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Title:	Differential effects of protein phosphatases in the recycling of metabotropic glutamate receptor 5
Authors:	Mahato, Prabhat Kumar (/jspui/browse?type=author&value=Mahato%2C+Prabhat+Kumar) Pandey, Saurabh (/jspui/browse?type=author&value=Pandey%2C+Saurabh) Bhattacharyya, Samarjit (/jspui/browse?type=author&value=Bhattacharyya%2C+Samarjit)
Keywords:	GPCR endocytosis metabotropic glutamate receptors neurotransmitter receptors receptor recycling trafficking
Issue Date:	2015
Publisher:	Elsevier Ltd
Citation:	Neuroscience, 306
Abstract:	The major excitatory neurotransmitter Glutamate acts on both ionotropic and metabotropic glutamate receptors (mGluRs) in the central nervous system. mGluR5, a member of the group I mGluR family is widely expressed throughout the brain and plays important roles in a variety of neuronal processes including various forms of synaptic plasticity. This receptor is also involved in various neuropsychiatric disorders, viz., Fragile X syndrome, autism etc. It has been reported that mGluR5 undergoes desensitization and subsequently internalization on ligand exposure in various cell types. However, the downstream events after the internalization and the molecular players involved in the post-endocytic events of this receptor have not been studied. In the present study, we find that subsequent to internalization mGluR5 enters the recycling compartment. After that the receptor recycles back to the cell surface. We also show here that the recycling of mGluR5 is dependent on protein phosphatases. Our data suggest that mGluR5 recycling is completely dependent on the activity of PP2A whereas, PP2B has partial effect on this process. Thus our study suggests that mGluR5 recycles back to the cell surface after ligand-dependent internalization and protein phosphatases that have been implicated in various forms of synaptic plasticity have differential effects on the recycling of mGluR5.
URI:	https://www.sciencedirect.com/science/article/abs/pii/S0306452215007630?via%3Dihub#! (https://www.sciencedirect.com/science/article/abs/pii/S0306452215007630?via%3Dihub#!) http://hdl.handle.net/123456789/2749 (http://hdl.handle.net/123456789/2749)
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