Title:	Role of post-synaptic scaffolding proteins picki and tamalin in group i matabotropic glutamate receptor trafficking
Authors:	Ramsakha, Namrata
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Abstract:	G-protein-coupled receptors (GPCRs) are seven transmembrane receptors that transduce information provided by the extracellular stimuli into intracellular signals via their coupling to G-proteins. Activation of GPCR also triggers a variety of cellular and molecular mechanisms, viz., receptor desensitization and internalization. Due to the diversity in the GPCR regulation, each GPCR is unique and an extensively studied GPCR may not provide all the details about other GPCRs. Glutamate is a major excitatory neurotransmitter in the central nervous system. It activates three types of receptors, viz., NMDARs, AMPARs and metabotropic glutamate receptors (mGluRs). Among these three types of receptors, mGluRs belong to the GPCR family. Group I mGluR family consists of mGluR1 and mGluR5. These receptors play important roles in the brain and are believed to be involved in multiple forms of experience dependent synaptic plasticity including learning and memory. In addition, group I mGluRs also have been implicated in various neuropsychiatric disorders like Fragile X syndrome, autism etc. Similar to many other GPCRs, group I mGluRs have been reported to get desensitized subsequent to the ligand exposure and undergo rapid internalization. These receptors are localized in a protein dense region at the post-synaptic membrane called post-synaptic density (PSD). The post-synaptic density of excitatory synapses is very complex in composition and dynamic in nature. This region contains a large number of different kinds of proteins, some of which are involved in cognitive function and have been implicated in various psychiatric disorders. The involvement of post-synaptic density proteins in the ligand-mediated trafficking of group I mGluRs is relatively an unexplored area. The objective of this study is to investigate the role of post-synaptic scaffolding proteins PICK1 and Tamalin in the ligand-mediated trafficking of group I mGluRs and its implications in the brain.
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