

## Supplemental Movie Legends

**Supplemental Movie S1.** Time-lapse imaging of wild-type root hairs. Movie shows images taken every 1 minute. Total elapsed time is 60 min.

**Supplemental Movie S2.** Time-lapse imaging of *agd1-1* root hairs. Movie shows images taken every 1 minute. Total elapsed time is 60 min.

**Supplemental Movie S3.** Time-lapse imaging of *ark1-4* root hairs. Movie shows images taken every 1 minute. Total elapsed time is 150 min.

**Supplemental Movies S4.** Confocal time-lapse imaging of a wild-type root hair expressing a microtubule marker (GFP-MBD). Movie shows images taken every 2 minutes. Total elapsed time is 60 min.

**Supplemental Movie S5.** Confocal time-lapse imaging of an *agd1-1* root hair expressing GFP-MBD. Movie shows images taken every 2 minutes. Total elapsed time is 82 min.

**Supplemental Movie S6.** Confocal time-lapse imaging of an *ark1-4* root hair expressing GFP-MBD. Movie shows images taken every 2 minutes. Total elapsed time is 60 min.

**Supplemental Movie S7.** Confocal time-lapse imaging of a wild-type root hair expressing a GFP-ABD2-GFP. Movie shows images taken every 2 minutes. Total elapsed time is 84 min.

**Supplemental Movie S8.** Confocal time-lapse imaging of an *agd1-1* root hair expressing a GFP-ABD2-GFP. Movie shows images taken every 2 minutes. Total elapsed time is 106 min.

**Supplemental Movie S9.** Spinning disk confocal microscopy of a wild-type root hair expressing GFP-ABD2-GFP to label F-actin. Movie shows images taken every 300 msec. Total elapsed time is 180 sec.

**Supplemental Movie S10.** Spinning disk confocal microscopy of an *agd1-1* root hair expressing GFP-ABD2-GFP. Movie shows images taken every 300 msec. Total elapsed time is 180 sec.

**Supplemental Movie S11.** Spinning disk confocal microscopy of a wild-type root hair expressing ST-YFP to label Golgi stacks. Movie shows images taken every 1 sec. Total elapsed time is 60 sec

**Supplemental Movie S12.** Spinning disk confocal microscopy of an *agd1-1* root hair expressing ST-YFP to label Golgi stacks. Movie shows images taken every 1 sec. Total elapsed time is 60 sec.

**Supplemental Movie S13.** Confocal time-lapse imaging of an *agd1-1* root hair expressing GFP-MBD and germinated in 100 nM BFA. Movie shows images taken every 2 min. Total elapsed time is 60 min.

**Supplemental Movie S14.** Spinning disk confocal microscopy of BFA-treated *agd1-1* root hair expressing ST-YFP to label Golgi stacks. Movie shows images taken every 1 sec. Total elapsed time is 60 sec.