WORKSHOPS

CURRENT TRENDS IN BIOMEDICINE 2017

Universidad Internacional de Andalucía

SYNAPSE FORMATION, SPECIFICATION AND ELIMINATION: FROM MOLECULES TO CIRCUITS

Scope

Precise patterns of synaptic connections between neurons characterize the nervous system organization. Nevertheless, the molecular mechanisms mediating synapse formation and elimination, the specification of synapse diversity and the processes underlying the assembly of synapses to sculpt neural circuits are not well understood yet. The direct implication of those processes in major psychiatric disorders such as autism or schizophrenia demand a deeper understanding of neural circuit assembly mechanisms to be able to design therapeutic tools. Almost twenty-five years ago, the molecular diversity of cell surface molecules was postulated to impart the specific neuronal surface properties required for differential cell-cell recognition. Currently, a major scientific challenge is to answer key questions on the role of those molecules in synaptic formation and specification of synaptic diversity: How synaptic cell surface proteins mediate specific connections of presynaptic and postsynaptic neurons at synapses? How those proteins mediate trans-synaptic signaling across the synapse? How do specific synaptic functions shape the properties of neural circuits? On the other hand, the proper final assembly of functional neural circuits requires axon and dendrite pruning, which in most of the cases involves synapse elimination by molecular mechanisms not well understood yet. Synapse elimination is somehow linked to synapse loss that correlates with cognitive decline and it is a hallmark for neurodegenerative diseases such as Alzheimer's disease. This workshop will tackle those questions by bringing together internationally recognized investigators with different and multidisciplinary expertise in the study of multiple aspects of the molecular mechanisms of synaptic assembly and remodeling of circuits.

Format of the workshop

The workshop will bring together a maximum of 16 speakers and 35 participants, to form a group of around 50 people. The scientific programme will start in the morning of Monday, September 25th, and will end around noon on Wednesday, September 27th. Ample time for informal discussion will be reserved. Participants will be invited to present a poster.

Venue of the workshop

The workshop will be held in Baeza, at the "Campus Antonio Machado", a XVII century building turned into a Conference Centre of the Universidad Internacional de Andalucía (UNIA). This Seat includes a residence, where participants will be accommodated. Baeza is a World Historic Heritage town, renowned for its Renaissance and Gothic buildings.

Speakers

- **Jean-Louis Bessereau**. Institut NeuroMyoGene, University Claude Bernard. Lyon, France.
- **Thomas Biederer**. Department of Neuroscience, Tufts University School of Medicine. Boston, MA, USA.
- **Nils Brose**. Department of Molecular Neurobiology, Max Planck Institute of Experimental Medicine. Göttingen, Germany.
- **Davide Comoletti**. Child Health Institute of New Jersey; Department of Neuroscience and Cell Biology; Department of Pediatrics; Robert Wood Johnson Medical School, Rutgers University. New Brunswick, NJ, USA.
- **Rafael Fernández-Chacón**. Instituto de Biomedicina de Sevilla (IBiS) HUVR/CSIC/Universidad de Sevilla, Departamento de Fisiología Médica y Biofísica and CIBERNED. Sevilla, Spain.
- **Anirvan Ghosh**. Neurobiology Section, Division of Biology, University of California, San Diego. La Jolla, CA, USA // Neuroscience Discovery, F. Hoffman-La Roche. Basel, Switzerland.
- **P. Robin Hiesinger**. Division of Neurobiology of the Institute for Biology, Free University Berlin. Berlin, Germany.
- **Oliver Hobert**. Department of Biological Sciences, Columbia University, Howard Hughes Medical Institute. New York, NY, USA.
- **Yishi Jin**. Neurobiology Section, Division of Biological Sciences, University of California, San Diego. La Jolla, CA, USA.
- **Eunjoon Kim**. Center for Synaptic Brain Dysfunctions, Institute for Basic Science (IBS); Department of Biological Sciences, Korea Advanced Institute of Science and Technology (KAIST). Daejeon, Korea.
- **Alex L. Kolodkin**. The Solomon H. Snyder Department of Neuroscience and Howard Hughes Medical Institute, The Johns Hopkins University School of Medicine. Baltimore, MD, USA.
- **Liqun Luo**. Department of Biology and Howard Hughes Medical Institute, Stanford University. Stanford, CA, USA.
- **Peter Scheiffele**. Biozentrum of the University of Basel. Basel, Switzerland.
- **Scott H. Soderling**. Departments of Cell Biology and Neurobiology, Duke University Medical School. Durham, NC, USA.
- **Thomas C. Südhof**. Department of Molecular and Cellular Physiology and Howard Hughes Medical Institute, Stanford University School of Medicine. Stanford, CA, USA.
- **S. Lawrence Zipursky**. Department of Biological Chemistry, Howard Hughes Medical Institute, University of California, Los Angeles. Los Angeles, CA, USA.

Organized by:

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Sponsor:

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Centro Investigación Biomédica en Red
Enfermedades Neurodegenerativas

Baeza, Spain

25th-27th September 2017

Deadline:

21st July 2017

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