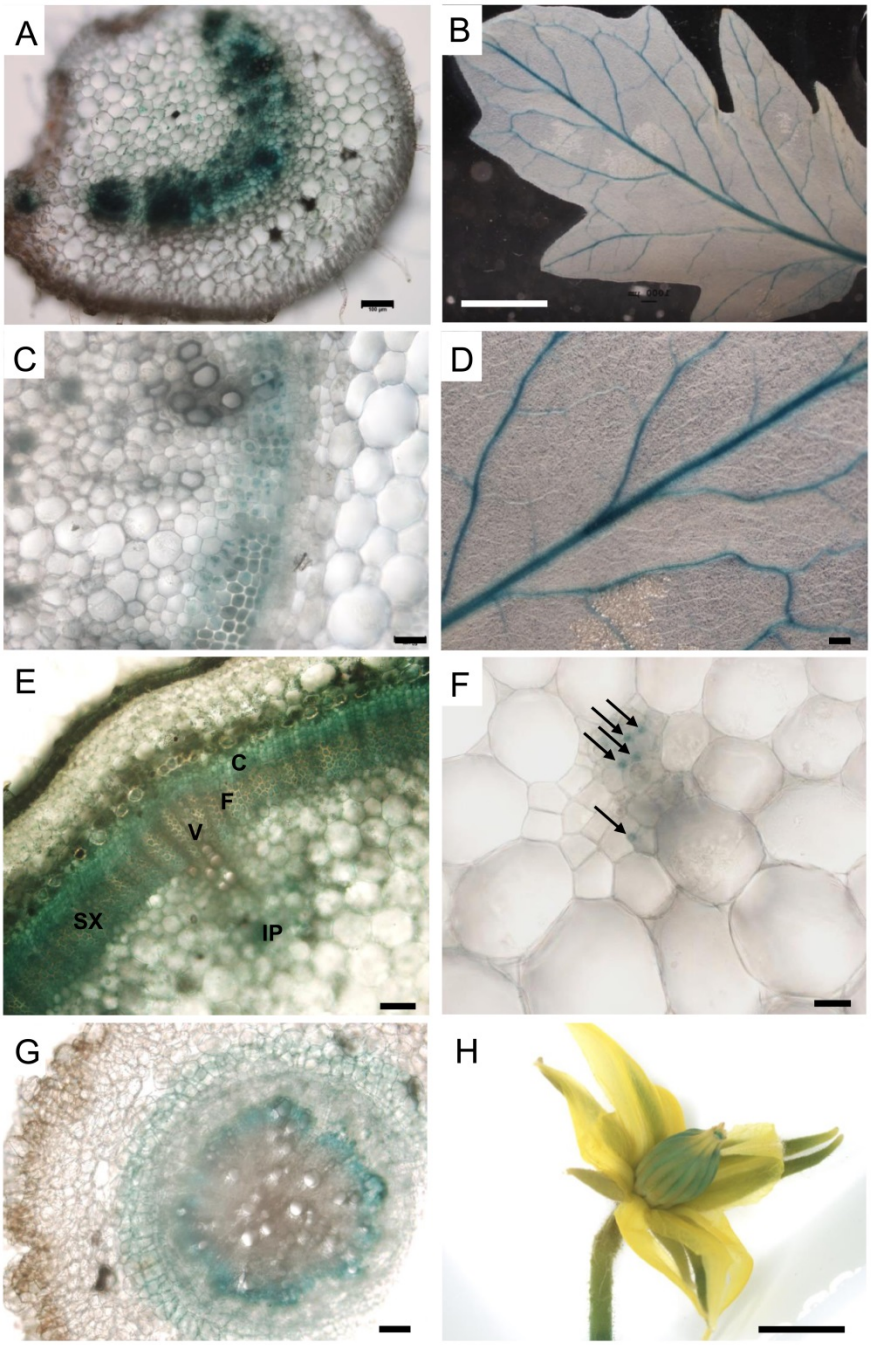

Fig. 1 Suppl. Histochemical analysis of the expression pattern of the *SlFRK2* promoter visualized by GUS staining in tomato tissues: *A* - petiole, *B*,*D* - leaf, *C*,*E* - stem cross-section, *F* - phloem companion cells, *G*- primary root, and *H* - opened flower (C - cambium, F - xylem fibers, V - vessel. SX - secondary xylem, MX - metaxylem, PX - protoxylem. IP - internal phloem; *arrows* point to phloem companion cells; *scale bars*: *B*,*H* - 5 mm, *A*,*F*,*G* - 50 µm, *C*,*E* - 100 µm, *D* - 500 µm).

