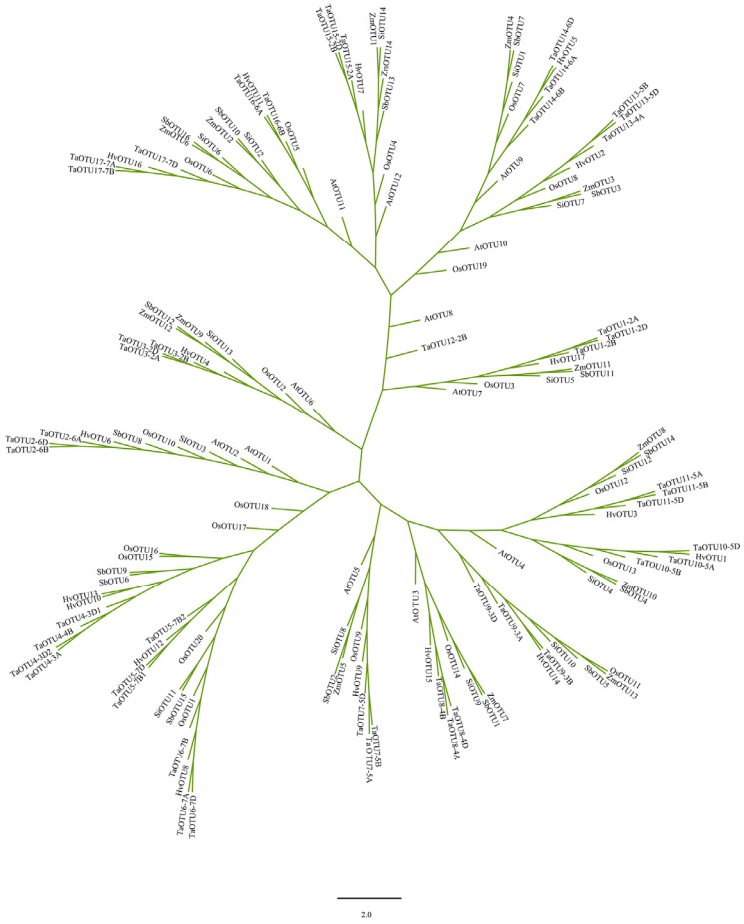


Figure S1. Phylogenetic analysis of *OTU* gene family in wheat, *Hordeum vulgare* L., *Zea mays* L., *Setaria italica*, *Sorghum bicolor* L., *Oryza sativa* L. and *Arabidopsis thaliana*.

