

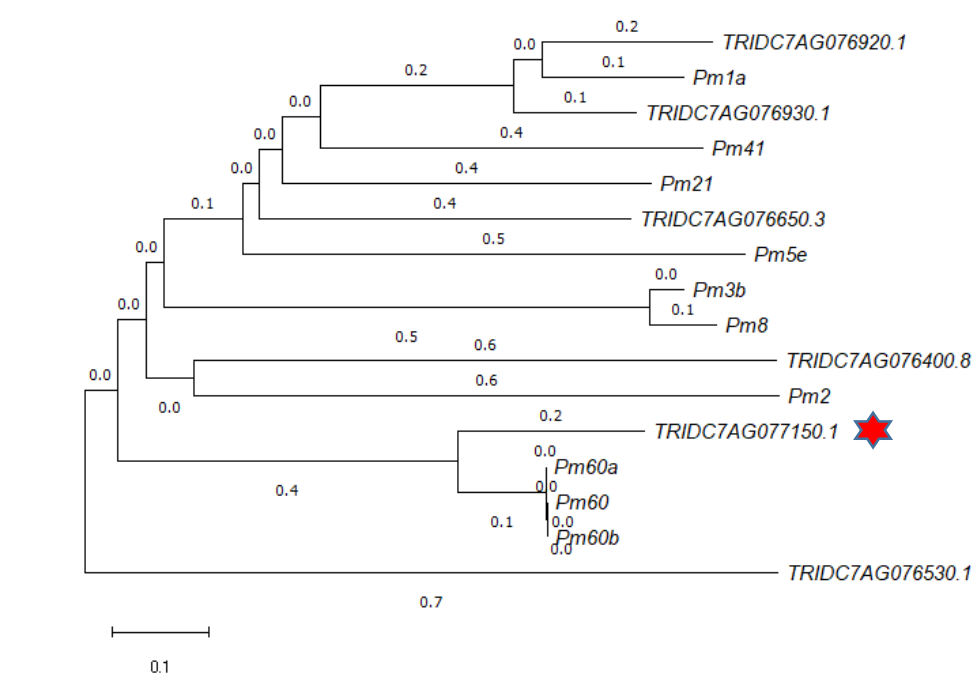


Fig. S1 Phylogenetic tree of six candidate genes of *PmG16* and nine cloned *Pm* NLR immune receptors. The six candidate genes for *PmG16* are: *TRIDC7AG077150.1*, *TRIDC7AG076650.3*, *TRIDC7AG076920.1*, *TRIDC7AG076930.1*, *TRIDC7AG076530.1*, *TRIDC7AG076400.8*. The nine published *Pm* genes and their sequence IDs are: *Pm3b* (AY325736.1), *Pm8* (KF572030.1), *Pm2* (LN999386.1), *Pm41* (MN395289), *Pm21* (MG831561.1), *Pm5e* (MK955156), *Pm60a* (MF996806.1), *Pm60* (MF996807.1), *Pm60b* (MF996808.1) and *Pm1a* (ERZ1467246).

