

Synaptic metabolism: a new approach to neurotransmitter disorders

Dr. Angela Garcia-Cazorla

Department of Neurology

Neurometabolic Unit and Synaptic Metabolism Laboratory

Institut Pediatric de Recerca

Hospital Sant Joan de Deu, Barcelona, Spain

The synapse is a highly specialized structure with specific chemical composition devoted to neuronal communication. The concept of synaptic metabolism deals with the connection between metabolic pathways and functions that have been described by classical cell neurobiology. In other words, it tries to describe how metabolites and biochemistry regulate the function of key synaptic structures such as the vesicle cycle, ion channels and neurotransmitter receptors. From a practical point of view, it aims to gain knowledge in our approach to the pathophysiology and treatment of neurologic disorders in which neuronal communication is predominantly involved.

In summary, the learning objectives of this talk are:

- To update the classical concept of “inborn errors of neurotransmitters” which is now restricted to the synthesis, catabolism and transport of these molecules.
- To introduce new categories of neurometabolic diseases based on the description of biochemical pathways, trafficking and signaling functions at the synapse, and to recognize the main clinical manifestations.
- To introduce new therapeutic options based on this approach.