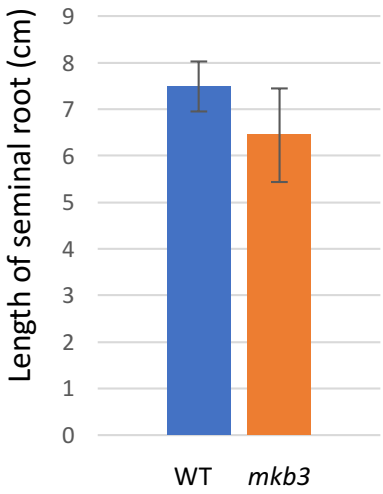

Fig S1. Lengths of the seminal roots of wild-type and mkb3 seedlings 10 days after germination
n=6. Vertical bars indicate SD.

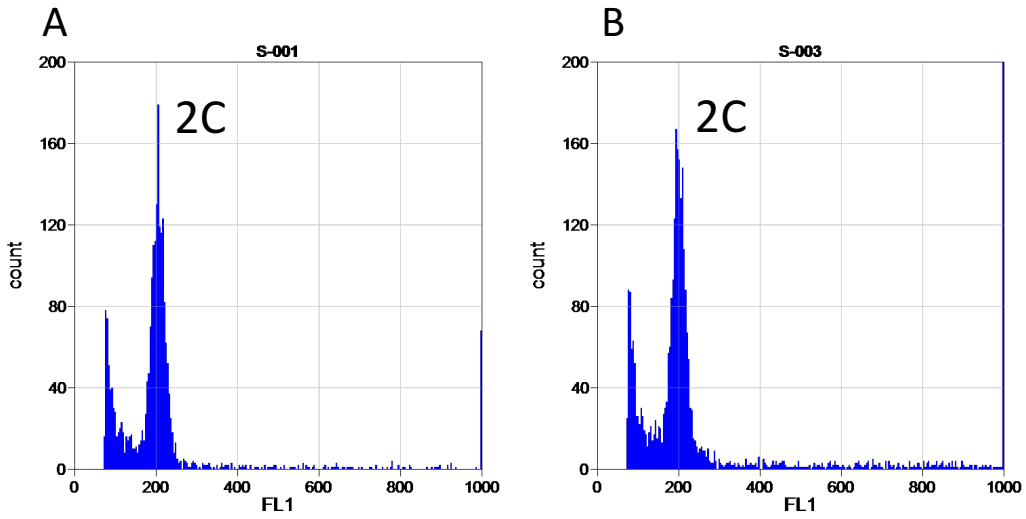

Fig S2. Ploidy level of wild-type and *mkb3* leaves.
(A) Wild type. (B) *mkb3*. Only the peak of 2C is recognized in both wild type and *mkb3*.

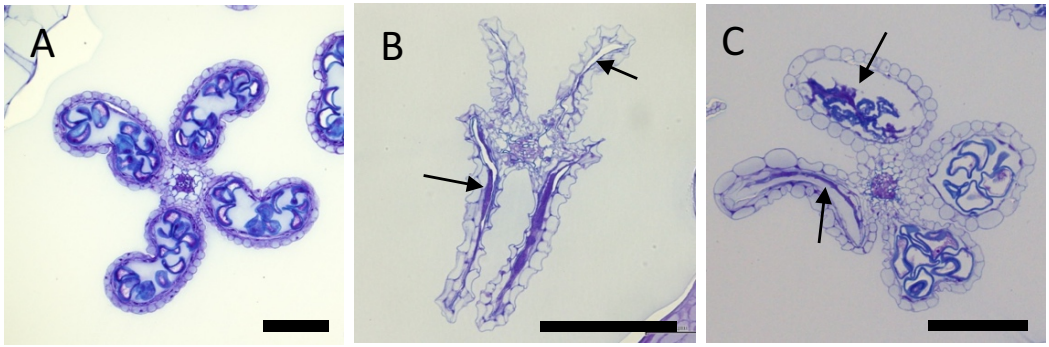

Fig S3. Phenotypes of *mkb3* anthers.
(A) Wild type. (B and C) *mkb3*. No or abnormal pollen formation in *mkb3* anthers was observed (arrows). Scale bar = 100 µm.

