



Figure S1: Phylogeny of Selaginella WOX proteins. Abbreviations *OI*, *Ostreococcus lucimarinus*; *Ot*, *Ostreococcus tauri*; *Sm*, *Selaginella moellendorffii*; *Sk*, *Selaginella kraussiana*. Relatedness was inferred using Maximum-likelihood and 500 bootstrap replicates. Alignment of sequences was conducted with M-coffee (53) and cladogram constructed with MEGA X (54). Numbers represent percentage of trees with same grouping.

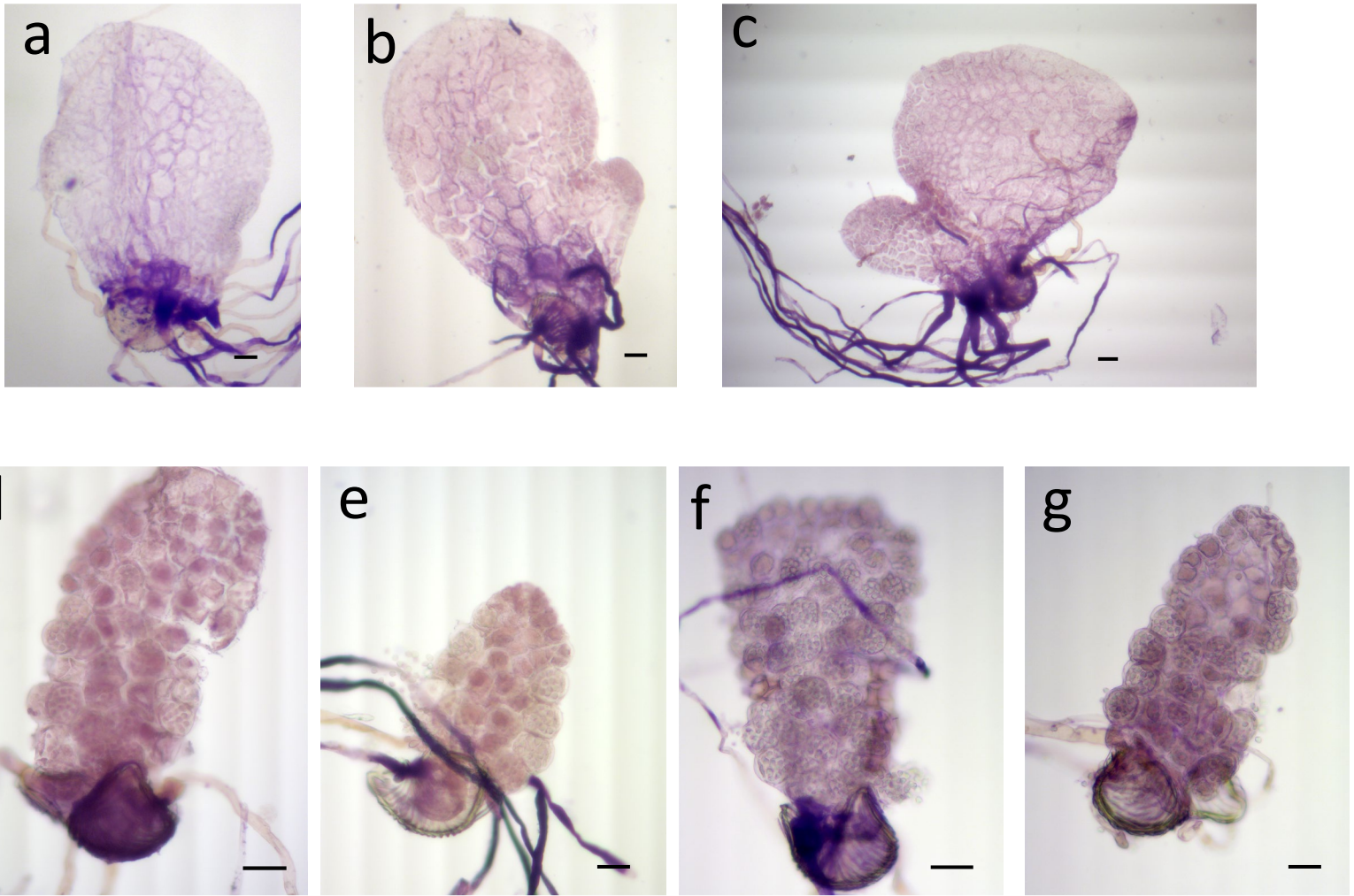


Figure S2: Whole mount *in situ* hybridization of *CrWUL* in *C. richardii* gametophytes. (a-c) Hermaphroditic gametophytes at 7-day (a), 9-day (b), and 13-day (c) old hybridized with sense probe. (d-g) Male gametophytes at 7-day (d, e) and 13-day (f,g) old hybridized with anti-sense (d, f) or sense probe (e, g). Scale bars = 0.05mm.

