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Title:	Metabotropic glutamate receptor 1 recycles to the cell surface in protein phosphatase 2A-dependent manner in non-neuronal and neuronal cell lines
Authors:	Pandey, Saurabh (/jspui/browse?type=author&value=Pandey%2C+Saurabh) Mahato, Prabhat Kumar (/jspui/browse?type=author&value=Mahato%2C+Prabhat+Kumar) Bhattacharyya, Samarjit (/jspui/browse?type=author&value=Bhattacharyya%2C+Samarjit)
Keywords:	Endocytosis GPCR Metabotropic glutamate receptors Neurotransmitter receptors Receptor recycling Trafficking
Issue Date:	2014
Publisher:	Blackwell Publishing Ltd
Citation:	Journal of Neurochemistry, 131(5), pp.602-614.
Abstract:	Trafficking of G protein-coupled receptors plays a crucial role in controlling the precise signalling of the receptor as well as its proper regulation. Metabotropic glutamate receptor 1 (mGluR1), a G protein-coupled receptor, is a member of the group I mGluR family. mGluR1 plays a critical role in neuronal circuit formation and also in multiple types of synaptic plasticity. This receptor has also been reported to be involved in various neuropsychiatric diseases. Other than the central nervous system, mGluR1 plays crucial roles in various non-neuronal cells like hepatocytes, skin cells, etc. Although it has been reported that mGluR1 gets endocytosed on ligand application, the events after the internalization of the receptor has not been studied. We show here that mGluR1 internalizes on ligand application. Subsequent to endocytosis, majority of the receptors localize at the recycling compartment and no significant presence of the receptor was noticed in the lysosome. Furthermore, mGluR1 returned to the cell membrane subsequent to ligand-mediated internalization. We also show here that the recycling of mGluR1 is dependent on the activity of protein phosphatase 2A. Thus, our data suggest that the ligand-mediated internalized receptors recycle back to the cell surface in protein phosphatase 2A-dependent manner.
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