

**Table S1 Primer sequences used in this study**

**Table S2 Putative *TaTEF* orthologs in 10 plant species and yeast**

**Table S3 48 Cultivars used for identification of haplotypes**

**Fig. S1 Sequence characterization of *TEF* genes in wheat and other plant species.** A, Gene structure. Boxes represent exons and lines represent introns; B, Multiple sequence alignment of domains; C, A neighbor-joining tree created with full-length protein sequences using the program MEGA5.05.

**Fig. S2 Gene sequence of *TaTEF*.**

**Fig. S3 cDNA sequence of *TaTEF*.**

**Fig. S4 PCR amplification of cDNA in nullisomic-tetrasomic lines of homoeologous group 7.** M, marker; 1, N7AT7B; 2, N7AT7D; 3, N7BT7A; 4, N7BT7D; 5, N7DT7B; 6, N7DT7A; 7, H<sub>2</sub>O.

**Fig. S5 Linkage disequilibrium matrix among pairwise polymorphisms in the promoter region of *TaTEF-7A*.** Different colors represent different levels of LD. The labels on the x-axis are in accordance with the SNP on the y-axis in the same order.

Table S1

Primer set		Primer sequence (5'–3')	Amplified target
TaTEF-1	Forward	TGGTTACAAGTTTTGGTTGCTTC	A genome-specific
	Reverse	CAATACCAGAAACATGTAGGTCAG	
TaTEF-2	Forward	ACCTTCACACGTTTTCTGTTC	A genome-specific
	Reverse	AACATAACCAACCACAGGCTTGAG	
TaTEF-3	Forward	AGTTGCGGCTGCGCTCTT	A genome-specific
	Reverse	GCACGCCATTTTCTTCTAGA	
TaTEF-4	Forward	TGAGAATTTCGACGAGAACGA	2nd time PCR for marker development
	Reverse	AGTTGCGGCTGCGCTCTT	
TaTEF-5	Forward	ATGCACCATCATCATCTTCGAC	Amplified gene and CDS sequence of TaTEF
	Reverse	GAACCATGGGAAGAGAAAGTC	
TaTEF-6	Forward	CATCATTTGATGGATTATAACAAT	TaTEF-7A real-time PCR
	Reverse	TGCTCCCATGATTGCAGAA	
TaTEF-7	Forward	TAAGCCACCACCTAGGAAGA	TaTEF-7B real-time PCR
	Reverse	CCTGGCAGATTTGACAGTTA	
TaTEF-8	Forward	CATCATTTGATTGATTATAACCAC	TaTEF-7D real-time PCR
	Reverse	TGCTGCCATGATTGCAGAA	
Ta-GUS	Forward	CGCGGATCCAGTTGCGGCTGCGCTCTGA	Amplification of promoter fragments
	Reverse	CCTAGGGGTTCAACTTCTTTTCTTCCTCAA	
GAPDHF	Forward	TTAGACTTGCGAAGCCAGCA	Endogenous reference for real-time PCR
	Reverse	AAATGCCCTTGAGGTTTCCC	
At actin	Forward	CCAACAGAGAGAAGATGACT	Endogenous references for RT-PCR
	Reverse	ATGTCTCTTACAATTTCCCG	
AtTEF	Forward	GATAAGCTTGACACAATCTTTAGTT	AtTEF RT-PCR
	Reverse	TCAGAAGTTATACTTCCTTTTGACA	
TaTEF	Forward	AGAGAAAGTCAGCTGCTAAGC	TaTEF RT-PCR
	Reverse	ACTCATCGATCCATTCGCT	

Table S2

Species	Classification	Gene name	Accession no.
<i>Brachypodium distachyon</i>	Monocot	<i>BdTEF</i>	Bradi1g49230
<i>Oryza sativa</i>	Monocot	<i>OsTEF</i>	LOC_Os02g04160
<i>Setaria italica</i>	Monocot	<i>SiTEF</i>	Si007649m.g
<i>Zea Mays</i>	Monocot	<i>ZmTEF</i>	GRMZM5G858444
<i>Sorghum bicolor</i>	Monocot	<i>SbTEF</i>	Sb10g003710
<i>Arabidopsis thaliana</i>	eudicot	<i>AtTEF</i>	AT5G46030.1
<i>Thellungiella halophila</i>	Eudicot	<i>ThTEF</i>	Thhalv10001045m.g
<i>Brassica rapa</i>	Eudicot	<i>BrTEF</i>	Bra022011
<i>Citrus sinensis</i>	Eudicot	<i>CsTEF</i>	orange1.1g034538m.g
<i>Physcomitrella patens</i>	Eudicot	<i>PpTEF</i>	Pp1s75_70V6
<i>Saccharomyces cerevisiae</i>	Funguis (yeast)	<i>ByTEF</i>	NC_001143