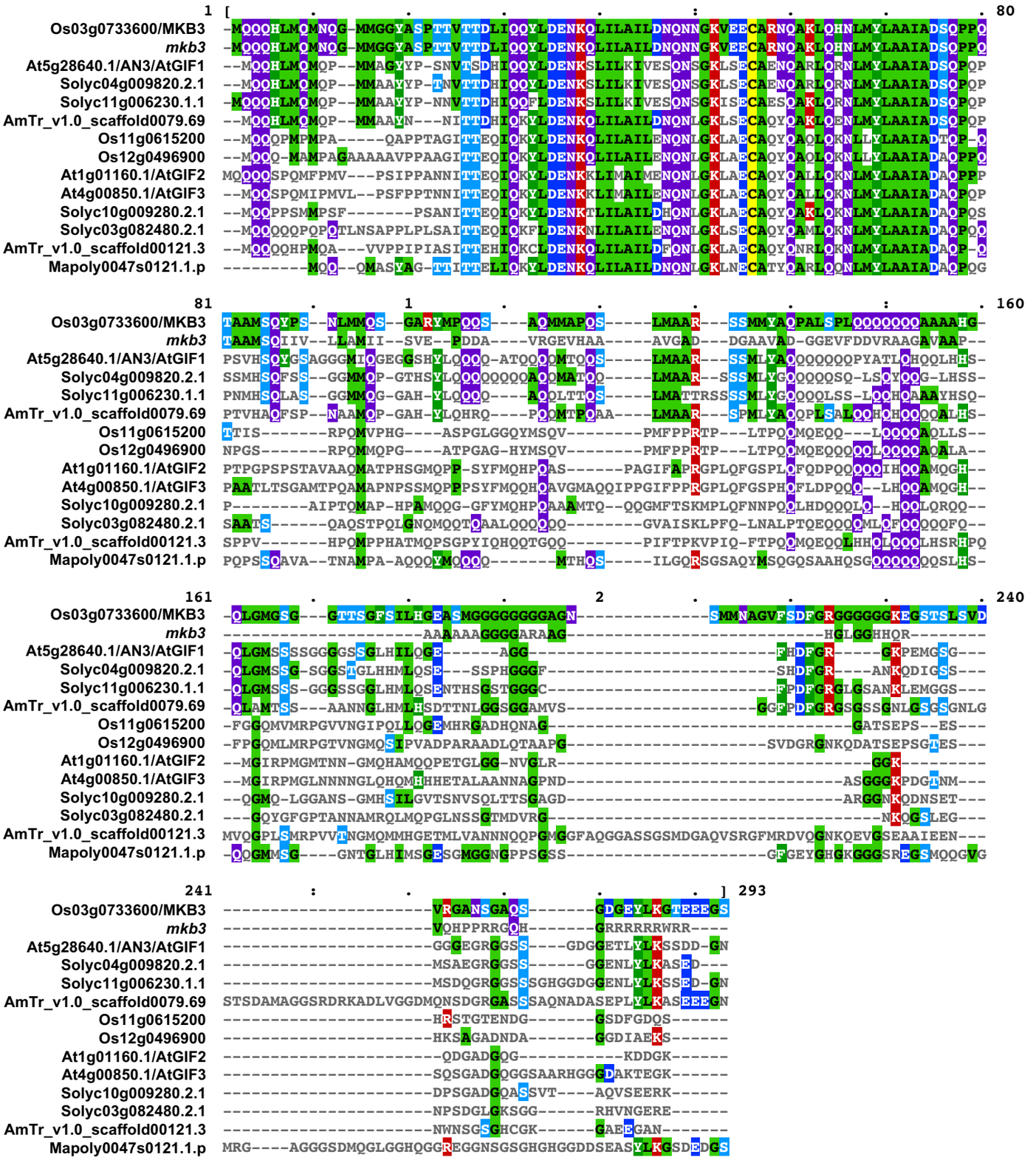

Fig S4. Multiple alignment of the amino acid sequences of MKB3 homologs and that of the mkb3 mutant.