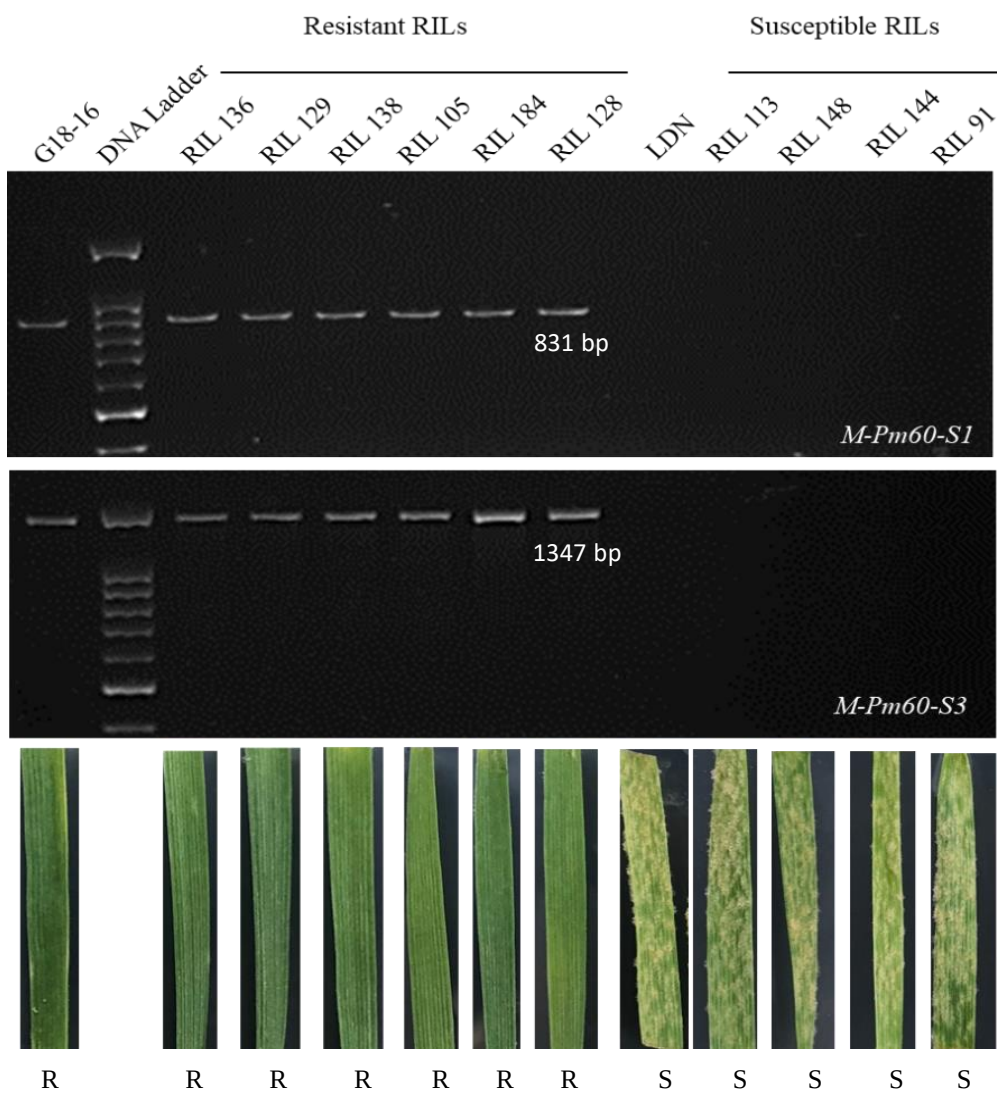


Fig. S2 Amplification patterns obtained by *M-Pm60-S1* (831 bp) and *M-Pm60-S3* (1347 bp) markers and the phenotypes of selected RILs and parental lines of the mapping population. WEW: G18-16. Durum: LDN. Resistant RILs: RIL136, 129, 138, 105, 184 and 128. Susceptible RILs: 113, 148, 144 and 91. The phenotypes of G18-16, LDN and RILs were record at 7 hpi with *Bgt* #15.

