

GEPHE SUMMARY

TaPHS1 (https://www.gephebase.org/search-criteria?/and+Gene Gephebase=^TaPHS1^#gephebase-summary-title)	Gephebase Gene	GP00001104	GepheID
	Entry Status	Martin	Main curator
Published			

PHENOTYPIC CHANGE

	Trait Category		
Physiology (https://www.gephebase.org/search-criteria?/and+Trait Category=^Physiology^#gephebase-summary-title)	Trait		
Seed dormancy (https://www.gephebase.org/search-criteria?/and+Trait=^Seed dormancy^#gephebase-summary-title)	Trait State in Taxon A		
Triticum aestivum Rio Blanco RIL	Trait State in Taxon B		
Triticum aestivum Rio Blanco RIL	Ancestral State		
Data not curated	Taxonomic Status		
Domesticated (https://www.gephebase.org/search-criteria?/and+Taxonomic Status=^Domesticated^#gephebase-summary-title)			
Taxon A		Taxon B	
Triticum aestivum (https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=^Triticum aestivum^#gephebase-summary-title)	Latin Name	Triticum aestivum (https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=^Triticum aestivum^#gephebase-summary-title)	Latin Name
bread wheat	Common Name	bread wheat	Common Name
	Synonyms		Synonyms
Triticum aestivum subsp. aestivum; Triticum vulgare; bread wheat; Canadian hard winter wheat; common wheat; wheat; Triticum aestivum L.; Triticum vulgare L.; Triticum vulgare Vill., nom. illeg.; Tricum aestivum; Triticum aestivam; Triticum aestivum8		Triticum aestivum subsp. aestivum; Triticum vulgare; bread wheat; Canadian hard winter wheat; common wheat; wheat; Triticum aestivum L.; Triticum vulgare L.; Triticum vulgare Vill., nom. illeg.; Tricum aestivum; Triticum aestivam; Triticum aestivum8	
species	Rank	species	Rank
	Lineage		Lineage
cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; Liliopsida; Petrosaviidae; commelinids; Poales; Poaceae; BOP clade; Pooideae; Triticodae; Triticeae; Triticinae; Triticum		cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; Liliopsida; Petrosaviidae; commelinids; Poales; Poaceae; BOP clade; Pooideae; Triticodae; Triticeae; Triticinae; Triticum	
Triticum () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 4564)	Parent	Triticum () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 4564)	Parent
4565 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 4565)	NCBI Taxonomy ID	4565 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 4565)	NCBI Taxonomy ID
Yes	is Taxon A an Infraspecies?	Yes	is Taxon B an Infraspecies?
Triticum aestivum Rio Blanco RIL	Taxon A Description	Triticum aestivum Rio Blanco RIL	Taxon B Description

GENOTYPIC CHANGE

PHS1	Generic Gene Name	UniProtKB Triticum aestivum
-	Synonyms	GenebankID or UniProtKB
-	String	
-	Sequence Similarities	
-	GO - Molecular Function	
-	GO - Biological Process	
-	GO - Cellular Component	

Yes (#gephebase-summary-title)	Presumptive Null
Coding (#gephebase-summary-title)	Molecular Type
SNP (#gephebase-summary-title)	Aberration Type
-	SNP Coding Change
GT-to-AT transition at the 5_ donor splice site (position +646) of intron 3 AND Premature Stop Codon (position +666)	Molecular Details of the Mutation
Linkage Mapping (#gephebase-summary-title)	Experimental Evidence

Taxon A	Taxon B	Position
Codon	-	-
Amino-acid	-	-

Cloning and characterization of a critical regulator for preharvest sprouting in wheat. (2013) (https://pubmed.ncbi.nlm.nih.gov/23821595)	Main Reference
Liu S; Sehgal SK; Li J; Lin M; Trick HN; Yu J; Gill BS; Bai G	Authors
Sprouting of grains in mature spikes before harvest is a major problem in wheat (<i>Triticum aestivum</i>) production worldwide. We cloned and characterized a gene underlying a wheat quantitative trait locus (QTL) on the short arm of chromosome 3A for preharvest sprouting (PHS) resistance in white wheat using comparative mapping and map-based cloning. This gene, designated TaPHS1, is a wheat homolog of a MOTHER OF FLOWERING TIME (TaMFT)-like gene. RNA interference-mediated knockdown of the gene confirmed that TaPHS1 positively regulates PHS resistance. We discovered two causal mutations in TaPHS1 that jointly altered PHS resistance in wheat. One GT-to-AT mutation generates a mis-splicing site, and the other A-to-T mutation creates a premature stop codon that results in a truncated nonfunctional transcript. Association analysis of a set of wheat cultivars validated the role of the two mutations on PHS resistance. The molecular characterization of TaPHS1 is significant for expediting breeding for PHS resistance to protect grain yield and quality in wheat production.	Abstract
	Additional References

RELATED GEPHE

No matches found.	Related Genes
No matches found.	Related Haplotypes

EXTERNAL LINKS

COMMENTS

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