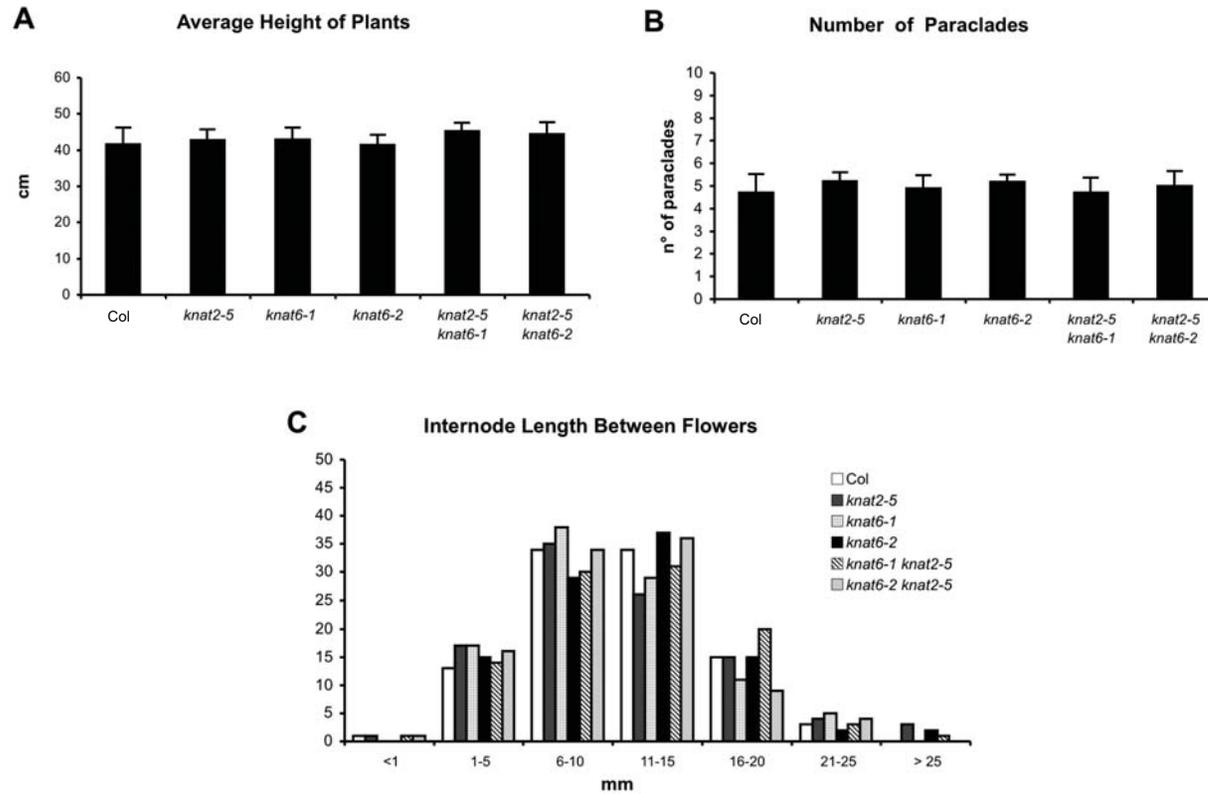


Supplemental Figure 1. Phenotypes of the *knat2-5*, *knat6-1*, *knat6-2*, *knat2-5 knat6-1* and *knat2-5 knat6-2* mutants.

- (A) Wild type inflorescence.
- (B) *knat2-5* inflorescence showing a wild type phenotype.
- (C) *knat6-1* inflorescence showing a wild type phenotype.
- (D) *knat6-2* inflorescence showing a wild type phenotype.
- (E) *knat2-5 knat6-1* inflorescence showing a wild type phenotype.
- (F) *knat2-5 knat6-2* inflorescence showing a wild type phenotype.