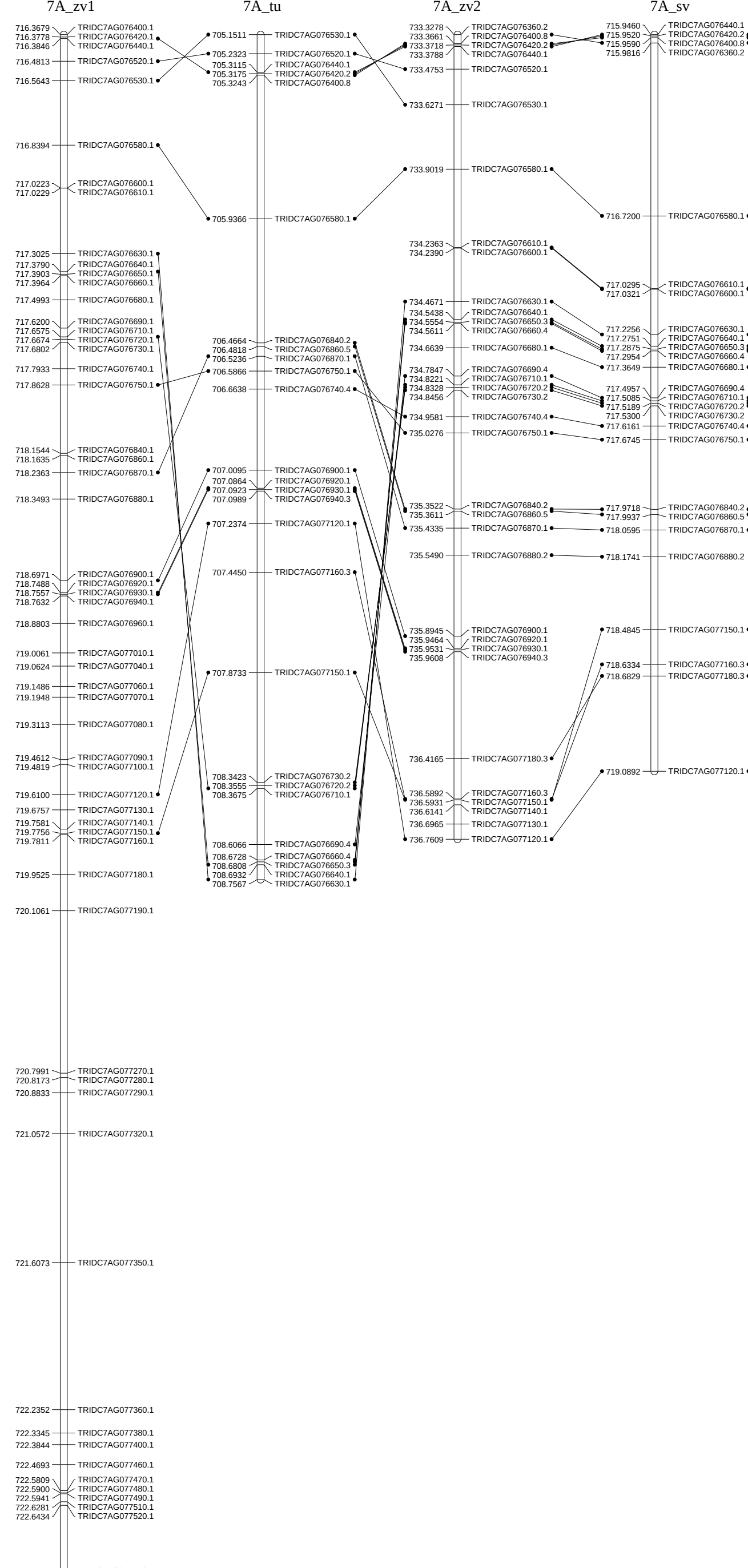


Fig. S3 Comparison of physical positions of 34 candidate genes between wheat reference genomes WEW Zavitan_V1 (7A_zv1), Zavitan_V2 (7A_zv2) and *T.urartu* (7A_tu).

