Docket #: S96-120

Mouse monoclonal Anti-300kD bovine mannose 6-phosphate receptor

Rab proteins represent a large family of ras-like GTPases that regulate distinct vesicular transport events at the level of membrane targeting and/or fusion. We report here the primary sequence, subcellular localization and functional activity of a new member of the rab protein family, rab9. The majority of rab9 appears to be located on the surface of late endosomes. Rab9, purified from Escherichia coli strains expressing this protein, could be prenylated in vitro in the presence of cytosolic proteins and geranylgeranyl diphosphate. In vitro-prenylated rab9 protein, but not C-terminally truncated rab9, stimulated the transport of mannose 6-phosphate receptors from late endosomes to the trans Golgi network in a cell-free system that reconstitutes this transport step. Rab7, a related rab protein that is also localized to late endosomes, was inactive in the in vitro transport assay, despite its efficient prenylation and capacity to bind and hydrolyze GTP. These results strongly suggest that rab9 functions in the transport of mannose 6-phosphate receptors between late endosomes and the trans Golgi network. Moreover, our results confirm the observation that a given organelle may bear multiple rab proteins with different biological functions.

Publications

- The EMBO Journal: vol. 12, no. 2 pp.677-682. 1993.

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