Table S1. Sequences of primers used in this study

Name	Primer sequence (5' to 3')	Usage
RM18985	TTGCTTTGGAAACCCACACTCC GGATATCATCATCTCGTCGTCACC	**Genetic analysis**
RM18893	GAGGTGGCGTTCTTGATGAGC CATGCAGCTTTCACTTCAACTGG	
RM18895	CAAATTGCTAGAGCCTACCTTTCC CGACTGTCTTTCAATACCGATGC	
RM18900	CTCCCAAAGGTCCTGGGAGAGC CCCAAATCACACATACAGCCTCTCG	
RM18882	GGTGTCGCTTGTCAATTGTGTACC AGCTATCAGGAGACGACCCAAGG	
RM18883	GAGAGGCATTTCCTCGAACACC ATTGCAATCTCCCTTCACAACG	
RM18639	CATCATGTGGTAAGTGTGCAACG GGTTGCGATGAGATTACGAGACC	
RM18717	CAGCCTTGGTAGCTGGATAATCG CGTCTACTGCTCGAGAGAACTGTGG	
RM18803	TTGGTGGTGTAGATTCGGAGTGG TCCTCCTCCTCCAAGAAACAATCC	
RM18821	CGGCTAAATCGTCATGTGTATGG TCTCCCATCTTACATGTCCTCACC	
RM18847	GCTGGCTAAGCTAAGGCTATACCG ATCTAGCTAGCAAGGAGGCAAGG	
RM18903	CCATGAATGATCGGAGATGAGAGC CTCGTGCCACAGGTCCTTCC	
RM18958	CGCTCCGAAGTCTTCCTTCC GTACTCCCTCATCCTCGTTTCG	
RM19013	TCGTTGCACTGAAGCAGACATGC GTCCTTGCCGCCAAAGAATGG	
RM19130	CCTGATGATCCATGAAGTACAGACC GAGGATTGCATTGACCGCTACC	
GW2	CAGCAGCGCATTCCCAGTTTTC GTGGTCAGCCGAGCACTCTC	**qRT-PCR**
GL3.1	GCTCAAGGTCACCTGATCACTC GAACGACCACAAGATCTCTGC	
GL7/GW7	CCCCTAGCATCGACACCAAG CGGGTTCCAGCACTCCTCT	
TGW6	GGATTGATGCGAGTTGGT GGATTGAAGAACGGTGACT	
GS2/GL2	TGCGTCCCTTCTTTGATGAGT ACAGTTGGGTGCCTGAGAATG	
GS5	AGTGGACTGCTTCCAGGGAAG	

	CACGCAGTACCGAGAACTGA	
CYCA1;1	GTTTCGGTTGACGAGACGATGT	
	CGCTGCAAGGAACCTAGAACTG	
CYCA3;2	AGGTTGTCAAGATGGAGAGCGA	
	CGCTTTTTGTCTTCCTGGCA	
CYCB1;1	GGATTTACCGAGTCACAGCT	
	CAAGCGTGTCAAGATTCCAA	
CYCB2;2	CTCAAGGCTGCACAATCTGACA	
	GCATTGACGGCTGGAATTTG	
CDKA2	CGAGATTTGAAGCCCCAGAA	
	TCCGCGAGCTTCAATGAGTT	
CDKB2;1	AAGTTTGGCCAGGAGTGAGCA	
	TCAAGAGCATCAGCGTCGAGA	
LG5-Com1	ttcgagctcggtaccAGCTACCCACAGCCAGCTATATG cgaagctgggccggcCGTCAGGCCACCGATTGATCT	**Complementary vector construction**
LG5-Com2	atcggtggcctgacgGCCGGCCCAGCTTCGATT ctaattaacccatgaTTATCCTATGTGATGCTACATT	
LG5-Com3	catcacataggataaTCATGGGTTAATTAGGCTC caggtcgactctagaACTGTCTTCAGCACACGTA	
LG5-OE	tcgcgagctcggtaccATGGAGAGCTTCTTCGTCTTCT gcctgcaggtcgactctagaTTAATTATGAGAACTATGCACG	**Over-expression construction**
LG5-RNAi1	gacctcgagggtaccATGGAGAGCTTCTTCGTC gactctagaggatccTTAATTATGAGAACTATGCACG	**RNA interference**
LG5-RNAi2	cagatcgatactagtATGGAGAGCTTCTTCGTC gggaaattcgagctcTTAATTATGAGAACTATGCACG	
LG5-GFP	gagggggggcccggtaccATGGAGAGCTTCTTCGTCTTC cccttgctcaccatggtaccATTATGAGAACTATGCACGGGT	**Subcellular localization**

