Supplemental Figure Legends

Supplemental 1. Southern blot analysis of *Ds* insertion in *rpa-1* plants.
Genomic DNA extracted from homozygous (*Ds/Ds*) and heterozygous (*Ds/+*) plants were digested with *Eco*RI and gel-fractionated. The blot was hybridized with Ds 5' probe shown in lower panel.

Supplemental 2. RT-PCR analysis of *RPA* expression in *rpa-1* and *rpa-2*.
RNA was extracted from inflorescence and root in mutant and wild type as indicated and first reverse-transcribed with AMV reverse transcriptase, then PCR amplification was performed. Col: *Columbia* ecotype; Ler: *Landsberg* ecotype. Note faint band is visible in *rpa-2* inflorescence.

Supplemental 3-1. RT-PCR analysis of the Class II ARFGAP family.
RNA was extracted from tissues of *Landsberg* wild type as indicated and first reverse-transcribed with AMV reverse transcriptase, then PCR amplification was performed. *ACTIN2* was used as internal control.

Supplemental 3-2. Root hair phenotypes of double mutants
(A) A photograph showing root hairs in *A. thaliana (Ler)* wild type.
(B) A photograph showing root hairs in *rpa-1* mutant.
(C) A photograph showing root hairs in *rpa-1/at5g54310* double mutant.
(D) A photograph showing root hairs in *rpa-1/at2g37550* double mutant.
(E) A photograph showing root hairs in *rpa-1/at4g17890* double mutant.
(F) A photograph showing root hairs in *rpa-1/at3g53710* double mutant.
(G) A photograph showing root hairs in *rpa-1/at5g46750* double mutant.
Scale bar: 20μm.