

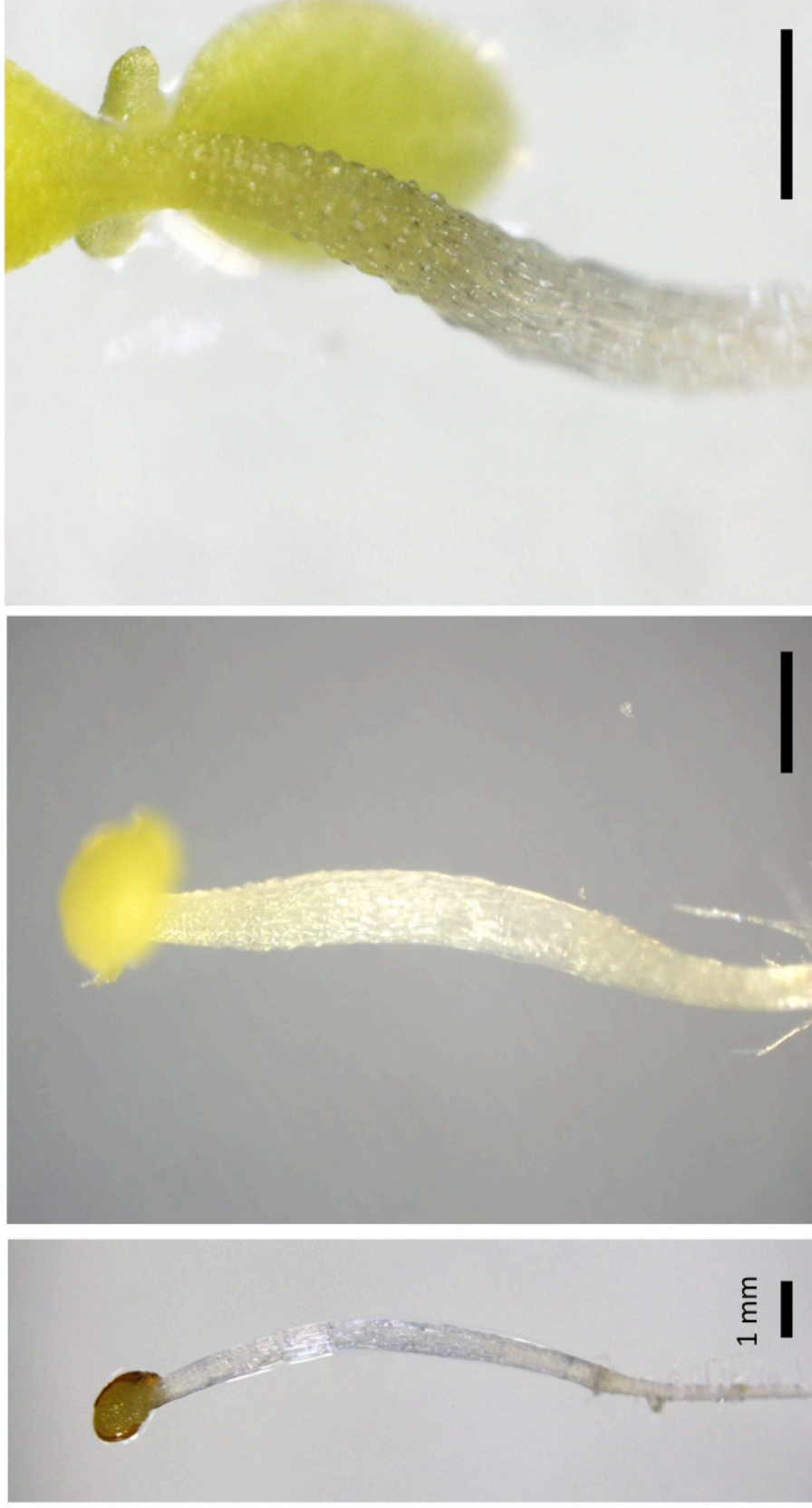
Abscisic acid induces ectopic outgrowth in epidermal cells
through cortical microtubule reorganization in *Arabidopsis*
thaliana

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Supplemental Figure S1-S5



Supplemental Figure S1 | Effect of salt treatment on epidermal morphology. The wild type seedlings were germinated and grown for 3 weeks on medium containing 100 mM NaCl. The ectopic outgrowth was not observed (no protrusions in 20 plants).