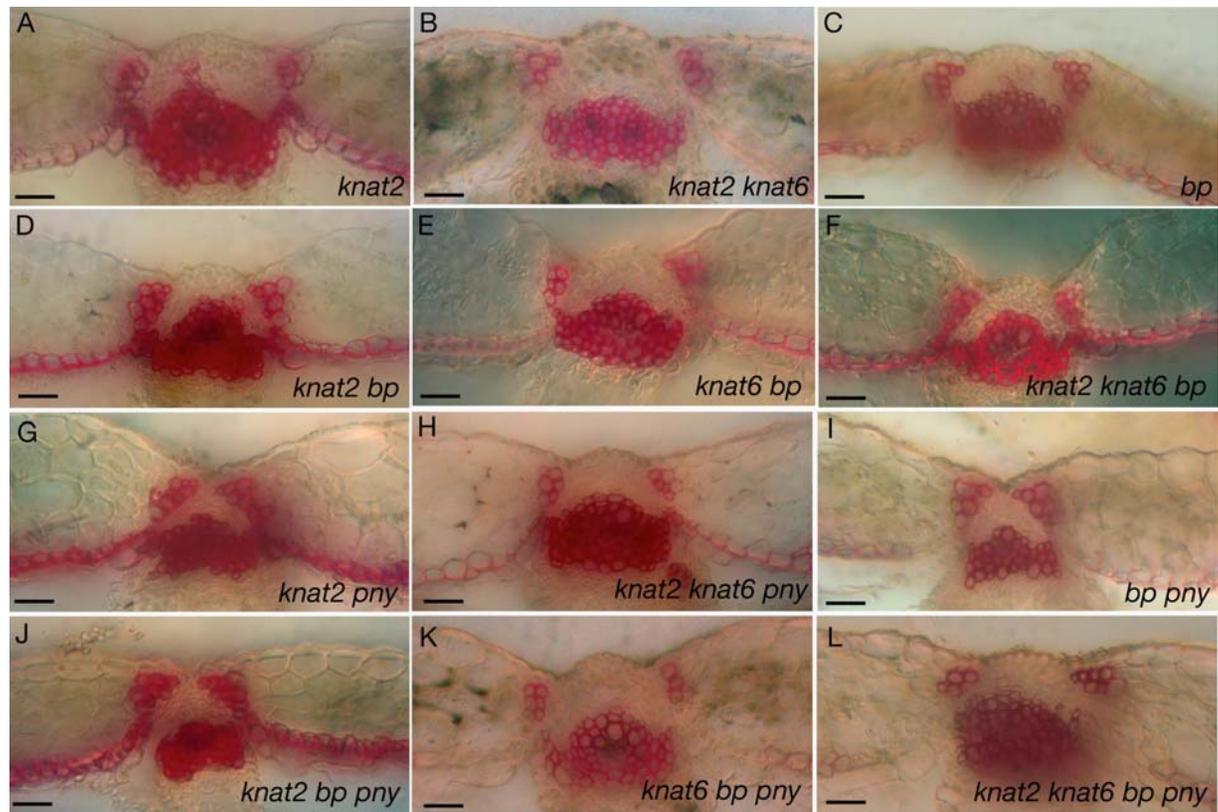
Supplemental Figure 2. Quantitative phenotypic analyses of the *knat2-5*, *knat6-1*, *knat6-2*, *knat2-5 knat6-1* and *knat2-5 knat6-2* mutants.

Ten plants for each genotype were analyzed.

(A) Average (+SD) height of wild type, *knat2-5*, *knat6-1*, *knat6-2*, *knat2-5 knat6-1* and *knat2-5 knat6-2* plants.

(B) Average (+SD) number of rosette paraclades of wild type, *knat2-5*, *knat6-1*, *knat6-2*, *knat2-5 knat6-1* and *knat2-5 knat6-2* plants.

(C) Internode lengths between flowers. The size of the internode between siliques was measured. Ten internodes between the 1st and 11th siliques, counting acropetally, were measured.



Supplemental Figure 3. Lignin pattern in *knat2*, *knat2 knat6*, *bp*, *knat2 bp*, *knat6 bp*, *knat2 knat6 bp*, *knat2pny*, *knat2 knat6 pny*, *bp pny*, *knat2 bp pny*, *knat6 bp pny* and *knat2 knat6 bp pny* stage 17 carpels.

