

Map of the sarcoglycan sub-complex in rat brain

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The sarcoglycan-sub-complex is made up of six glycoproteins which play mechanosignaling functions, connecting the extracellular matrix to cytoskeleton. This protein complex has been identified in different kind of tissues; in central nervous system, instead, only the ζ -sarcoglycans and the ε -sarcoglycans are considered to be present, where they seem to play a different role from the role played in muscle. Although that, previous our study have shown the expression of the entire sarcoglycan sub-complex in some region of the rat brain and the colocalization of this complex with post-synaptic receptors as GABA and DOPA receptors. Since we found that each sarcoglycan changes in staining pattern level among the brain regions, in the present study we performed, for the first time, a map of sarcoglycans expression in whole brain of rat and we examined which kind of post-synaptic receptor colocalizes with sarcoglycans in each part of brain. Results have shown that in rat brain the staining pattern level for each sarcoglycan and the different kind of colocalization between sarcoglycans and post-synaptic receptors, sarcoglycan/GABA or sarcoglycan/DOPA, are characteristic of each brain region. These results support a role of the sarcoglycan sub-complex in post-synaptic neurotransmission, maybe modulating post-synaptic receptor assembly and stabilization.