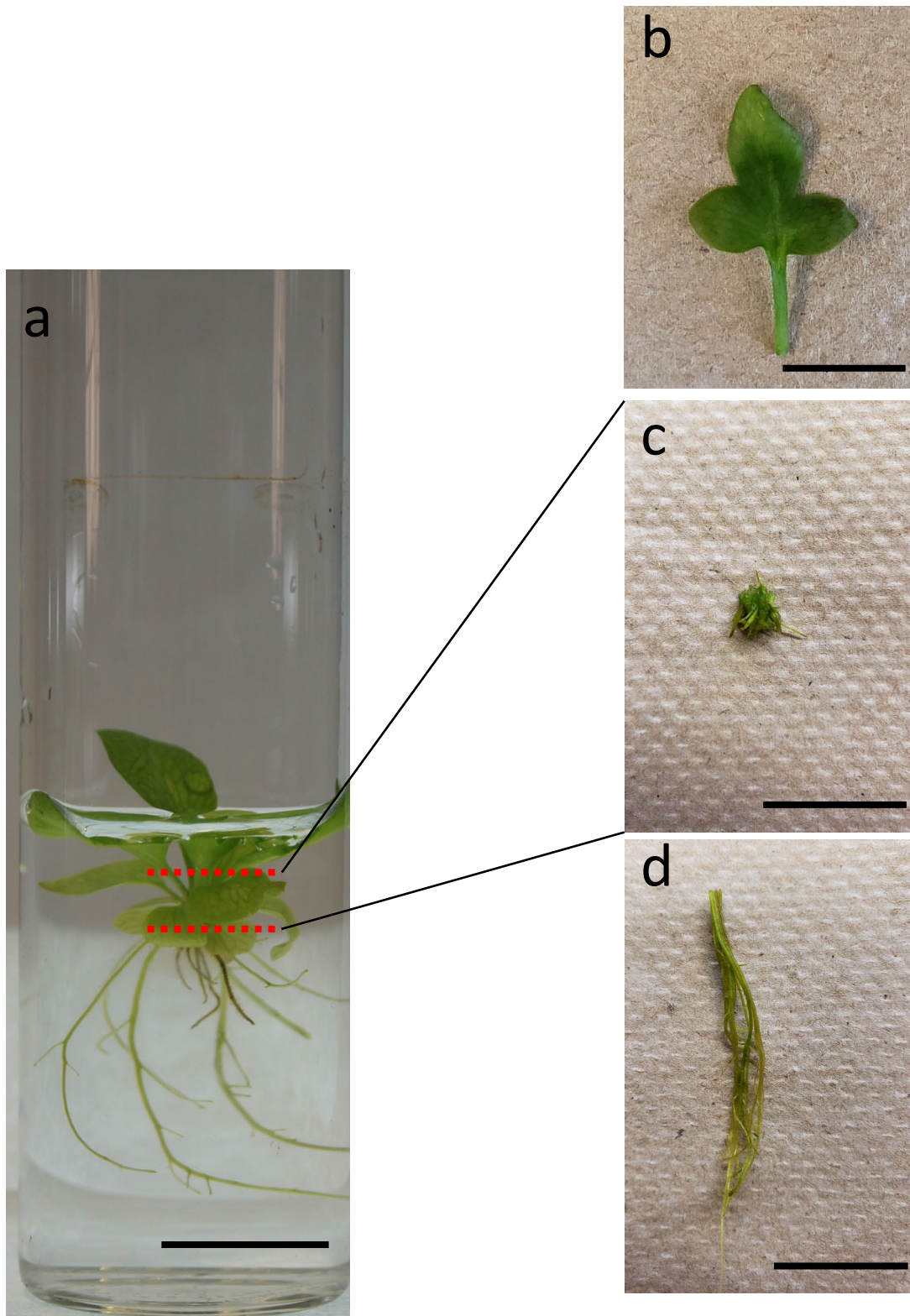


Figure S3: Dissection diagram of *C. richardii* sporophytes tissues for RT-qPCR of *CrWUL*. (a) Whole-sporophyte before dissection. (b) Single dissected leaf. (c) Shoot with leaves and roots removed. (d) Roots. Red dotted lines denote plane of dissection. Scale bars = 20 μ m

