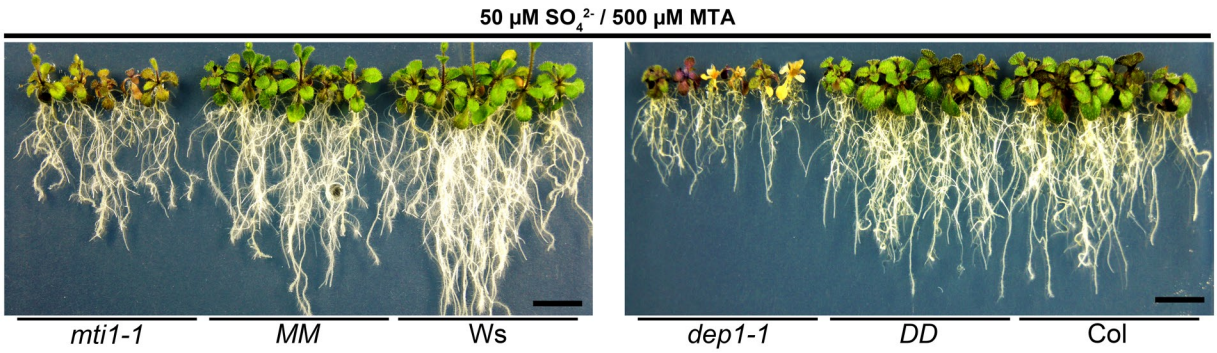


**Figure S1**. *MTI1* and *DEP1* WT alleles complement mutant growth phenotypes on MTA containing media. Growth of *mti1-1* and *dep1-1* mutant plants together with the corresponding WT plants and mutant lines complemented with the corresponding WT alleles on medium containing 50 µM sulfate and 500 µM MTA as sulfur sources. Scale bars are 1 cm.