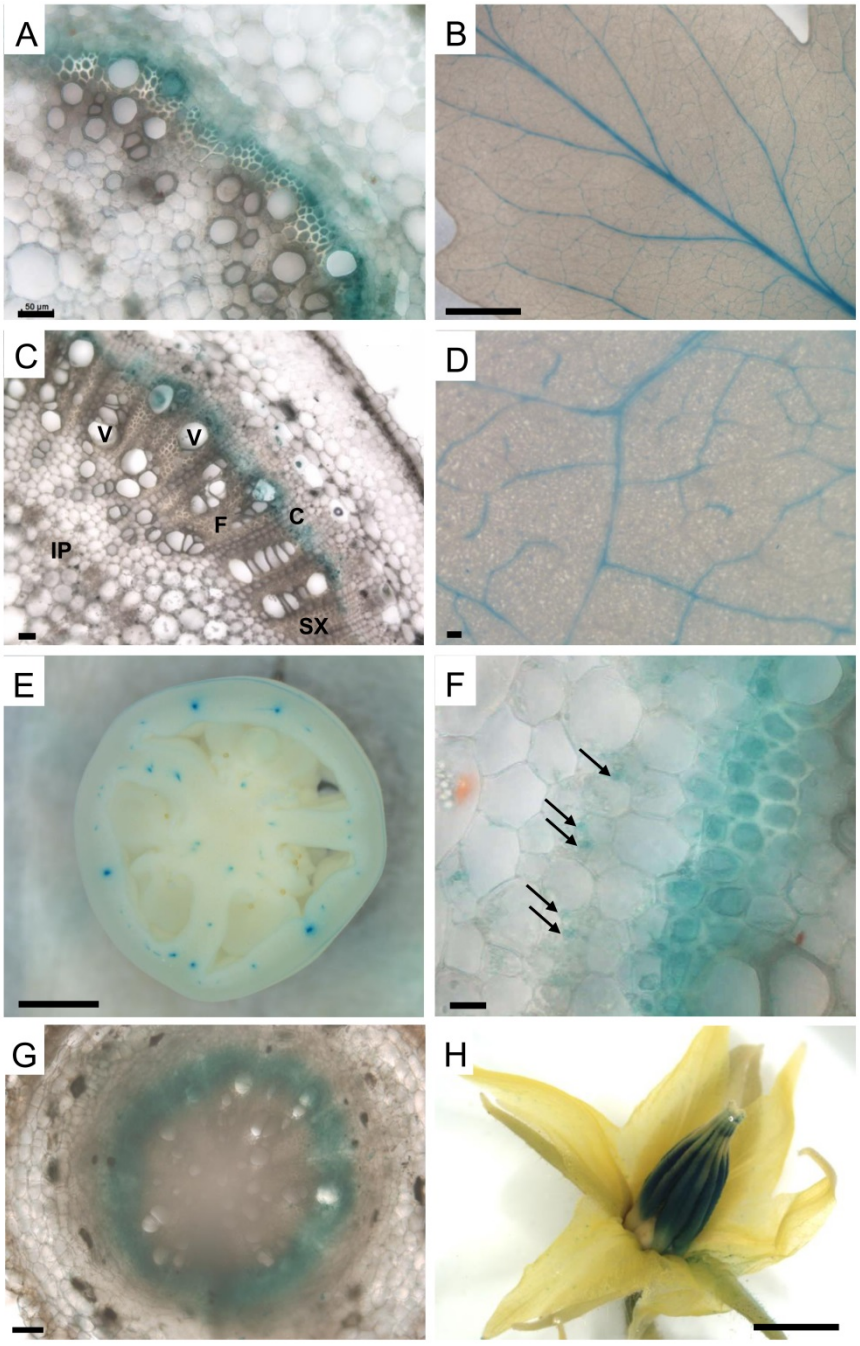

Fig. 2 Suppl. Histochemical analysis of the expression pattern of the *SlFRK3* promoter visualized by GUS staining in tomato tissues: *A* - petiole, *B*,*D* - leaf, *C* - stem cross-section, *E* - young green fruit, *F* - phloem companion cells, *G* - primary root, and *H* - opened flower (C - cambium, F - xylem fibers, V - vessel, SX - secondary xylem, MX - metaxylem, PX - protoxylem, IP - internal phloem; *arrows* point to phloem companion cells; *scale bars*: *A*,*C*,*F*,*G* - 50 µm; *B*,*E*,*H* - 5 mm; *D* - 500 µm).