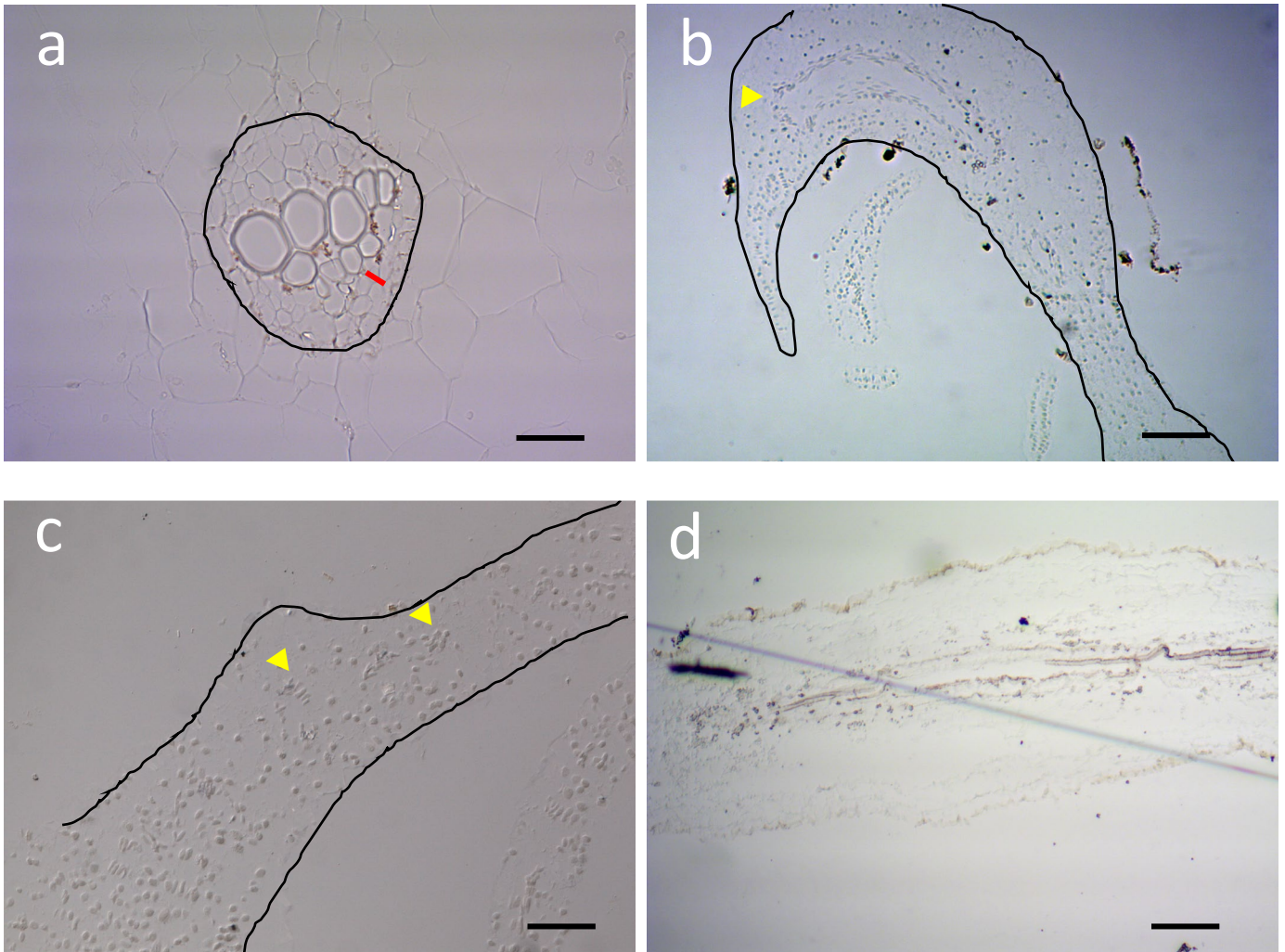


Figure S4: *In situ* hybridization of *CrWUL* sense probes in *C. richardii* sporophyte tissues. (a,b) Vascular bundles of the vegetative leaf petiole; cross-section (a), longitudinal section (b). (c) Vegetative leaf blade. (d) Root. Yellow arrowheads denote vascular bundles. Red bar signifies phloem. Scale bars = 20 μ m (a, c), 200 μ m (b, d).

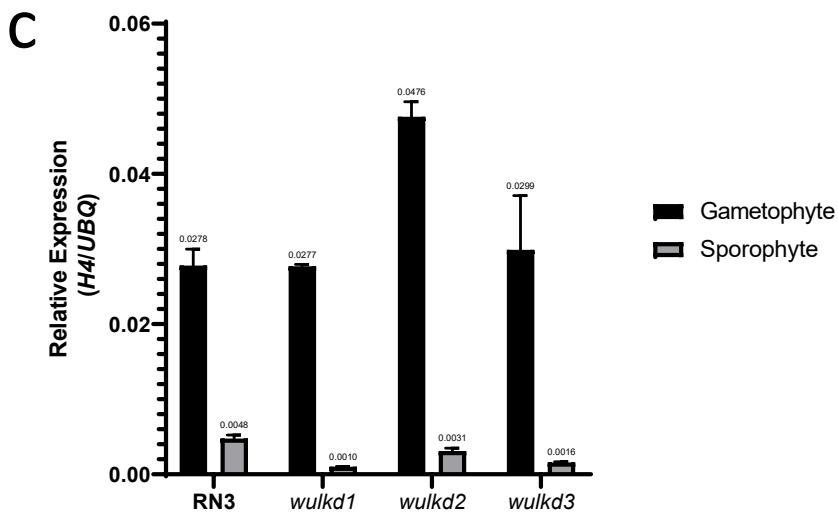
