

ABSTRACT

Exocyst is protein complex evolutionary conserved in yeasts, animals and plants, which plays a role in control of cell morphogenesis and polarity. It is a tethering complex whose function is to attach secretory vesicles to specific foci on plasma membrane. Complex exocyst is formed by eight subunits. Subunit EXO70 is encoded by 23 paralogue genes in genome of *Arabidopsis thaliana*. Mutation in paralogue subunit EXO70H4 causes defect in trichome maturation. Mutant trichomes have thin, not reinforced cell wall, making them soft and elastic. Transcription of *EXO70H4* gene is induced by UV radiation, therefore observations of plants cultivated on UV-B radiation were done. Analysis of mutants cultivated on UV-B radiation revealed hyperaccumulation of vesicles in cytoplasm, which were visible by light microscope. Hyperaccumulation was not observed in control plants cultivated on UV-B radiation, but thickening of cell wall was induced. This reaction to UV in trichomes hasn't been described yet. Analysis of cellular localization made with YFP tagged constructs revealed that EXO70H4 localizes into mobile corpuscles associating with Golgi apparatus. It was found with yeast two hybrid system that EXO70H4 interacts with TRS120, subunit of tethering complex TRAPP II which is active in Golgi apparatus. Furthermore it was demonstrated that TRS120 interacts with subunits EXO70B1, EXO70B2, but does not interact with paralogue EXO70A1. These results imply that EXO70H4 has function in thickening of cell walls of trichomes in stage of their maturation and that also plays role in UV-B stress response. So it might somehow regulate secretion of cell wall components.

Keywords: cell morphogenesis, exocyst, exocytosis, epidermis, trichomes, UV, cell wall,

Arabidopsis thaliana