

## Abstract

The final step of secretion termed exocytosis is mediated by the exocyst complex. The exocyst is an evolutionary conserved protein complex that tethers secretory vesicle to the target membrane and consists of eight subunits: Sec3, Sec5, Sec6, Sec8, Sec10, Sec15, Exo84, and Exo70. Sec15 exocyst subunit was previously shown to connect the rest of the exocyst complex with a secretory vesicle in yeast, mammals and fruit fly via interaction with Rab GTPase and GEF of Rab GTPase. Here, I show that plant SEC15B potentially functions in evolutionary conserved manner.

First, two mutant lines of *Arabidopsis thaliana sec15b* mutant were tested in characteristics typical for other exocyst mutants. Although some characteristics reach certain level of plasticity, both *sec15b-1* and *sec15b-2* show similar tendencies, which are mostly consistent with defects with other mutants in exocyst subunits. *sec15b-1* has been determined as a stronger allele that is defective in formation of seed coat, elongation of etiolated hypocotyl, growth of stem and primary root, establishment of axillary branches and lateral roots, diameter of rosette and, unexpectedly, growth of pollen tubes. Phenotype of *sec15b-1* was rescued by insertion of *SEC15B* gene under *SEC15B* promoter. Second, complementation test showed that SEC15B and SEC15A are functionally redundant in seed coat formation and development of etiolated hypocotyl. Third, SEC15B protein was successfully expressed, purified and tested in protein lipid interaction and protein-protein interaction with Rab GTPase. Using PIP Strip analysis, interaction of SEC15B with lipids was not confirmed. In contrast, RAB A4a GTPase was identified as a potential interactor of SEC15B in pull down assay. Therefore, plant SEC15B exocyst subunit potentially acts in evolutionary conserved manner.

Keywords:

SEC15A, SEC15B, exocyst complex, secretory pathway, secretory mutant, *Arabidopsis thaliana*, Rab GTPase, lipid binding assays