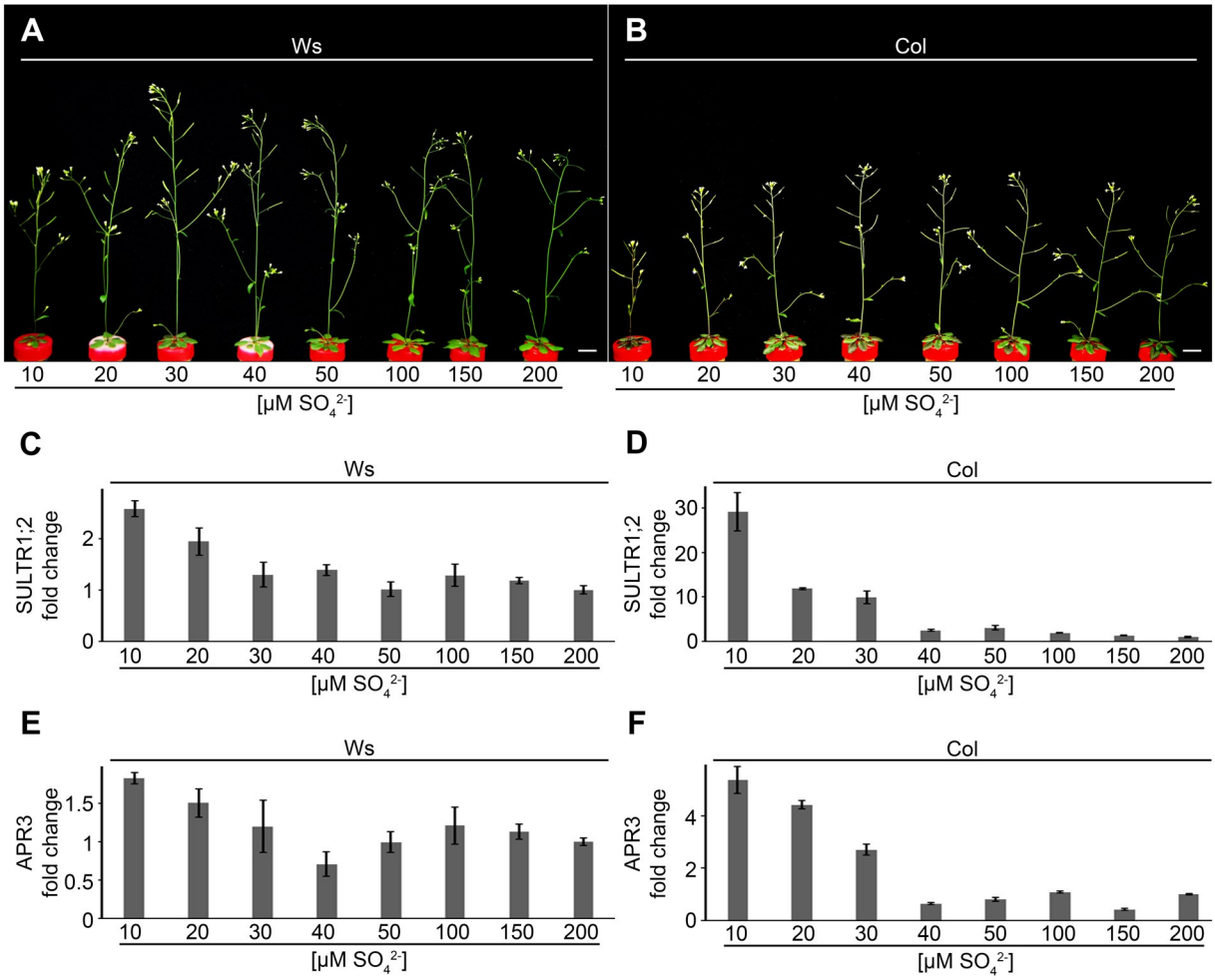


**Figure S2**. S-deficiency response in WT plants. (A-F) Growth of 5-week-old WT plants in Hoagland medium containing 10, 20, 30, 40, 50, 10, 150 or 200 µM sulfate. (A) Habitus of Ws plants. (B) Habitus of Col plants. Scale bars are 1 cm. (C-F) Relative expresion of *SULTR1;2* and *APR3* in plants grown in Hoagland medium containing 10, 20, 30, 40, 50, 100, 150, or 200 µM sulfate. Bars represent mean values and standard errors calculated with data from 3 individual measurements.