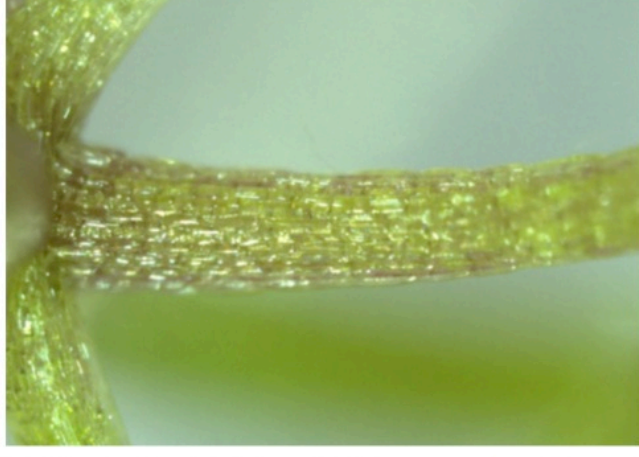


Supplemental Figure S2 | Effect of cell elongation on ABA-induced ectopic outgrowth. The wild type seedlings were germinated and grown for 3 weeks under a dark condition on medium containing 1 μ M ABA. The hypocotyl growth was promoted and ectopic outgrowth was suppressed (no protrusions in 15 plants).

