

AtA6PR1 and AtA6PR2 encode putative aldose 6-phosphate reductases that are cytosolically localized and respond differentially to cold and salt stress in *Arabidopsis thaliana*

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Sorbitol is synthesized in Rosaceae species, especially in source organs, in a pathway involving aldose 6-phosphate reductase (A6PR, EC 1.1.1.200). As compatible solutes, sorbitol and other sugar alcohols assist in the ability of the plant to withstand abiotic stress conditions. Here, we identify two tandemly-duplicated genes in a non-Rosaceae species (*Arabidopsis thaliana* L.), and show that the proteins encoded by At2g21250 (AtA6PR1) and At2g21260 (AtA6PR2) possess the molecular characteristics of A6PRs. Consistent with bioinformatic predictions, we determined that green fluorescent protein-tagged versions of AtA6PR1 and AtA6PR2 are cytosolically localized, a finding supported by immunoblotting using a specific anti-AtA6PR1 antisera after subcellular fractionation of *Arabidopsis* leaves. We also show that under standard growth conditions, both genes are widely-expressed, whilst AtA6PR1 protein accumulates in both source and sink