecular Sciences, University of Milan, Milan, Italy:*

**10.30-11.30 Interactive discussion**

**12.00 Light lunch**

**15.30-17.00 Synaptic function: from physiological mechanisms to neurodegenerative disorders**

*Fabrizio Gardoni, Department of Pharmacological and Biomolecular Sciences, University of Milan, Milan, Italy:*

**17.00-18.00 Interactive discussion**

**18.00-19.00 General discussion**

**19.00 Dinner**

**19th July**

**Synaptic function: from physiology to pathology**

**09.00-10.30 Emotional responses upon blockade of juvenile NMDA receptors**

*Isabel Perez-Otano, Cellular Neurobiology and Neurophysiology Laboratory, Center for Applied Medical Research (CIMA) and University of Navarra Medical School, Pamplona, Spain*

**10.30-11.30 Interactive discussion**

**12.00 Light lunch**

**15.30-17.00 Synaptic dysfunction in Alzheimer's disease**

*Christophe Mulle, University of Bordeaux, Interdisciplinary Institute for Neuroscience, CNRS UMR 5297, Bordeaux, France.*

**17.00-18.00 Interactive discussion**

**18.00-19.00 General discussion**

**19.00 Dinner**

**20th July**

**Synaptic dysfunction in neurological disorders (2)**

**09.00-10.30 Rescuing epilepsy and cognitive dysfunctions by eEF2K inhibition**

*Carlo Sala, CNR Institute of Neuroscience and Department of Biotechnology and Translational Medicine, University of Milan, Milan, Italy*

**10.30-12.00 Understanding pathophysiological mechanisms underlying PCDH19**

*Maria Passafaro, Institute of Neuroscience, CNR, Milan, Italy*

**12.00-13:00 Interactive discussion**

**13:00 Light lunch**

**15.30-17.00 Synaptic dysfunction in neurodegenerative diseases: focus on Alzheimer's disease**

*Tiziana Borsello, Department of Pharmacological and Biomolecular Sciences, University of Milan, Milan, Italy:*

**17.00-18.00 Interactive discussion**

**18.00-19.00 General discussion**

**19.00 Closing remarks (Filippo Drago)**

**Under the auspices of Italian Society of Pharmacology**



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DI FARMACOLOGIA**