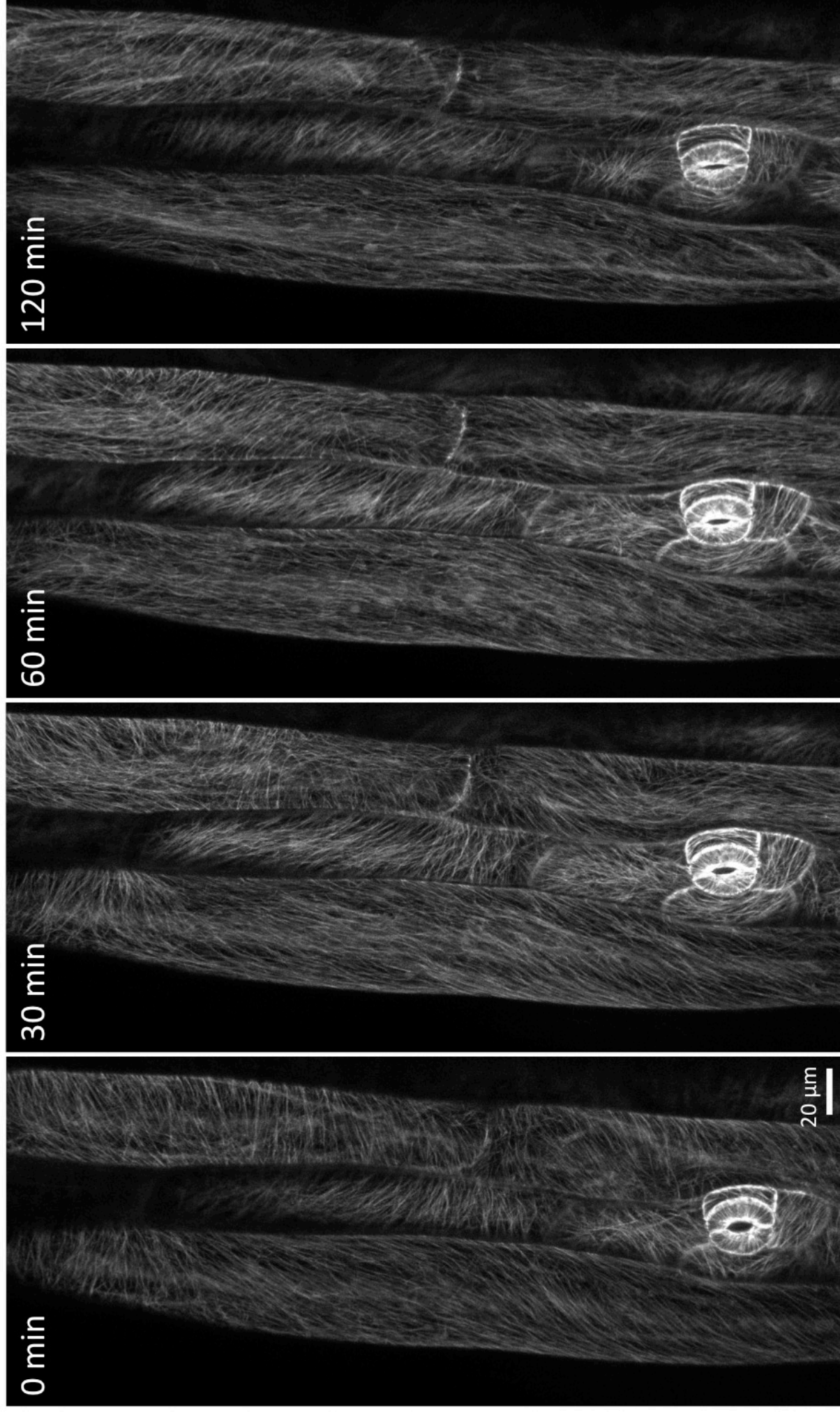
ABA → ABA



Mock → ABA (3 d)



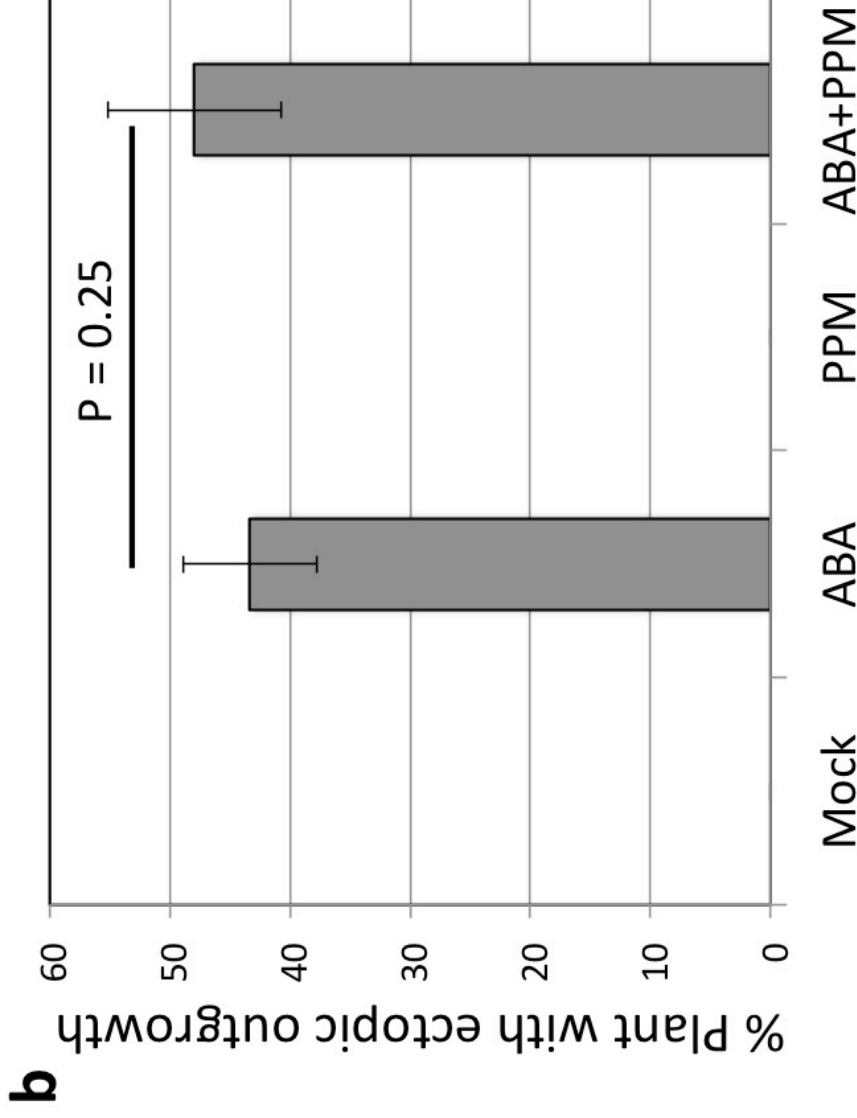
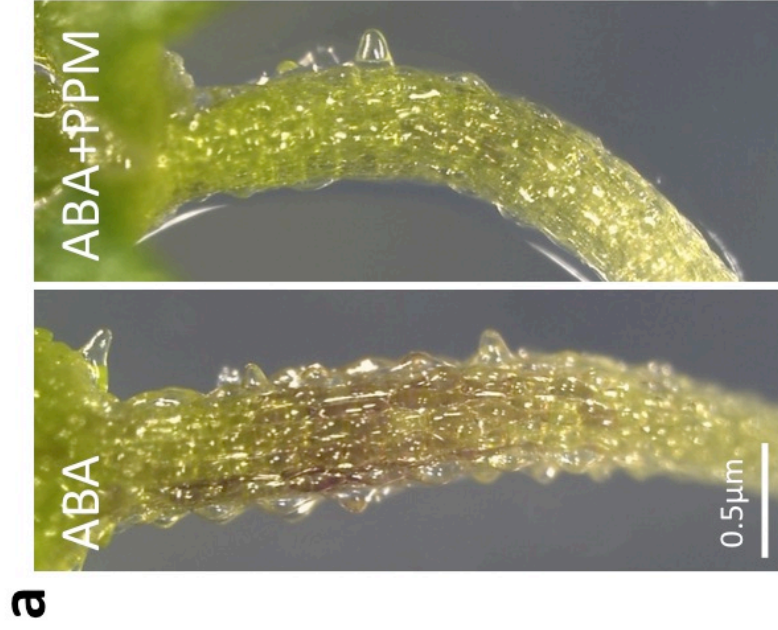
Supplemental Figure S3 | The requirement of ABA for ectopic outgrowth in the early phase of seedling growth. The wild type seedlings were germinated and grown for 3 days on medium without ABA and were transferred to medium containing 1 μ M ABA. The morphology of seedlings was observed at 18 days after transfer. Seedlings did not form ectopic protrusions (12 plants).