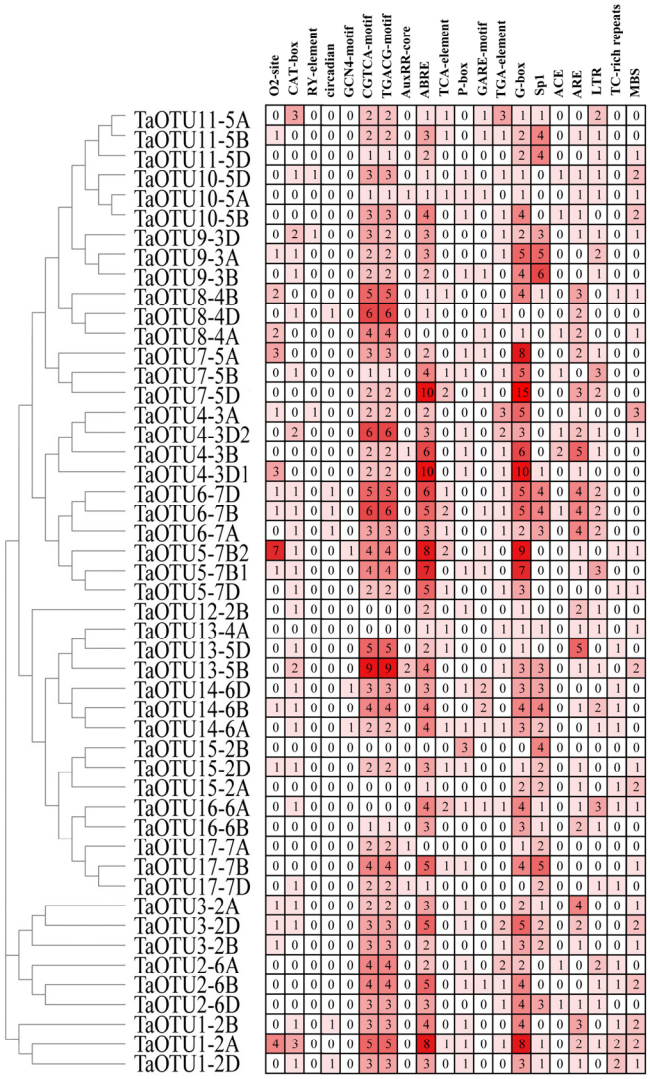


Figure S2. *Cis*-acting elements on promoters of all identified *TaOTU* genes. The number in the box indicates the number of this *cis*-acting elements, and the color shade is positively related to the number contained.

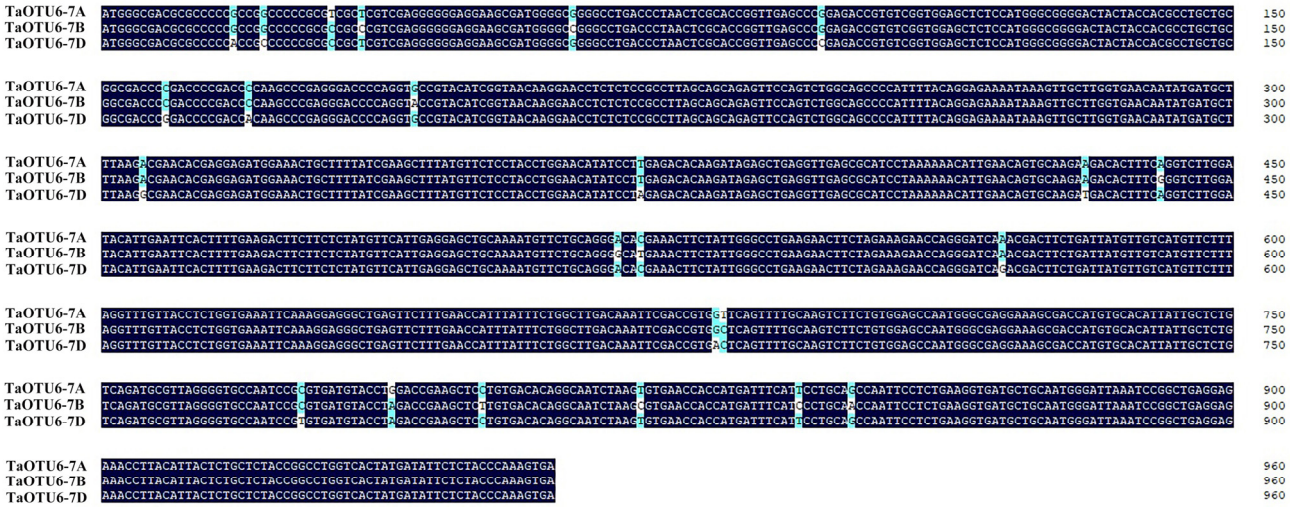


Figure S3. Sequence alignment of *TaOTU6-7B* and its homologous genes.

