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Characterization of Rice Prenylated Rab Acceptor, OsPRA1

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Rab GTPase have been known to be implicated in intracellular vesicle trafficking. By using yeast two-hybrid screen, we isolated an OsPRA1 that interacts with OsRab7. OsPRA1 is a 22.8 kDa protein with two extensive hydrophobic domains, and expressed in 3-day, 6-day shootsand mature plant stems. Subcellular localization of OsPRA1 in plant cells was investigated by using a GFP-fused form in Arabidopsis protoplasts. OsPRA1 was localized to the TGN and/or prevacuolar compartment. OsPRA1 was preferentially interacted with prenylated and GTP-bound forms of OsRab7. Moreover, through yeast two-hybrid assay using various OsPRA1 deletion mutants it was revealed that the interacting regions correspond to 47~94 and 185~228 amino acids of OsPRA1. To know whether OsPRA1 interacts with other plant Rab proteins, rice cDNAs encoding Rab proteins were isolated by RT-PCR based on sequence homology with already known Rab/Ypt GTPases. In addition, we found that OsPRA1 was also interacted with OsRab5a and OsRab11 but not with OsRab1 and OsRab2. Structure prediction program suggested that OsPRA1 is likely to be an integral membrane protein. Subcellular fractionation analyses confirmed that OsPRA1 might be tightly associated with membranes of intracellular compartments.[This work was supported by the BK21 program at Gyeongsang National University.]