Fig. S1. Supplementary figure. (A) 7-day-old Col-0, *brx* and *bri1* single mutant and *brx bri* double mutant seedlings. (B) Confocal microscopy images of the root meristems of genotypes in (A). Asterisks mark protophloem sieve element strands. Bracket in *brx bri1* highlights the only two sieve element cells that appear to differentiate normally in this strand. (C) Confocal microscopy image of *bri1 brl1 brl3* mutant root meristem expressing a *BRI1-GFP* transgene under control of the *SHR* promoter (overlay). GFP signal: green. Propidium iodide signal: red. Left: optical section, arrow points out the phloem pole. Right: longitudinal view, asterisks mark protophloem sieve element strands. (D) Confocal microscopy images of Col-0 wild type root meristem expressing a *BRI1::BRI1-GFP* transgene. GFP signal: green. Propidium iodide signal: red. Left: optical section, arrow points out the phloem pole. Right: longitudinal view, asterisk marks a protophloem sieve element strand. (E) Confocal microscopy images of propidium iodide-stained roots from 5-day-old plants. (F) Root length of 7-day-old seedlings. Differences are not statistically significant unless indicated. (student's t-test); *** = $p < 0.001$; [a]: versus Col-0; [b]: versus *bri1 brl1 brl3*; (D) shows mean ± s.e.m.
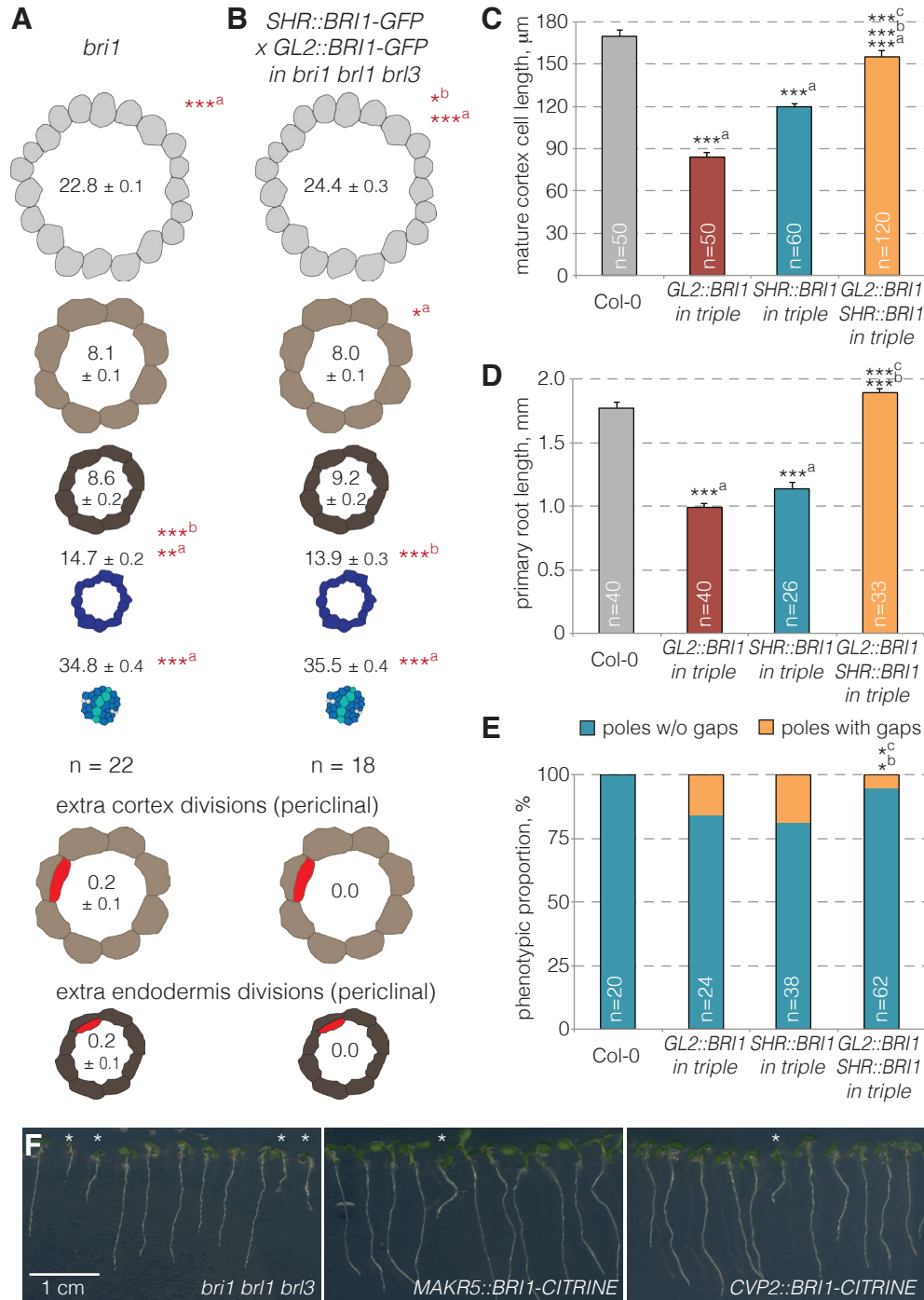
Fig. S2. Supplementary figure. Quantification of cell number in the different tissue layers and of extra cortex or endodermis divisions, similar to Figure 4C and D, for (A) *bri1* single mutants, and (B) F1 plants derived from crosses between *GL2::BRI1-GFP^triple* and *SHR::BRI1-GFP^triple* plants. (C-E) Mature cortex cell length (C), root length (D) and gap cell frequency (E) in F1 plants derived from crosses between *GL2::BRI1-GFP^triple* and *SHR::BRI1-GFP^triple* plants, and their parental lines. (F) 8-day-old seedlings, progeny of *brl1 -/- brl3 -/- bri1 +/-* plants, or *brl1 -/- brl3 -/- bri1 +/-* plants that carried indicated transgenes in hemizygous state, segregating *bri1 brl1 brl3* triple mutants (asterisks). Differences are not statistically significant unless indicated. (student's t-test); * = $p < 0.05$; ** = $p < 0.01$; *** = $p < 0.001$; (A-B): [a]: versus Col-0; [b]: versus *bri1 brl1 brl3*; (C-E): [a]: versus Col-0; [b]: versus *GL2::BRI1-GFP^triple*; [c]: versus *SHR::BRI1-GFP^triple*; (A-D) indicates mean ± s.e.m.