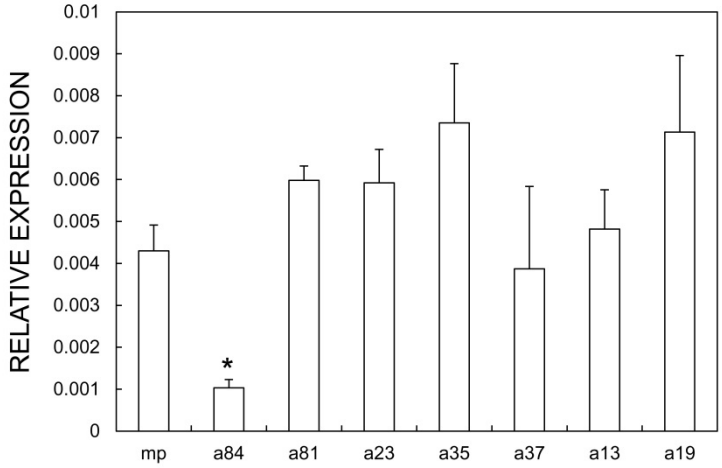

Fig. 3 Suppl.. Expression of *SlFRK1* in leaves of the FRK1-antisense lines. Samples were taken from leaf 4. Relative expression of *SlFRK1* was determined by real-time expression analysis with gene-specific primers (German 2003). Expression was normalized to the expression of cyclophylin. Means ± SE, $n = 3$, the asterisk represents a statistically significant difference (*t*-test; $P < 0.05$).

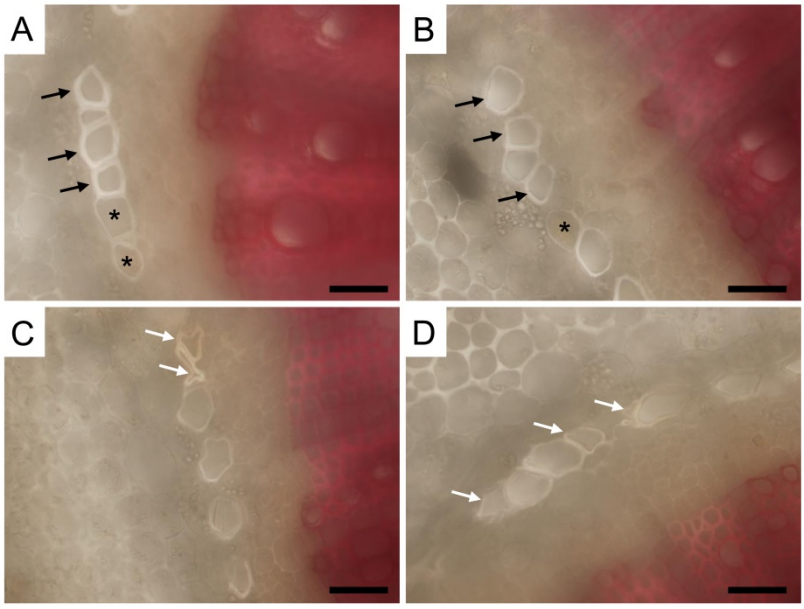

Fig. 4 Suppl.. Co-suppression of *SlFRK1* and *SlFRK2* (as seen in the FRK1-antisense × FRK2-antisense line) yields distorted phloem fibers with narrower cell walls. Stem cross-sections of 20-week-old plants taken from the internode between the first and second true leaves (*black arrows* - normal phloem fibers, *white arrow*s - distorted phloem fibers, *asterisks* - thin cell-wall phloem fibers; *scale bars* - 50 μm).

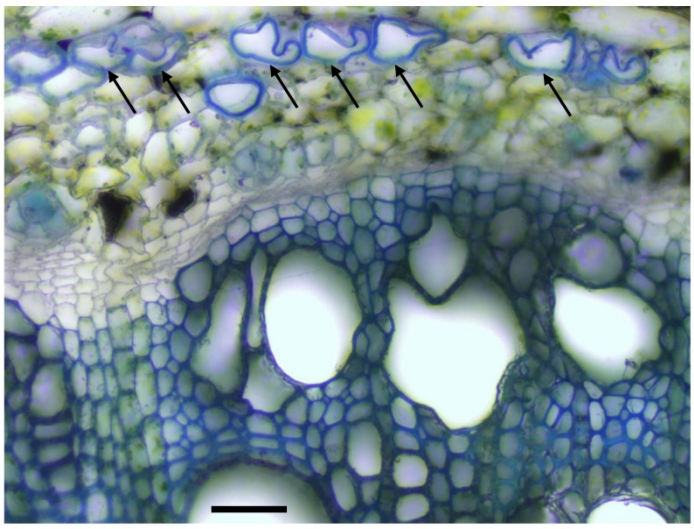

Fig. 5 Suppl.. The FRK3-RNAi line has abnormally shaped phloem fibers. The F3R4 line, with suppression of FRK3 and reduced expression of FRK1 and FRK2 (Stein *et al*. 2016), has distorted phloem fibers (*arrows* point to abnormal phloem fibers; *scale bar* - 50 µm).