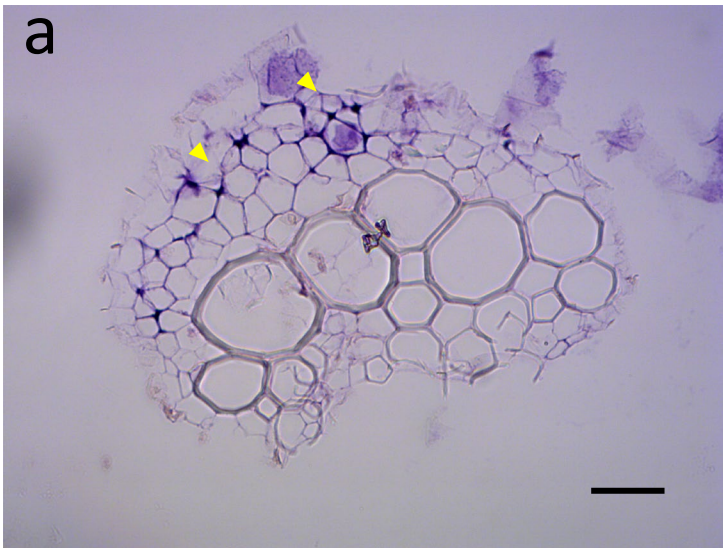


Figure S5: Expression of *CrH4* in vascular bundles and *crwul* knockdown lines. (a,b) *In situ* hybridization of *CrH4* in vascular bundles; antisense probe (a), sense probe (b). (c) Relative expression of *CrH4* in p7-8 sporophyte and 14 dpp gametophyte tissues of wild-type and *crwul* knockdown lines. Yellow arrows point to phloem. Scale bars = 20 μ m.