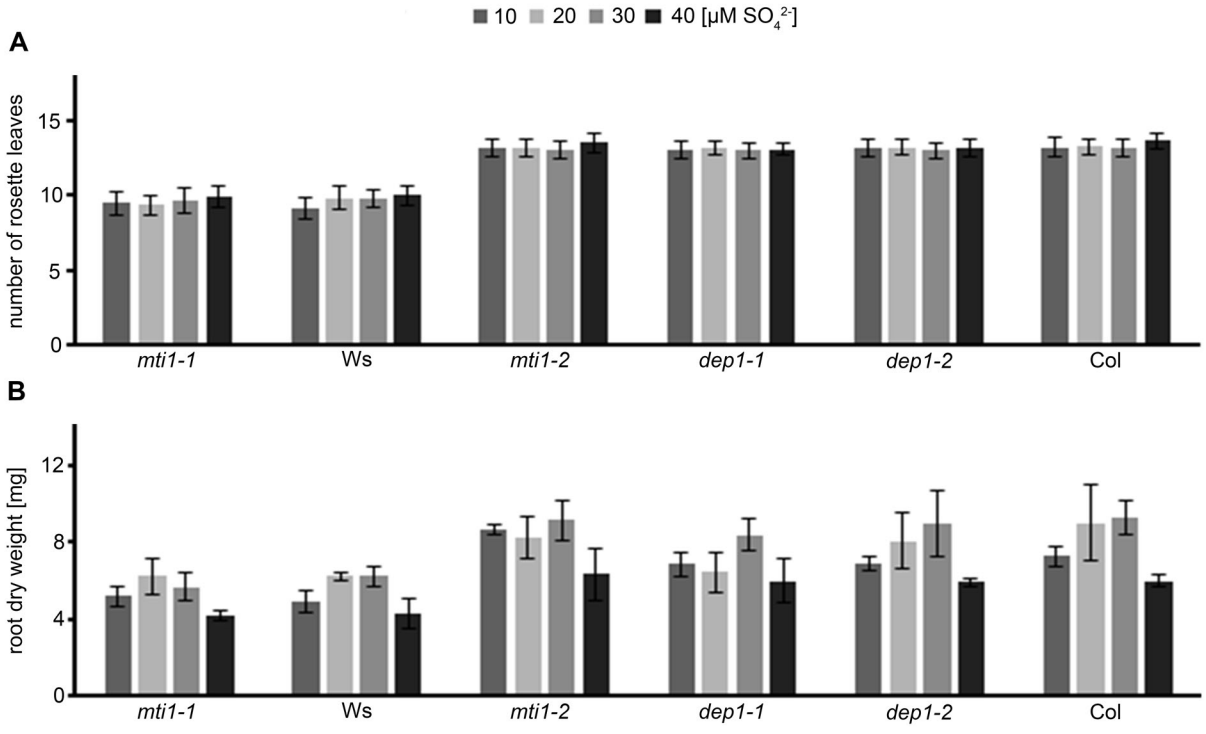


**Figure S3**. Number of rosette leaves and root dry weight. (A) Rosette leaf quantification of 5-week-old flowering plants. Bars represent mean values and standard errors calculated with data from at least 20 plants. (B) Root dry weight of 5-week-old flowering plants. Bars represent mean values and standard errors calculated with data from 3 independent root pools each containing roots from at least 10 different plants.