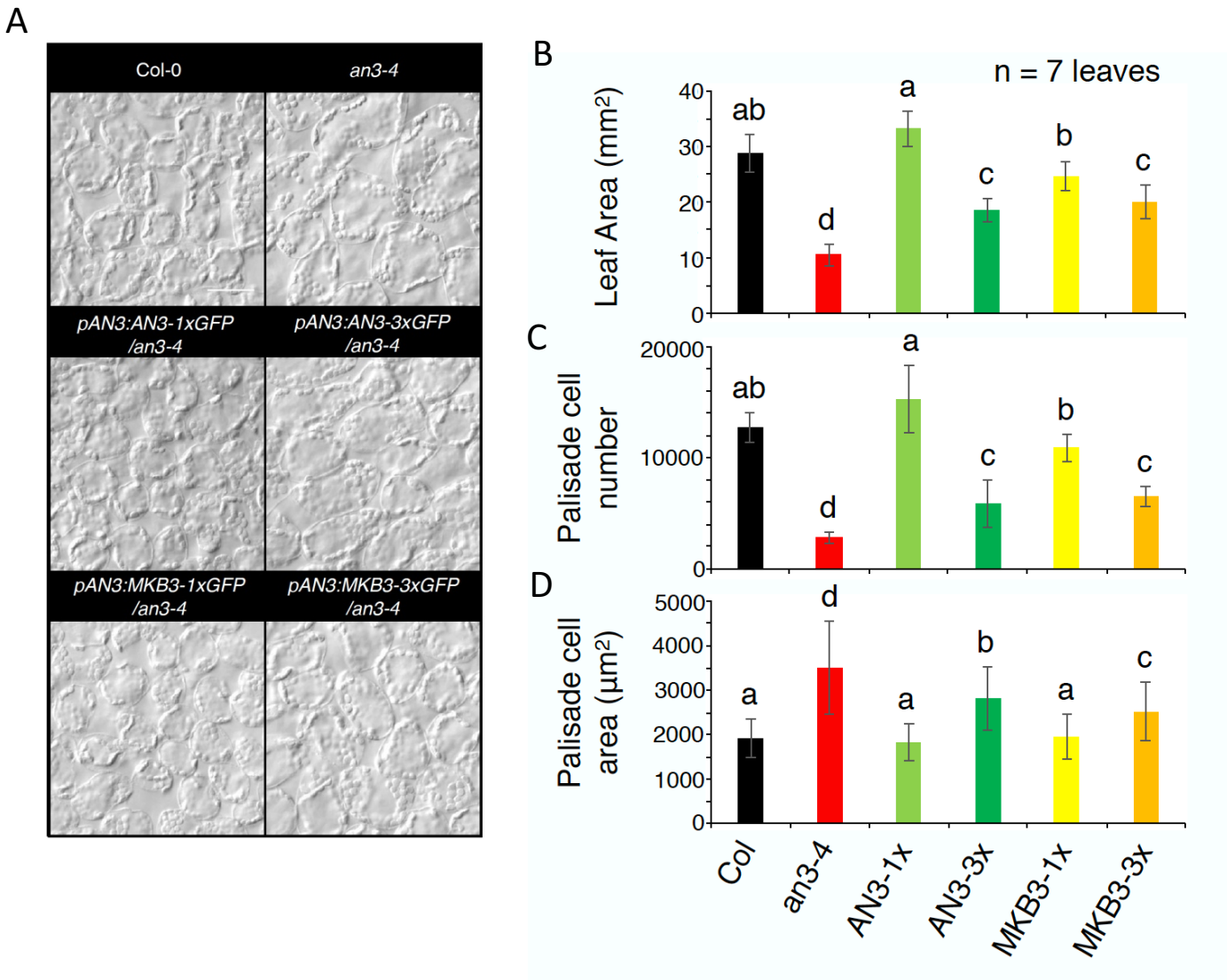

Fig S5. Interspecific complementation of the *an3-4* mutant by GFP-containing chimeras of AN3 and MKB3.

(A) Palisade cells of the wild-type strain (Col-0), and *an3-4*, *pAN3::AN3-GFP/an3-4, pAN3::AN3-3xGFP/an3-4, pAN3::MKB3-GFP/an3-4,* and *pAN3::AN3-3xGFP/an3-4* mutants. The plant line is shown in each panel. (B–D): Phenotype of the first leaf at day 21 after sowing. (C) Leaf area. (D) Palisade cell number. (E) Palisade cell area. Different letters indicate that the differences were significant as revealed by the Tukey-Kramer test ($p < 0.05$).