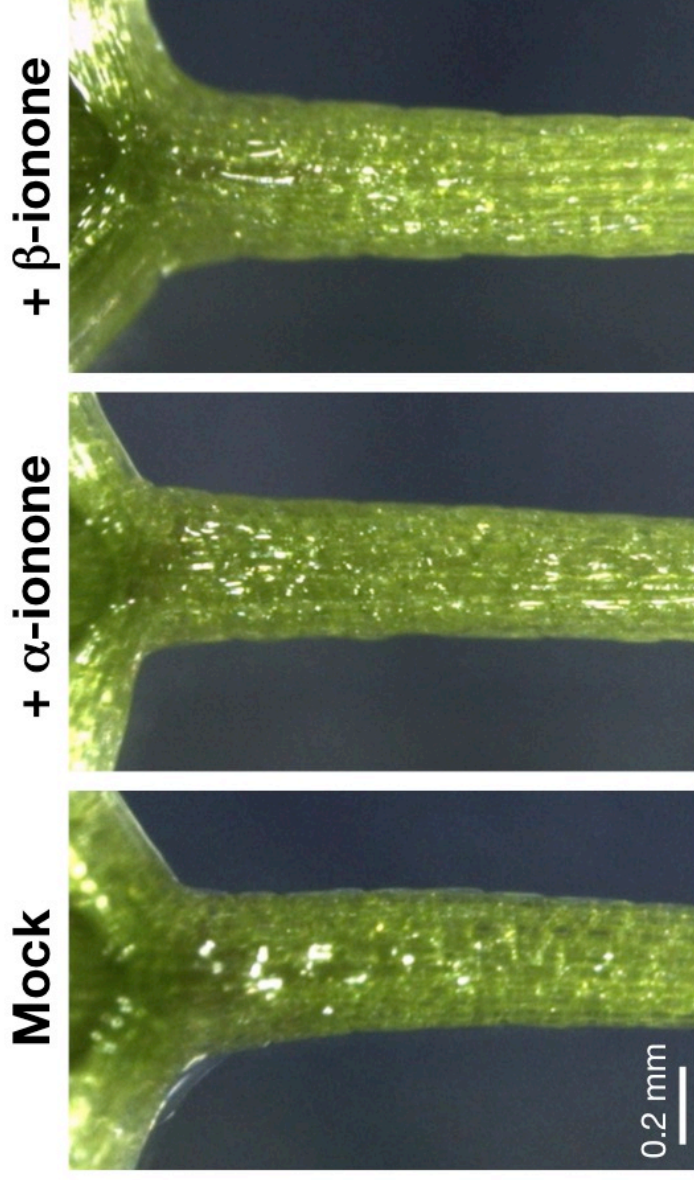
Supplemental Figure S4 | Effect of short-term treatment with ABA on cortical microtubules. The GFP-TUB6 seedlings were grown on medium without ABA, transferred into ABA-containing liquid medium, and observed under a confocal microscopy. ABA treatment promoted the longitudinal orientation of cortical microtubules but not induced disorganization and depolymerization of cortical microtubules.