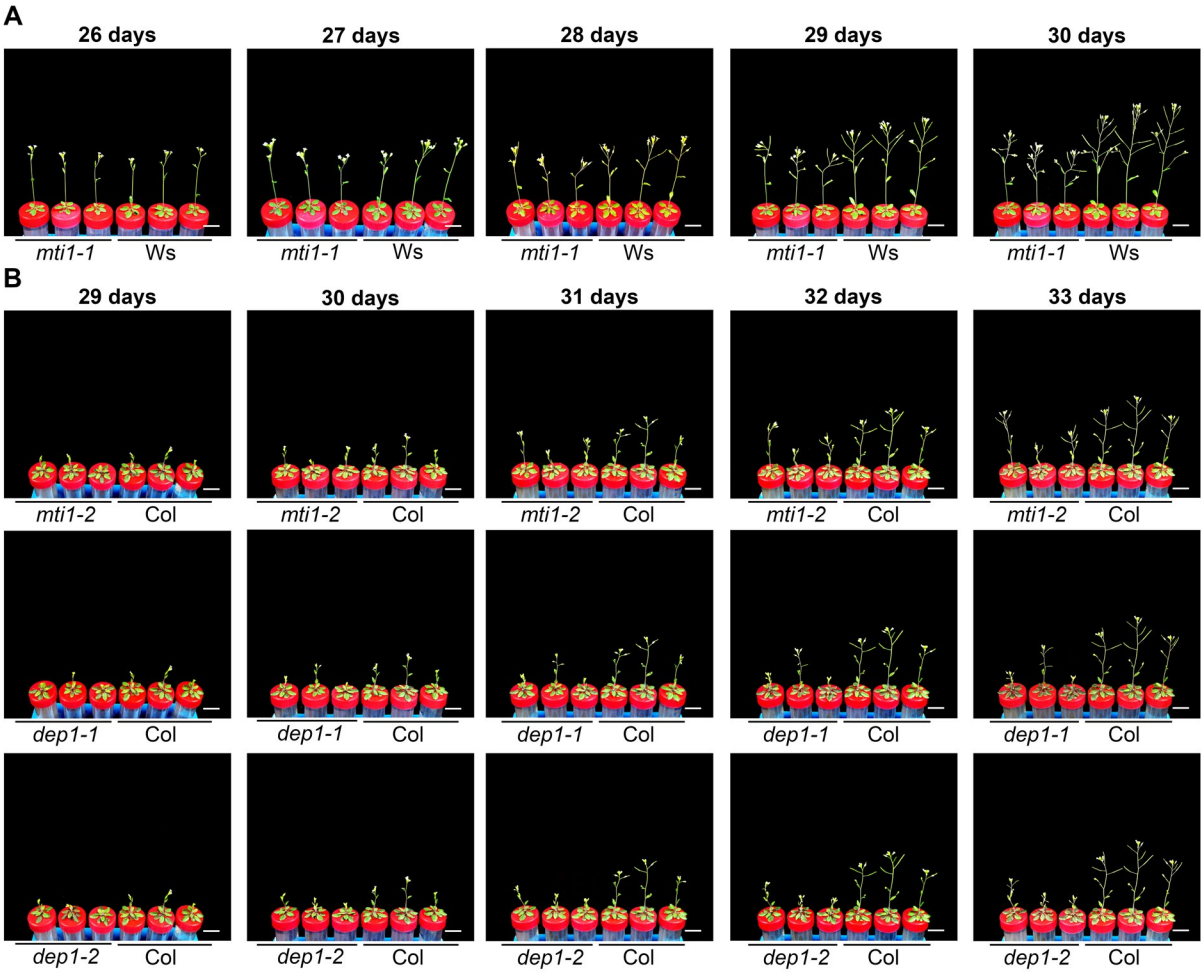


**Figure S4**. Time course of mutant growth during S deficiency. (A) Growth of *mti1-1* and Ws plants in Hoagland medium containing 10 µM sulfate. (B) Growth of *mti1-2*, *dep1-1*, *dep1-2* and Col plants in Hoagland medium containing 10 µM sulfate. Pictures were taken daily starting right before the mutant growth inhibition became apparent. Scale bars are 1 cm.