(A) Transverse section of the *knat2* replum stained with phloroglucinol to detect lignification (pink). The lignification was detected at the valves margins and in the inner replum as in wild type (Figure 8B). Bar = 40 mm.

(B) Transverse section of *knat2 knat6* carpel showing a wild type lignification pattern (bar = 40 mm).

(C) Transverse section of *bp* carpel showing a wild type lignification pattern (bar = 40 mm).

(D) Transverse section of *knat2 bp* carpel showing a wild type lignification pattern (bar = 40 mm).

(E) Transverse section of *knat6 bp* carpel showing a wild type lignification pattern (bar = 40 mm).

(F) Transverse section of *knat2 knat6 bp* carpel showing a wild type lignification pattern (bar = 40 mm).

(G) Transverse section of *knat2 pny* carpel showing the lignified layer that extends across the replum as in *pny* fruit (Figure 8E). The inactivation of *KNAT2* did not alter *pny* defect (bar = 40 mm).

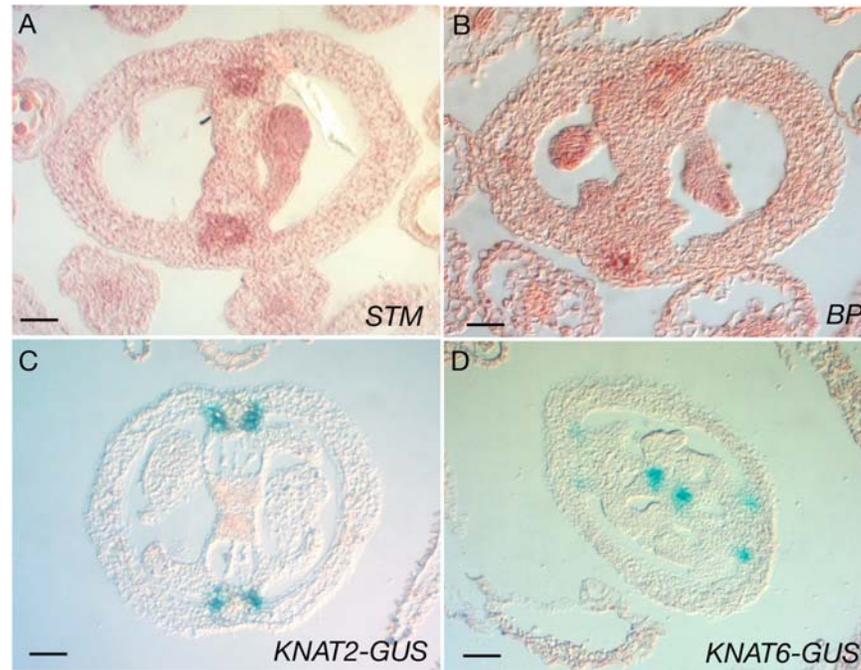
(H) Transverse section of *knat2 knat6 pny* carpel showing a wild type lignification pattern. The inactivation of *KNAT6* rescued *pny* defect (bar = 40 mm).

(I) Transverse section of *bp pny* fruit showing the lignified layer that extends across the replum as in *pny* fruit (Figure 8E). Bar = 40 mm.

(J) Transverse section of *knat2 bp pny* fruit. The inactivation of *KNAT2* did not alter *bp pny* defect (bar = 40 mm).

(K) Transverse section of *knat6 bp pny* fruit showing a wild type lignification pattern. The inactivation of *KNAT6* rescued replum defect (bar = 40 mm).

(L) Transverse section of *knat6 knat2 bp pny* fruit showing a wild type lignification pattern. The inactivation of *KNAT6* rescued replum defect (bar = 40 mm).



Supplemental Figure 4. *KNAT* class I members expression domains were distinct in wild type carpel.

- (A)** Cross section of a carpel showing *STM* mRNA accumulation in the replum (bar = 40 μ m).
- (B)** Cross section of a carpel showing *BP* mRNA accumulation in the replum (bar = 40 μ m).
- (C)** Cross section of a carpel showing *KNAT2-GUS* activity in valves margins (bar = 40 μ m).
- (D)** Cross section of a carpel showing *KNAT6-GUS* activity in valves margins (bar = 40 μ m).