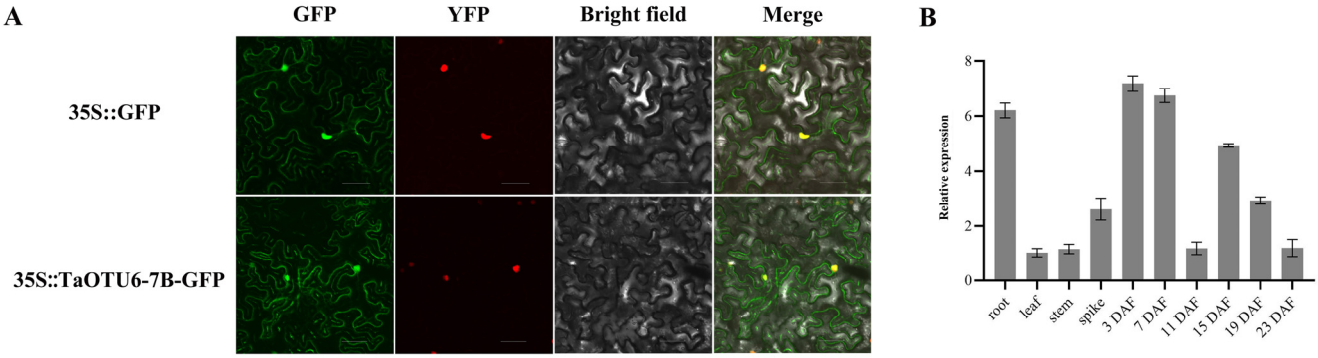


Figure S4. Expression characteristics of *TaOTU6-7B*. (A) Subcellular localization of *TaOTU6-7B*. (B) The expression of *TaOTU6-7B* in different tissues. 3, 7, 11, 15, 19, 23 DAF: grain of 3, 7, 11, 15, 19, 23 days after flowering.



Figure S5. Gene editing leads to the premature termination of the transcription of *TaOTU6* in the mutant.

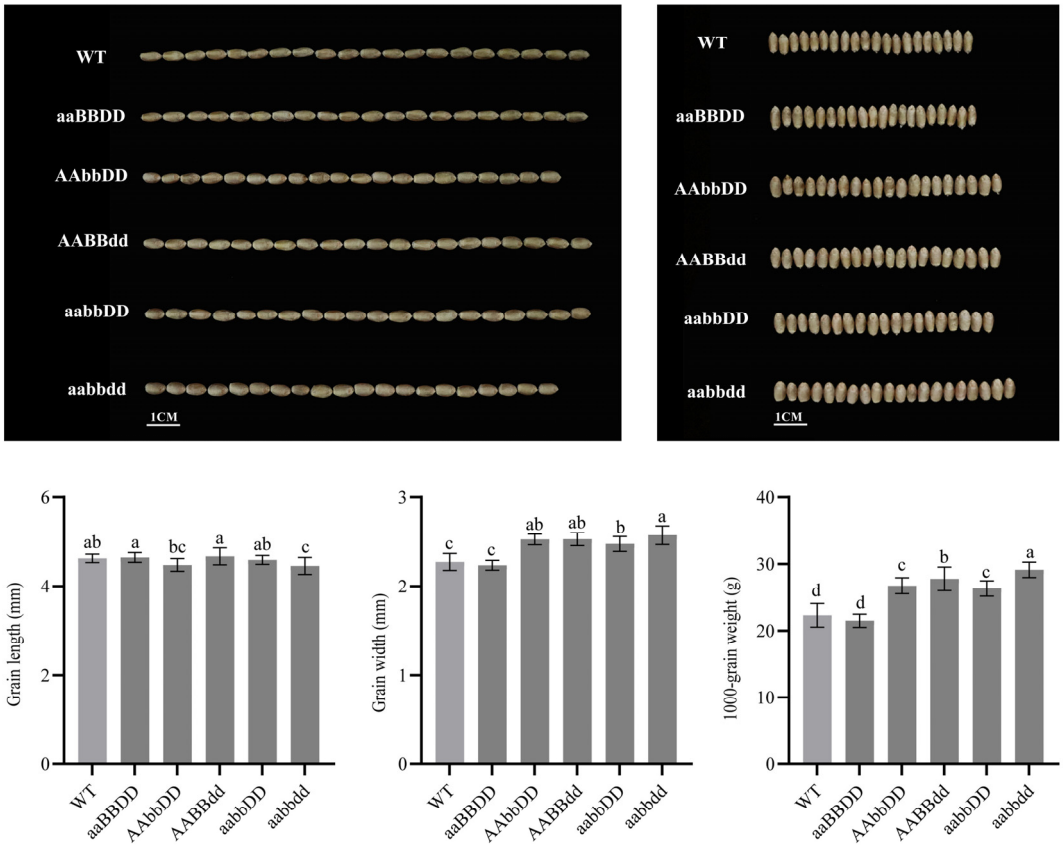


Figure S6. The phenotype of mutants and wild types grown in the greenhouse.