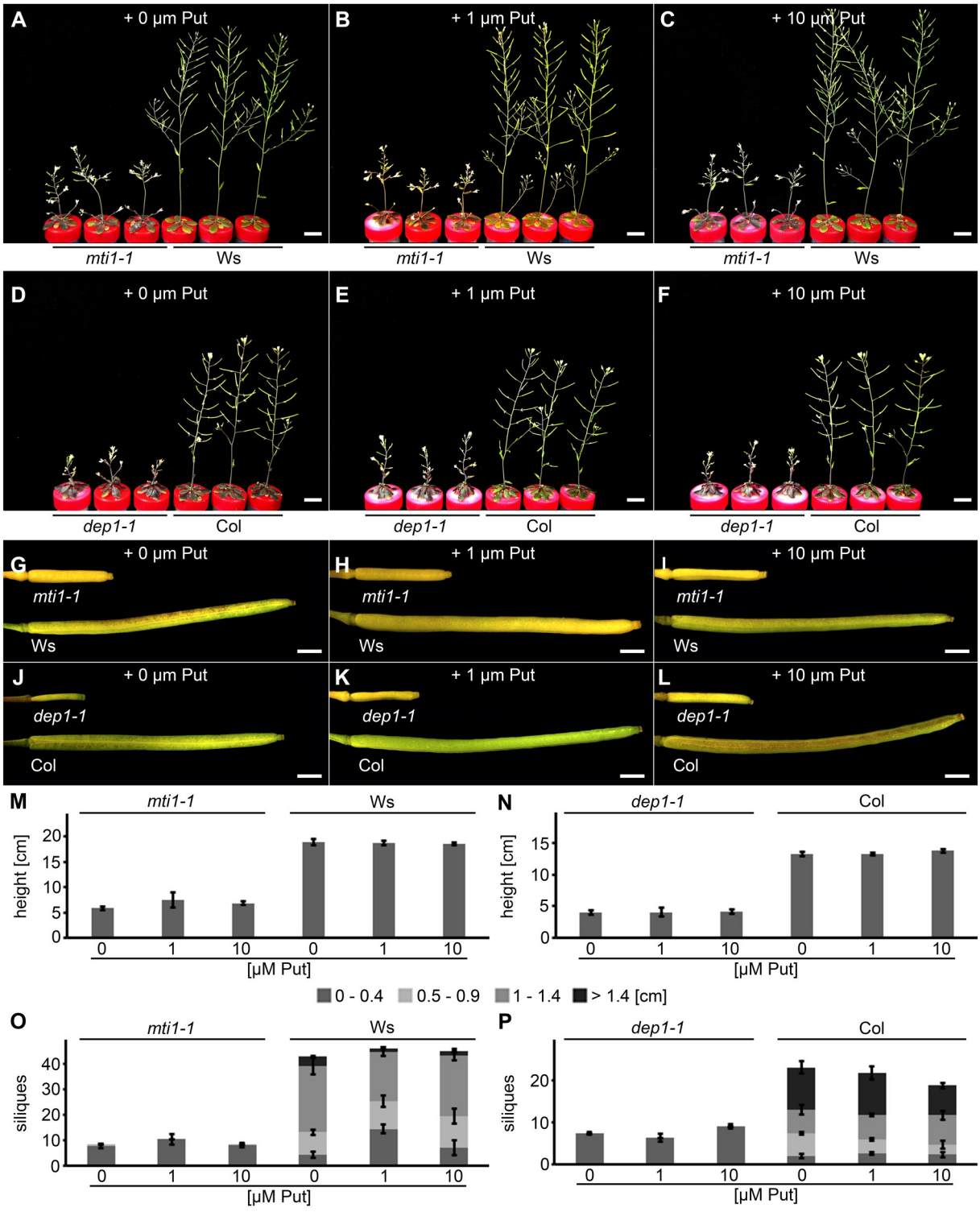


**Figure S5.** Chemical complementation of mutant phenotype with putrescine. (A-C) Growth of *mti1-1* and Ws plants in Hoagland medium containing 10 µM sulfate supplemented with 0 µM (A), 1 µM (B) or 10 µM (C) putrescine. (D-F) Growth of *dep1-1* and Col plants in liquid medium containing 10 µM sulfate supplemented with 0 µM (D), 1 µM (E) or 10 µM (F) putrescine. (G-I) Siliques of *mti1-1* and Ws plants grown in Hoagland medium containing 10 µM sulfate and either 0 µM, 1 µM or 10 µM putrescine. (J-L) Siliques of *dep1-1* and Col plants grown in Hoagland medium containing 10 µM sulfate and either 0 µM, 1 µM or 10 µM putrescine. (M) Inflorescence height of *mti1-1* and Ws plants grown in Hoagland medium containing 10 µM sulfate and either 0 µM, 1 µM or 10 µM putrescine. (N) Inflorescence height of *dep1-1* and Col plants grown in Hoagland medium containing 10 µM sulfate and either 0 µM, 1 µM or 10 µM putrescine. (O) Silique number and length of *mti1-1* and Ws plants grown in Hoagland medium containing 10 µM sulfate and either 0 µM, 1 µM or 10 µM putrescine. (P) Silique number and length of *dep1-1* and Col plants grown in Hoagland medium containing 10 µM sulfate and either 0 µM, 1 µM or 10 µM putrescine. Siliques were grouped into 4 categories (0–0.4 cm, 0.5–0.9 cm, 1–1.4 cm, >1.4 cm). Bars represent mean values and standard errors calculated with data from 4 plants per genotype. Scale bars are 1 cm in A-F and 1 mm in G-L.