Table S3

Accession	Cultivars	Genotype
SJZ8	Shijiazhuang 8	Hap-7A-3
YZ1	Yanzhan 1	Hap-7A-3
S4185	Shi 4185	Hap-7A-3
YM18	Yumai 18	Hap-7A-3
WM6	Wenmai 6	Hap-7A-3
JM47	Jinmai 47	Hap-7A-3
SN229	Shannong 229	Hap-7A-3
JM8	Jinmai8	Hap-7A-3
SM3	Sumai3	Hap-7A-3
XKH9	Xinkehan9	Hap-7A-3
ZY4	Zhengyin4	Hap-7A-3
GS96	Gansu96	Hap-7A-3
NY188	Neixiang 188	Hap-7A-2
BN6	Beinong 6	Hap-7A-2
AM6	AM6	Hap-7A-2
PY27	Pingyang 27	Hap-7A-2
DFH3	Dongfanghong3	Hap-7A-2
GT	Guangtou	Hap-7A-2
ZM9023	Zhengmai 9023	Hap-7A-1
JXZ	Jiangxizao	Hap-7A-1
ND2419	Nanda 2419	Hap-7A-1
YD1817	Yanda 1817	Hap-7A-1
LM14	Lumai14	Hap-7A-1
QCM	Qiangchangmai	Hap-7A-1
WSB	Wangshuibai	Hap-7A-1
NQ4	Ningchun 4	Hap-7A-1
J411	Jing 411	Hap-7A-1
CS	Chinese Spring	Hap-7A-1
LZ953	Laizhou 953	Hap-7A-1
BMZ	Baimaizi	Hap-7A-1
ZY9507	Zhongyou 9507	Hap-7A-1
DBP	Dabaipi	Hap-7A-1
XHP	Xiaohongpi	Hap-7A-1
DXZ	Dingxingzhai	Hap-7A-1
LHM	Lanhuamai	Hap-7A-1
DMHM	Daimanghongmai	Hap-7A-1
ZLDM	Ziludongmai	Hap-7A-1
FK2	Fengkang2	Hap-7A-1
QM	Qianmai	Hap-7A-1
HSB	Huangshuibai	Hap-7A-1
BP	Baipu	Hap-7A-1
ZXM	Zaoxiaomai	Hap-7A-1

HD6	Huangdong6	Hap-7A-1
LY5	Liyong5	Hap-7A-1
DQM	Daqingmang	Hap-7A-1
OF	Orofen	Hap-7A-1
AT	Atlas 66	Hap-7A-1
CAXM	Chaoanxiaomai	Hap-7A-1