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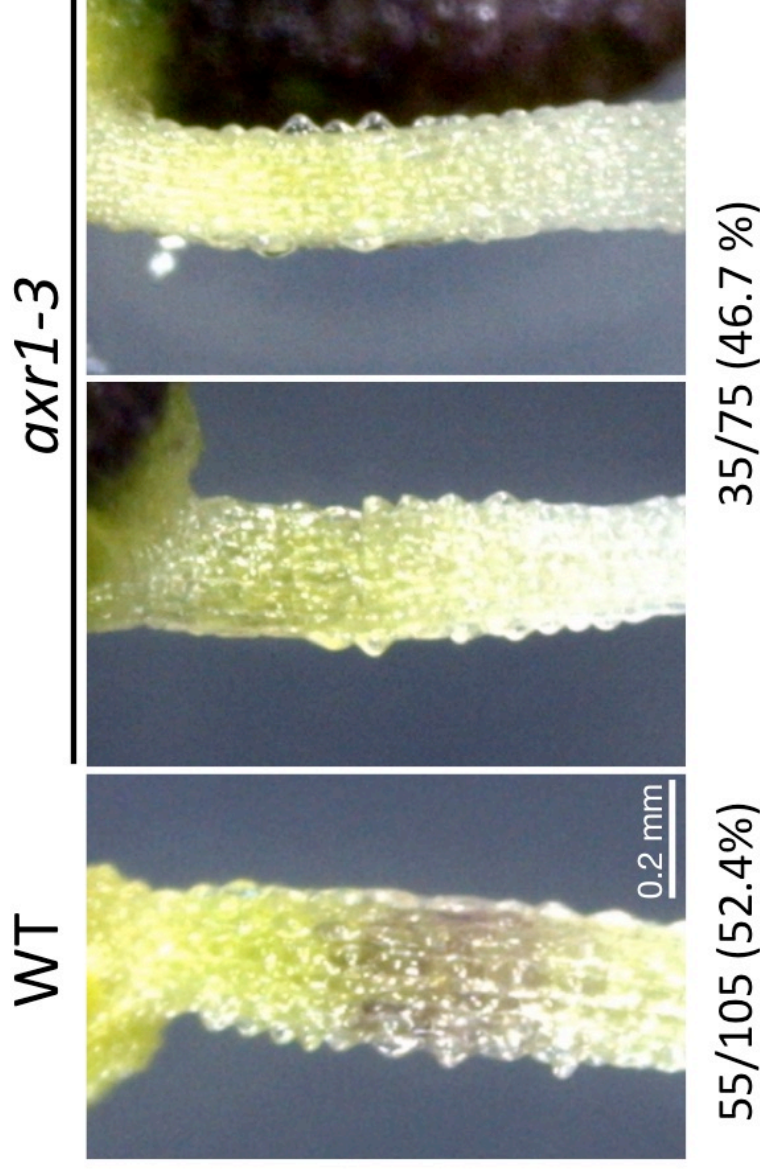
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Supplemental Figure S5 | Effect of propyzamide on ABA-induced ectopic outgrowth. The wild type seedlings were germinated and grown for 2 weeks on medium without (Mock) or with 1 μM ABA (ABA), 3 μM propyzamide (PPM) or 1 μM ABA plus 3 μM propyzamide (ABA+PPM). (a) Morphology of hypocotyl epidermal cells. (b) Quantification of ectopic outgrowth. Data are displayed as averages \pm SEM of 3 independent experiments. Propyzamide did not significantly affect ABA-induced ectopic outgrowth ($P = 0.25$ according to the chi-square test for the difference between two proportions).



Supplementary information Figure 1 | Effect of α -ionone and β -ionone on the morphology of hypocotyl epidermal cells. The wild type seedlings were germinated and grown for 2 weeks on medium without (Mock) or with α -ionone or β -ionone at a concentration of 1 μ M. Ectopic outgrowth was not observed (30 plants in Mock, 38 plants in α -ionone and 20 plants in β -ionone).



Supplementary information Figure 2 | Effect of ABA on the morphology of hypocotyl epidermal cells in the wild type and *axr1* mutant. Morphology of hypocotyls in the wild type (WT) and *auxin resistant 1-3* (*axr1-3*) mutants grown for 2 weeks in the presence of 1 μ M ABA (ABA). The numbers below indicate the numbers of plants with protrusions / total numbers of plants ($P = 0.22$ according to the chi-square test for the difference between two proportions).