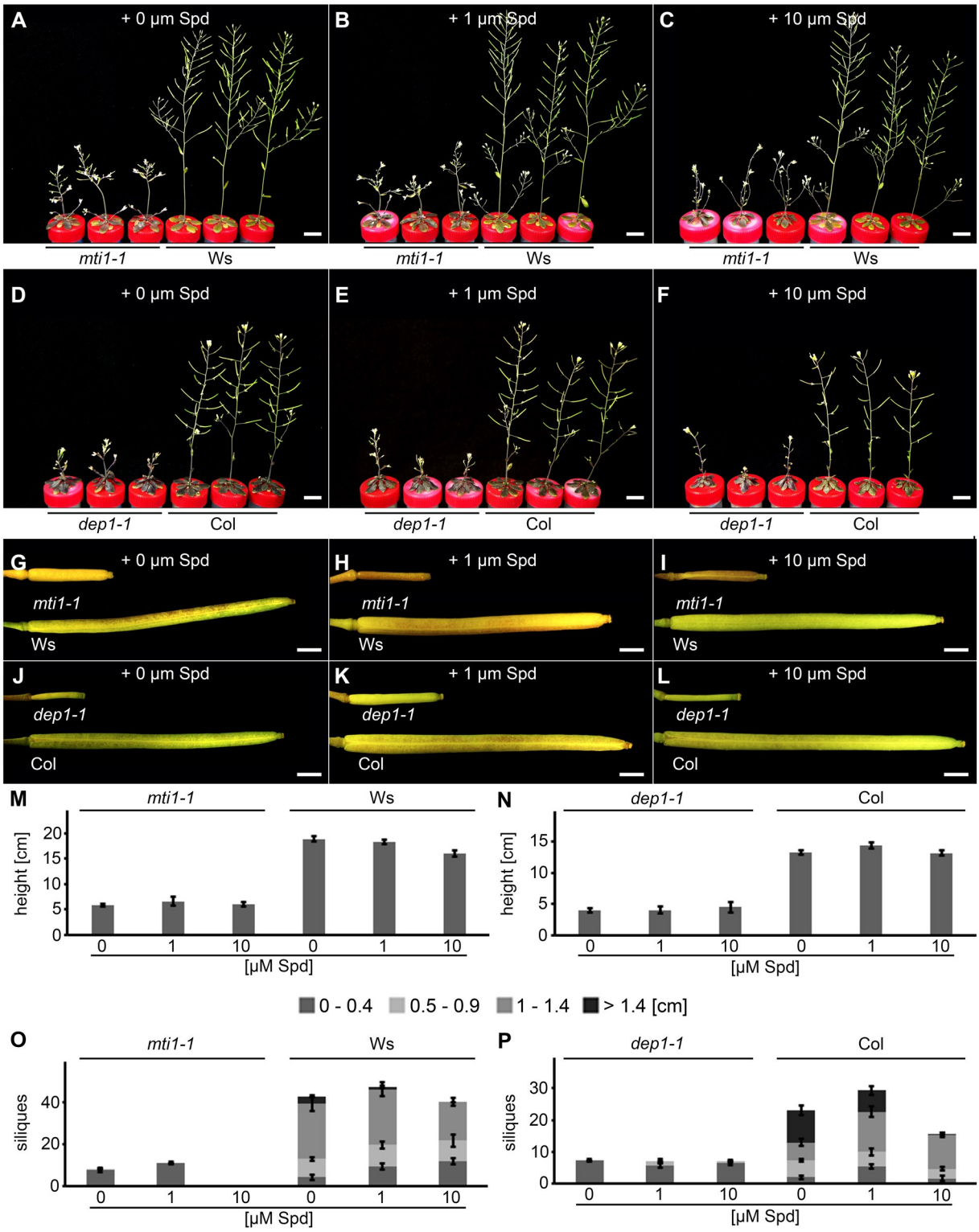


**Figure S6**. Chemical complementation of mutant phenotype with spermidine. (A-C) Growth of *mti1-1* and Ws plants in Hoagland medium containing 10 µM sulfate supplemented with 0 µM (A), 1 µM (B) or 10 µM (C) spermidine. (D-F) Growth of *dep1-1* and Col plants in liquid medium containing 10 µM sulfate supplemented with 0 µM (D), 1 µM (E) or 10 µM (F) spermidine. (G-I) Siliques of *mti1-1* and Ws plants grown in Hoagland medium containing 10 µM sulfate and either 0 µM, 1 µM or 10 µM spermidine. (J-L) Siliques of *dep1-1* and Col plants grown in Hoagland medium containing 10 µM sulfate and either 0 µM, 1 µM or 10 µM spermidine. (M) Inflorescence height of *mti1-1* and Ws plants grown in Hoagland medium containing 10 µM sulfate and either 0 µM, 1 µM or 10 µM spermidine. (N) Inflorescence height of *dep1-1* and Col plants grown in Hoagland medium containing 10 µM sulfate and either 0 µM, 1 µM or 10 µM spermidine. (O) Silique number and length of *mti1-1* and Ws plants grown in Hoagland medium containing 10 µM sulfate and either 0 µM, 1 µM or 10 µM spermidine. (P) Silique number and length of *dep1-1* and Col plants grown in Hoagland medium containing 10 µM sulfate and either 0 µM, 1 µM or 10 µM spermidine. Siliques were grouped into 4 categories (0–0.4 cm, 0.5–0.9 cm, 1–1.4 cm, >1.4 cm). Bars represent mean values and standard errors calculated with data from 4 plants per genotype. Scale bars are 1 cm in A-F and 1 mm in G-L.

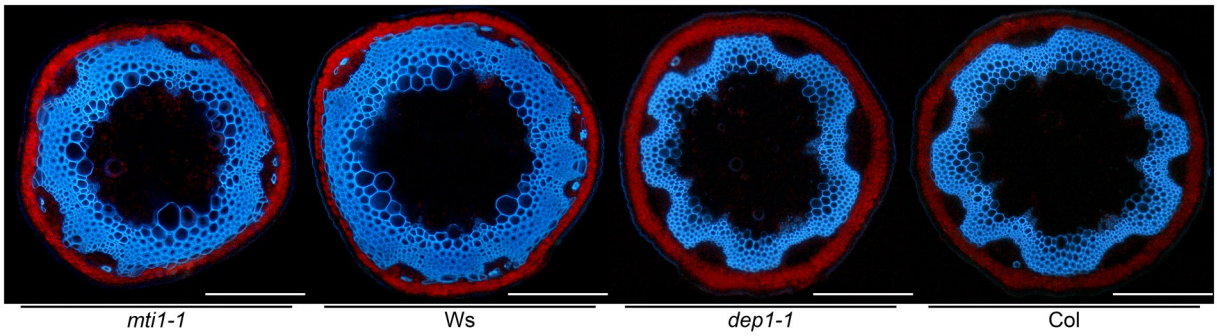


**Figure S7**. Stem cross sections of plants grown in 10 µM sulfate. Cross sections of *mti1-1*, Ws, *dep1-1* and Col plants grown in Hoagland medium containing 10 µM sulfate. Stem cross sections were excited with UV light and monitored using a DAPI filter. Blue = fluorescence of lignins in the xylem. Red = fluorescence of chlorophyll. Scale bars are 20 µm.