

## Abstract

Trichomes are fine epidermal outgrowths covering aerial organs of most land plants. Although unicellular trichomes of *Arabidopsis thaliana* have long been used as a model system in plant cell and developmental biology, surprisingly little is known about the processes involved in cell wall biogenesis during the last stage of trichome maturation. A role of *EXO70H4*, a putative subunit of the vesicle tethering complex exocyst, in trichome maturation has recently been identified in our laboratory. Image analysis, histochemical detection and FT-IR spectroscopy methods were used in this study to analyze cell wall defects of the *exo70H4* LOF mutant, revealing the mutation causes altered deposition of pectins and possibly also lignins and hemicelluloses. Transgenic lines with *EXO70* paralogues driven by the *EXO70H4* promoter were prepared and their analysis revealed that the closest paralogue *EXO70H3*, unlike *EXO70A1* and *EXO70B1*, can complement the *exo70H4* mutation. Based on the results, questions concerning trichome cell wall composition, the role of *EXO70H4* in trichome maturation and functions of the plant exocyst complex are discussed.

**Keywords:** *Arabidopsis*, trichome, cell wall, secretory pathway, exocyst complex, *EXO70H4*, FT-IR spectroscopy