

The kainate receptor proteome and the synaptic plasticity

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An essential aspect for neurotransmitter receptors function is the appropriate localization and cell surface expression. Differential subunit trafficking, targeting and assembly tightly regulates the physiological roles of glutamate receptors and these events are controlled through interactions with proteins that bind to cytoplasmic domains of receptor subunits. Glutamate is the major excitatory neurotransmitter in the mammalian brain and it activates three types of ionotropic receptors NMDA, AMPA, and kainate (KARs). The knowledge of these aspects from KARs lags far behind that for other receptors, and only lately has our understanding of KARs trafficking and targeting been growing. We have initiated in the lab a program to identify proteins that interacts with KARs (e.g. proteome) that could allow them to signal by a system beyond their role as ion channels and/or modulate their function in the neuron physiology. I would like to discuss this approach and showing some progress on the function of molecules that we have already identified.