

Endoplasmic reticulum sorting and kinesin-1 command the targeting of Axonal GABAB receptors

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In neuronal cells the intracellular trafficking machinery controls the availability of neurotransmitter receptors at the plasma membrane, which is a critical determinant of synaptic strength. Metabotropic ? amino-butyric acid (GABA) type B receptors (GABABRs) are neurotransmitter receptors that modulate synaptic transmission by mediating the slow and prolonged responses to GABA. GABABRs are obligatory heteromers constituted by two subunits, GABABR1 and GABABR2. GABABR1a and GABABR1b are the most abundant subunit variants. GABABR1b is located in the somatodendritic domain whereas GABABR1a is additionally targeted to the axon. Sushi domains located at the N-terminus of GABABR1a constitute the only difference between both variants and are necessary and sufficient for axonal targeting. The precise targeting machinery and the organelles involved in sorting and transport have not been described. Here we demonstrate that GABABRs require the Golgi apparatus for plasma membrane delivery but tha