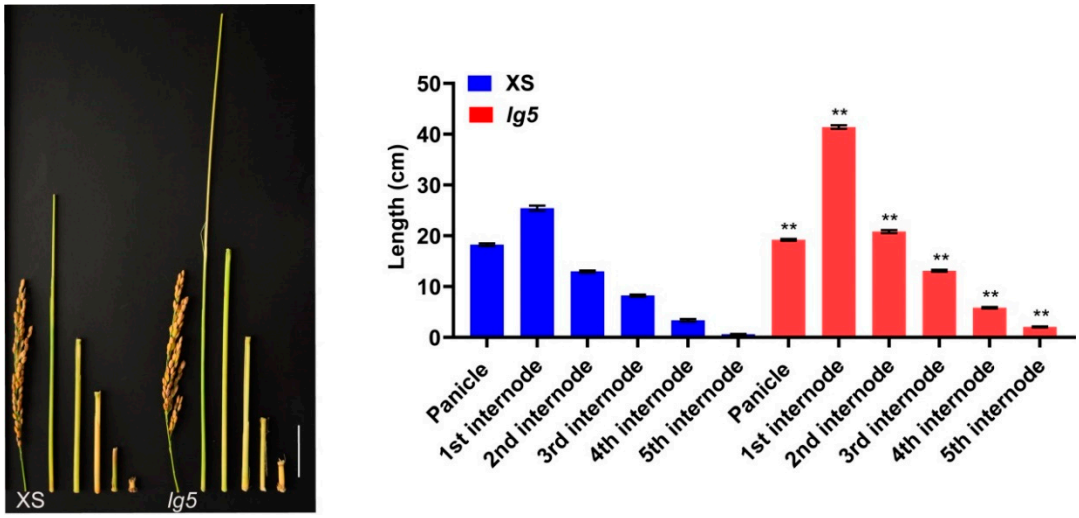

Figure S1. Length of panicle and internode, bar=5cm. Data are given as means ± SD. * and ** indicate $P < 0.05$ and $P < 0.01$ by Student's *t*-test.

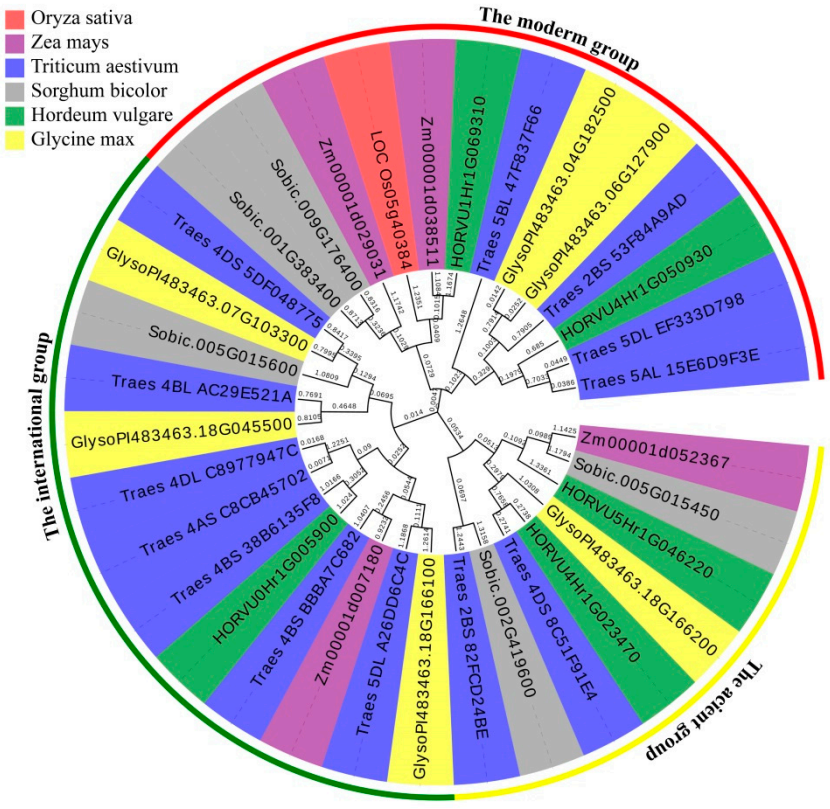

Figure S2. Evolutionary tree of *LG5* in different cereal crops, the tree was constructed by the neighbor-joining method. 33 species from *Oryza sativa* (*Os*), *Zea mays* (*Zm*), *Triticum aestivum* (*Traes*), *Sorghum bicolor* (*Sobic*), *Hordeum vulgare* (*Horv*u), *Glycine max* (*Glysopl*) were constructed by Mega 6 and divided into 3 groups.