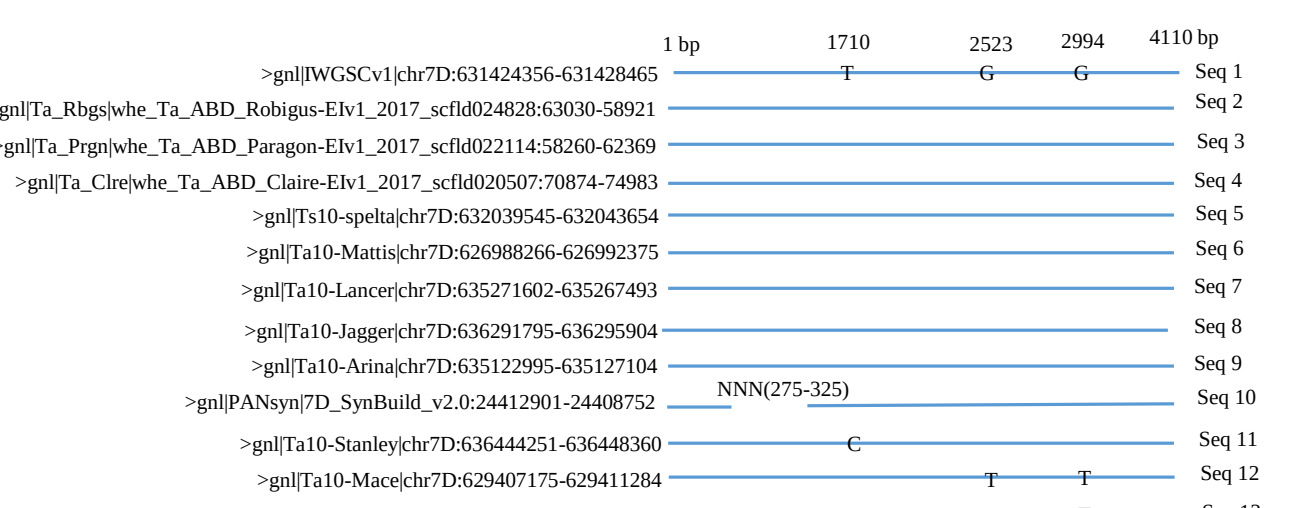


Fig. S4 A list of the sequences obtained from different hexaploid wheat accessions by using *TraesCS7D01G542200.1* (Seq 1) to BLAST in the GrainGenes database. Seq 1-9 are identical; Seq 10 contains missing sequencing data from 275 to 325 bp (NNN...); Seq 11 contains one SNP; Seq12 and 13 contain two identical SNPs.

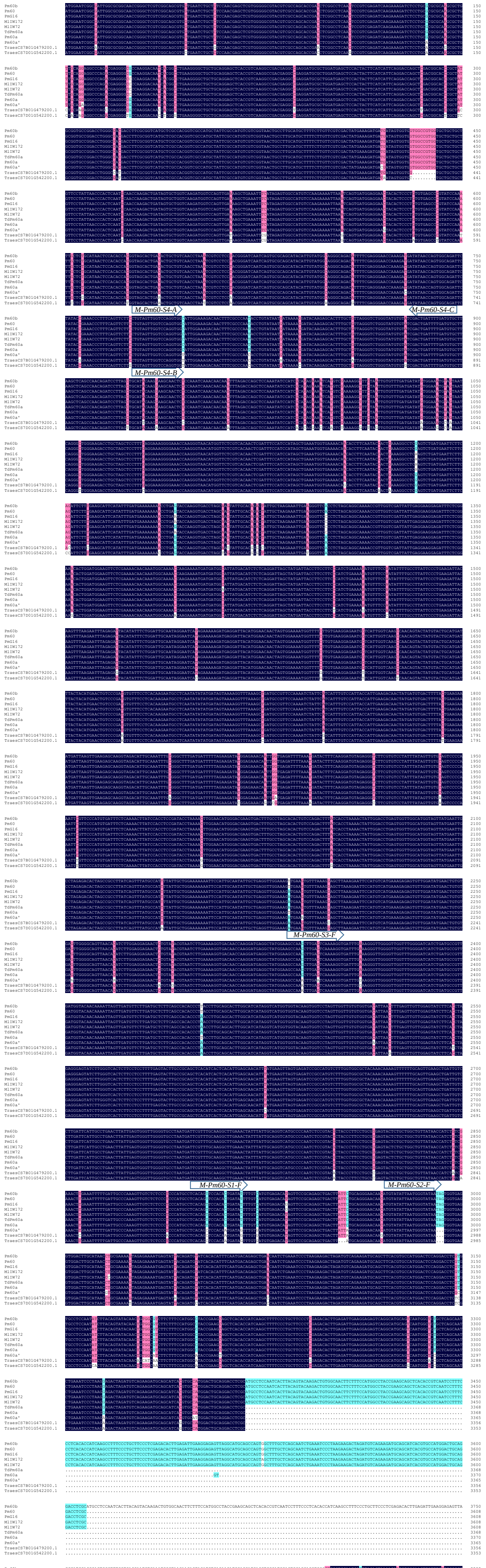


Fig. S5 Sequence alignments of functional *Pm60* alleles of *Pm60a*, *Pm60b*, *Pm60*, *TdPm60a* and *TdPm60* (*Pm61*, *MIW172* and *MIW72*) with nonfunctional *Pm60* alleles/orthologs of *TraesCS7B01G479200.1* and *TraesCS7D01G542200.1*. The locations of forward (F) and reverse primers (R) of *M-Pm60-S1*, *M-Pm60-S2*, *M-Pm60-S3* and *M-Pm60-S4* are indicated by arrows. *M-Pm60-S4-A* was used as forward KASP primer that amplified the functional allele, *M-Pm60-S4-B* was used as another KASP primer that amplified the nonfunctional allele, *M-Pm60-S4-C* was used as the common reverse KASP primer.