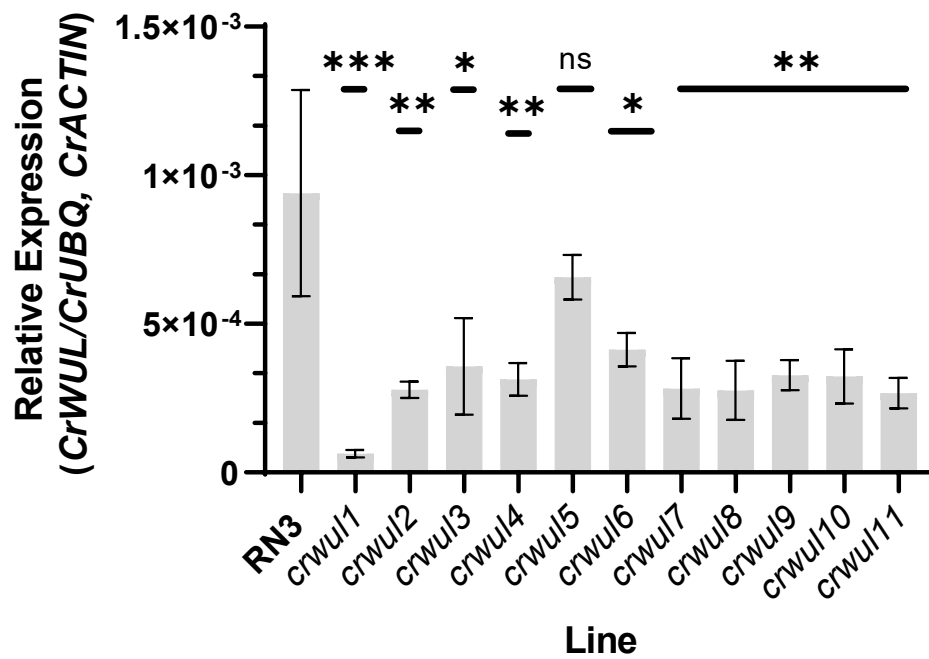


Figure S6: Expression of *CrWUL* in *crwul* RNAi knockdown lines.

CrWUL expression measured relative to *CrUBQ* and *CrACTIN* (mean ± SEM; ns, not significant; *, $P \leq 0.05$; **, $P \leq 0.01$; ***, $P \leq 0.001$ $N \geq 3$).

