
XAVIER ALTAFAJ

CV

PARTICIPANT AT:

CONNECTING THE GROWING BRAIN UNDERSTANDING NEUROPAEDIATRIC DISEASES THROUGH SYNAPTIC COMMUNICATION

**November, 26th-27th, 2015, Barcelona**

Xavier Altafaj, Team Leader, “Neurobiology of Ionotropic Glutamate Receptors in Health and Disease” Group, Bellvitge Biomedical Research Institute (IDIBELL), Barcelona, Spain

Principal Investigator (“Miguel Servet” programme, ISCIII) at the Neuropathology Department, Bellvitge Biomedical Research Institute (IDIBELL). After obtaining his degree in Molecular Biology by the University of Barcelona and the Université Libre de Bruxelles in 1997, he joined the Centre of Medical and Molecular Genetics (headed by Dr. Estivill) where he developed a Functional Genomics approach to understand the contribution of a candidate gene in the etiopathology of Down syndrome. In 2002 he obtained his PhD in Genetics and moved to the “Calcium channels: Functions and Pathology” (CEA, France, headed by Dr. De Waard), where he studied the crosstalk between the plasma membrane DHPR and the ER-spanning Ryanodine receptor (RyR). In 2007 he joined the laboratory of Dr. Fillat, at the Center for Genomic Research (CRG, Barcelona, Spain), where he developed gene therapy strategies for the potential rescue of cognitive alterations associated to Down syndrome, while he started to study the glutamate receptors in the brain of animal models of Down syndrome. His laboratory is currently focused to study the physiology of NMDA-type ionotropic glutamate receptors (iGluRs) and to unveil the molecular and cellular mechanisms bridging the gap between glutamate receptor dysfunctions and neurological diseases, towards the development of targeted therapeutic approaches. His efforts are focused to elucidate the molecular mechanisms underlying synaptic plasticity processes in post-synaptic glutamatergic neurons. The molecular insights are finally used to design targeted therapeutic approaches and to evaluate their efficacy to attenuate iGluR-mediated neuronal dysfunctions.

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ABSTRACT

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Neurotransmitter Systems II. Disorders of GABA and Glutamate

In his talk, Dr. Altafaj will present the current knowledge on Glutamatergic and GABAergic neurotransmitter systems in the developing brain. Briefly, he will show the physiological role of these neurotransmitter systems, that represent the main excitatory and inhibitory neurotransmission systems of the central nervous system. After this introduction, he will introduce the critical elements that regulate those systems, providing a broad view of the different molecular players acting not only in the neurotransmission communication (neurotransmitter release-neurotransmitter receptor), but also on those processes that regulate Glutamate and GABA metabolism (biosynthesis and catabolism), vesicle release, signaling pathways, recycling, etc,... The disturbance of these critical “checkpoints” may lead to neurotransmission-associated diseases, specially during the initial stages of life and brain development. These aspects, illustrated with experimental and clinical data, will be the starting point for further discussion on the challenging therapeutic opportunities, based on the targeting of the Glutamate and GABA neurotransmission systems.

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