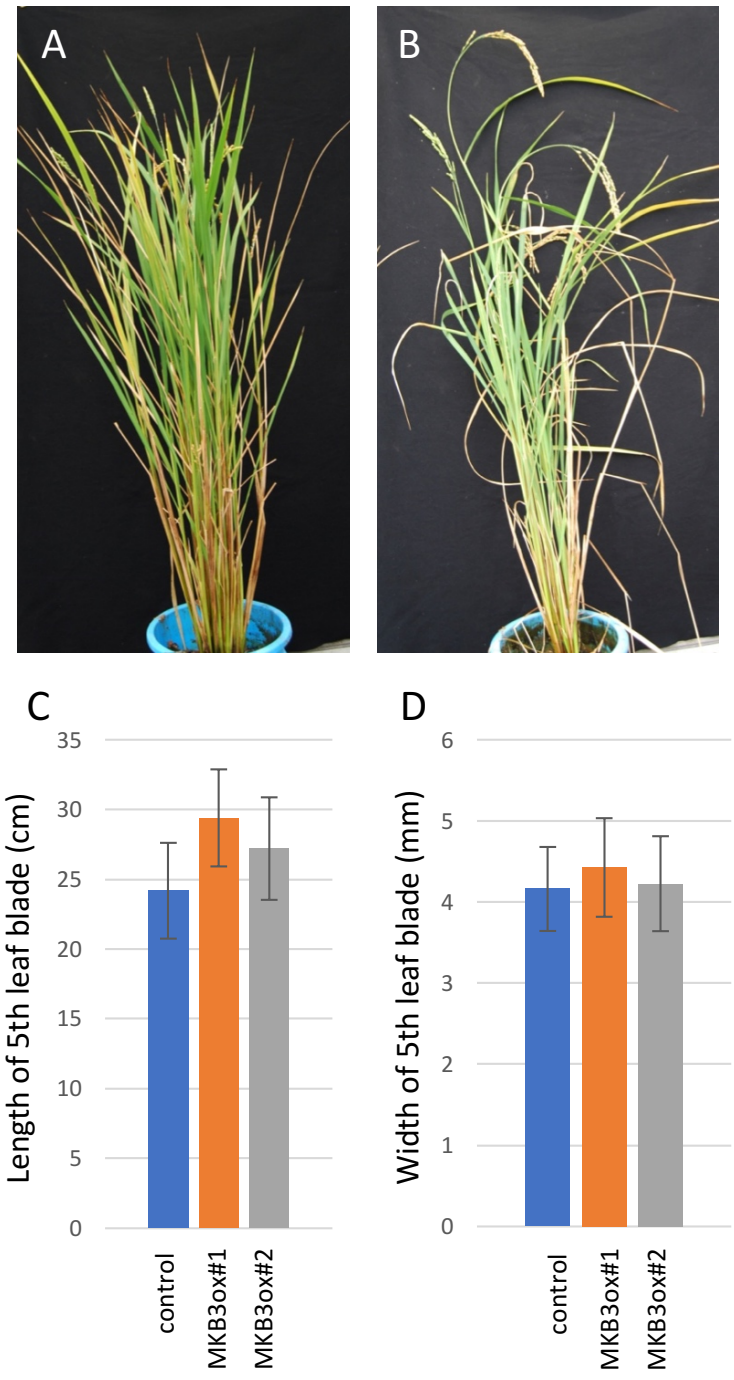

Fig S6. Phenotypes of *MKB3ox* with respect to reproductive development and the expression level of *MKB3*.

(A) Mature control plant. (B) Mature *MKB3ox* plant. (C, D) Leaf phenotypes of two different T_2 *MKB3ox* lines which were not shown in the main text. (C) Length of the fifth leaf blade. (D) Width of the fifth leaf blade. n=5 in (C) and (D). Vertical bars indicate SD.

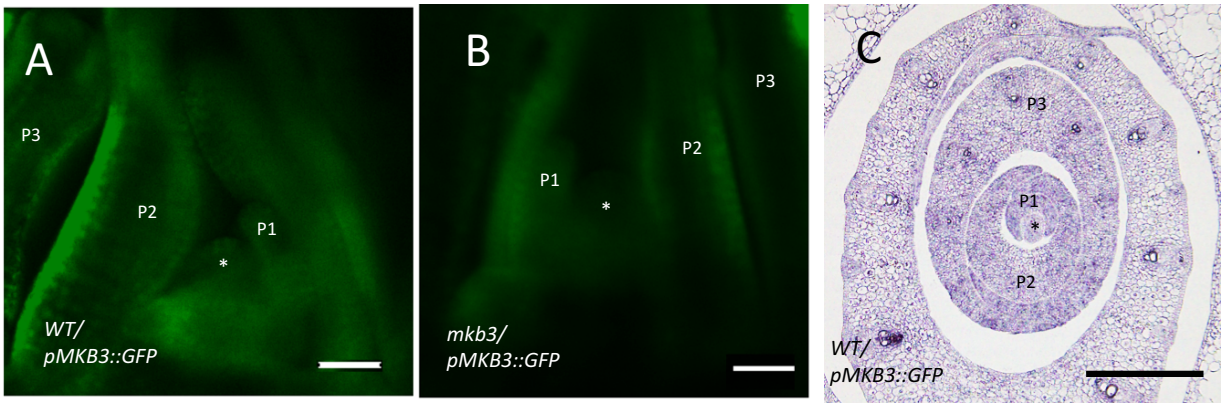

Fig S7. GFP signal of *pMKB3::GFP* transgenic plants.
(A–B) Confocal images of shoot apices of transgenic plants. (A) *WT/pMKB3::GFP*. (B) *mkb3/pMKB3::MKB3-GFP*. (C) Immunolocalization of GFP protein in *WT/pMKB3::GFP* shoot apices 2 weeks after germination. The plastochron numbers (Px) of each leaf primordium are shown. Asterisks indicate shoot apical meristem. Scale bar = 50 µm.