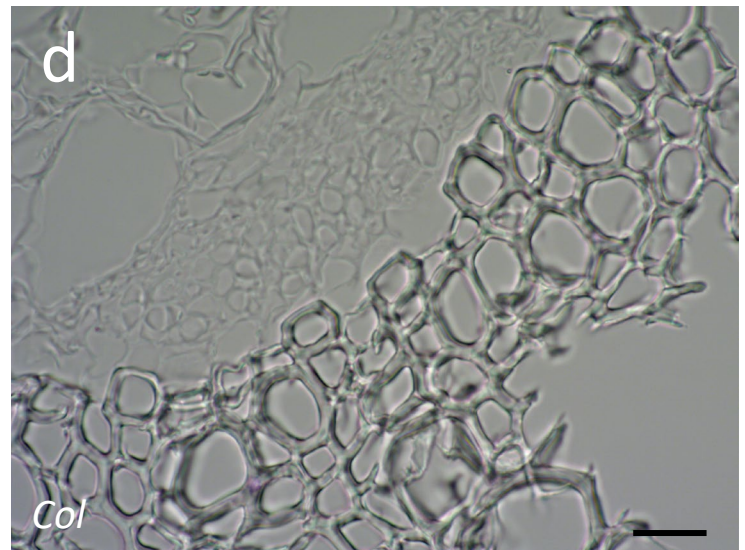
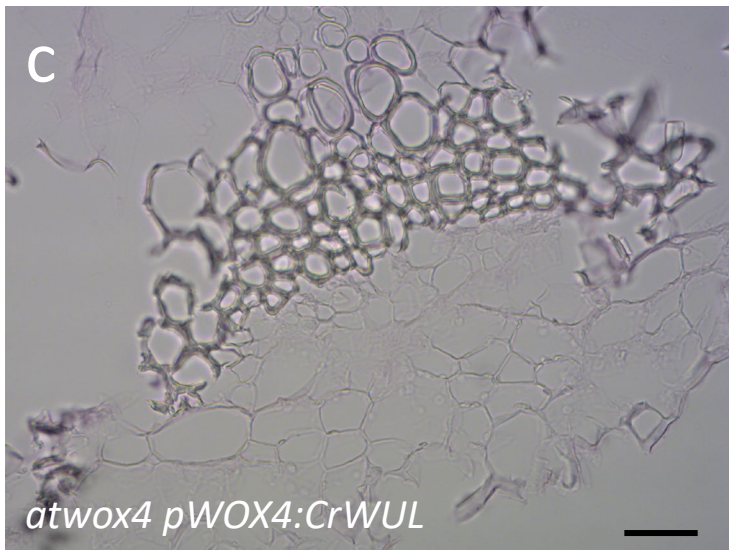
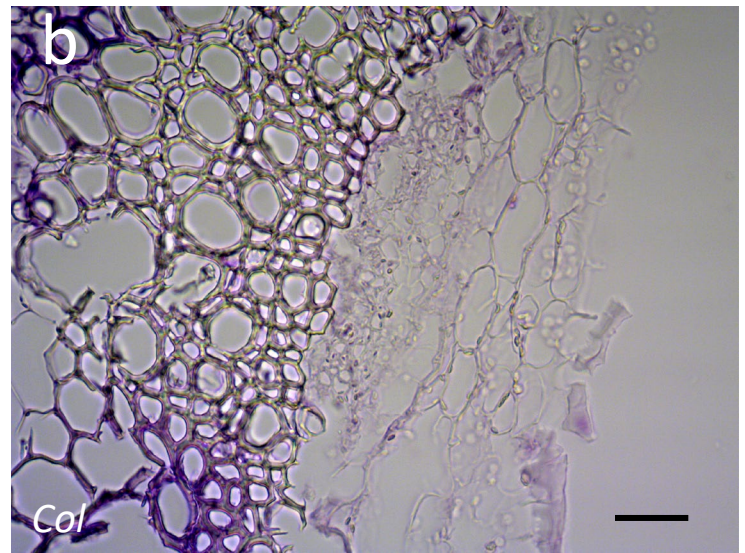
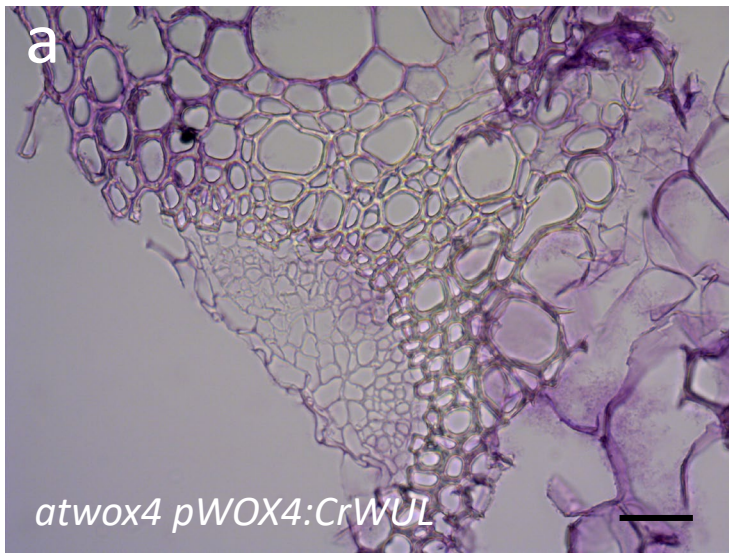


Figure S7: Expression of *CrWUL* and *AtWOX4* in vascular bundles of complemented *atwox4* null mutants and *Col* plants. (a) *CrWUL* anti-sense probe. (b) *AtWOX4* anti-sense probe. (c) *CrWUL* sense probe. (d) *AtWOX4* sense probe. Scale bars = 20 μ m.