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Fig. S1

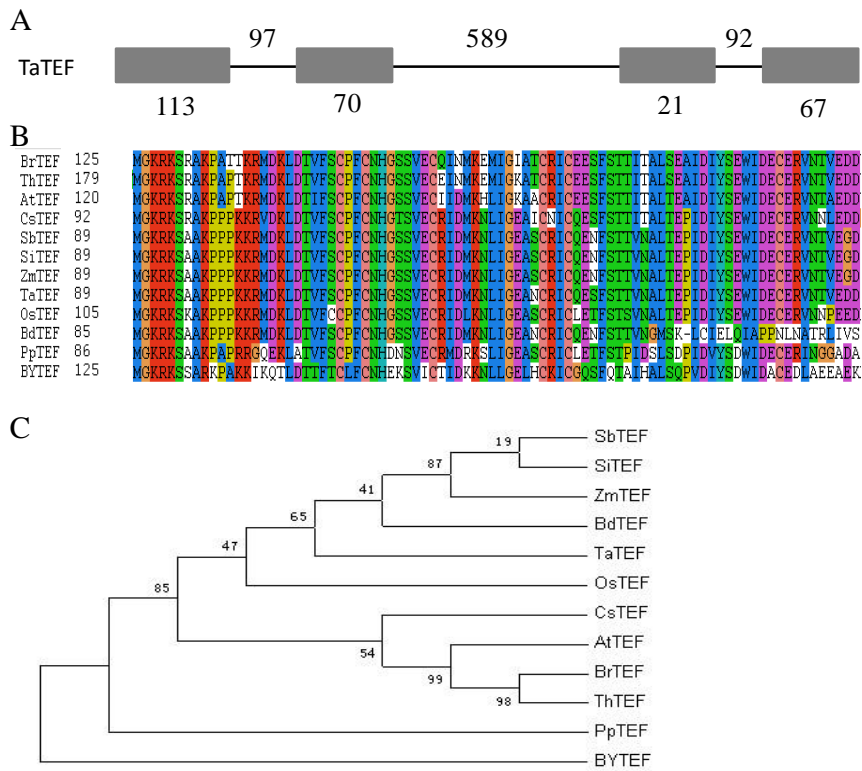


Fig. S2

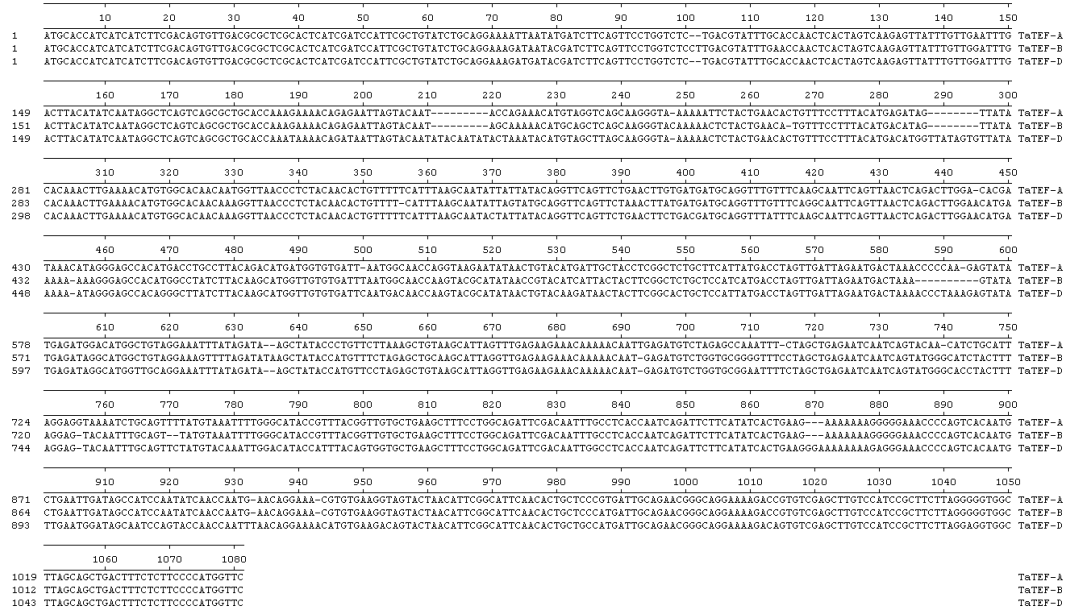


Fig. S3

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10      20      30      40      50      60      70      80      90
ATGGGGAAGAGAAAAGTCAGCTGCTAAGCCACCCCTAAGAAGCGGATGGACAAGCTCGACACGGTCTTTTCTGCAATCAT A
ATGGGGAAGAGAAAAGTCGGCTGCTAAGCCACCCCTAAGGAAGGGATGGACAAGCTCGACACGGTCTTTTCTGCAATCAT B
ATGGGGAAGAGAAAAGTCAGCTGCTAAGCCACCCCTAAGAAGCGGATGGACAAGCTCGACACGGTCTTTTCTGCAATCAT D

100     110     120     130     140     150     160     170     180
GGGAGCAGTGTGGAATGCCGAATTGATATGAAGAATCTGATTGGTGAGGCCAAATTGTCGAATCTGCCAGGAAAAGCTTCAGCACACCGTA A
GGGAGCAGCGTTGAGTGCCCGATTGATTTGAAGAATCTGATTGGTGAGGCCAAATTGTCGAATCTGCCAGGAAAAGCTTCAGCACACCGTA B
GGCAGCAGTGTGGAATGCCGAATTGATATGAAGAATCTGATTGGTGAGGCCAAATTGTCGAATCTGCCAGGAAAAGCTTCAGCACACCGTA D

190     200     210     220     230     240     250     260     270
AACGCGCTGACTGAGCCTATTGATATATACAGCGAATGGATCGATGAGTGCGAGCGCGTCAACACTGTGCGAAGATGATGATGGTGCATGA A
AATGCGCTGACTGAAACCTATTGATTTATACAGCGAATGGATCGATGAGTGCGAGCGCGTCAACACTGTGCGAAGATGATGATGGTGCATGA B
AATGCGCTGACTGAGCCTATTGATATATACAGCGAATGGATCGATGAGTGCGAGCGCGTCAACACTGTGCGAAGATGATGATGGTGCATGA D
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Fig. S4

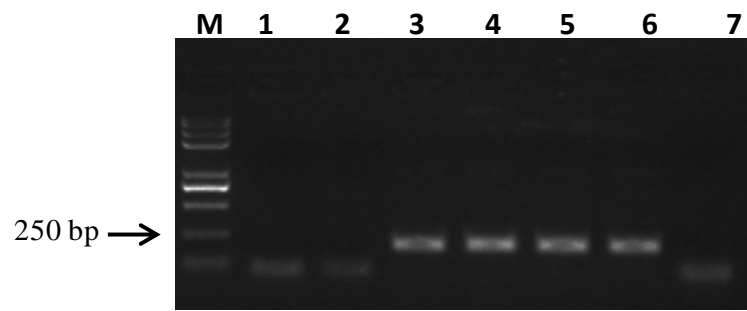


Fig. S5

