

GEPHE SUMMARY

Gephebase Gene		GepheID
Q = wheat AP2-like (WAP2) (https://www.gephebase.org/search-criteria?/and+Gene)		GP00000940
Gephebase="Q = wheat AP2-like (WAP2)"#gephebase-summary-title)		Main curator
Entry Status		Martin
Published		

PHENOTYPIC CHANGE

Trait #1	Trait Category
Morphology (https://www.gephebase.org/search-criteria?/and+Trait Category="Morphology"#gephebase-summary-title)	
Trait	
Inflorescence morphology (https://www.gephebase.org/search-criteria?/and+Trait="Inflorescence morphology"#gephebase-summary-title)	
Trait State in Taxon A	
Triticum turgidum/aestivum - qq allele	
Trait State in Taxon B	
Triticum turgidum/aestivum - QQ allele	

Trait #2	Trait Category
Morphology (https://www.gephebase.org/search-criteria?/and+Trait Category="Morphology"#gephebase-summary-title)	
Trait	
Spike morphology (https://www.gephebase.org/search-criteria?/and+Trait="Spike morphology"#gephebase-summary-title)	
Trait State in Taxon A	
-	
Trait State in Taxon B	
-	

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
Latin Name	
Triticum turgidum (https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms="Triticum turgidum"#gephebase-summary-title)	
Common Name	
-	
Synonyms	
Triticum aethiopicum; English wheat; cone wheat; poulard wheat; rivet wheat; Triticum aethiopicum Jakubz.; Triticum turgidum L.; Triticum turgidum8	
Rank	
species	
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	
Parent	
Triticum () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 4564)	
NCBI Taxonomy ID	
4571 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 4571)	
is Taxon A an Intraspecies?	
Yes	
Taxon A Description	
Triticum turgidum/aestivum - qq allele	
Latin Name	
Triticum turgidum (https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms="Triticum turgidum"#gephebase-summary-title)	
Common Name	
-	
Synonyms	
Triticum aethiopicum; English wheat; cone wheat; poulard wheat; rivet wheat; Triticum aethiopicum Jakubz.; Triticum turgidum L.; Triticum turgidum8	
Rank	
species	
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	
Parent	
Triticum () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 4564)	
NCBI Taxonomy ID	
4571 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 4571)	
is Taxon B an Intraspecies?	
Yes	
Taxon B Description	
Triticum turgidum/aestivum - QQ allele	

GENOTYPIC CHANGE

WANT1	Generic Gene Name	C1PH82 (http://www.uniprot.org/uniprot/C1PH82)	UniProtKB Triticum aestivum
	Synonyms		GenebankID or UniProtKB
	String	BAE20414 (https://www.ncbi.nlm.nih.gov/nucore/BAE20414)	
	Sequence Similarities		
-			
-			
-			
GO - Molecular Function			
GO:0003700 : DNA-binding transcription factor activity (https://www.ebi.ac.uk/QuickGO/term/GO:0003700)			
GO:0003677 : DNA binding (https://www.ebi.ac.uk/QuickGO/term/GO:0003677)			
GO - Biological Process			
GO:0006351 : transcription, DNA-templated (https://www.ebi.ac.uk/QuickGO/term/GO:0006351)			
GO - Cellular Component			
GO:0005634 : nucleus (https://www.ebi.ac.uk/QuickGO/term/GO:0005634)			
No (https://www.gephebase.org/search-criteria?/and+Presumptive Null=~No~#gephebase-summary-title)			Presumptive Null
Coding (https://www.gephebase.org/search-criteria?/and+Molecular Type=~Coding~#gephebase-summary-title)			Molecular Type
SNP (https://www.gephebase.org/search-criteria?/and+Aberration Type=~SNP~#gephebase-summary-title)			Aberration Type
Nonsynonymous			SNP Coding Change
V329I			Molecular Details of the Mutation
Linkage Mapping (https://www.gephebase.org/search-criteria?/and+Experimental Evidence=~Linkage Mapping~#gephebase-summary-title)			Experimental Evidence

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

Molecular characterization of the major wheat domestication gene Q. (2006) (https://pubmed.ncbi.nlm.nih.gov/16172507)	Main Reference
	Authors
	Simons KJ; Fellers JP; Trick HN; Zhang Z; Tai YS; Gill BS; Faris JD
	Abstract
The Q gene is largely responsible for the widespread cultivation of wheat because it confers the free-threshing character. It also pleiotropically influences many other domestication-related traits such as glume shape and tenacity, rachis fragility, spike length, plant height, and spike emergence time. We isolated the Q gene and verified its identity by analysis of knockout mutants and transformation. The Q gene has a high degree of similarity to members of the AP2 family of transcription factors. The Q allele is more abundantly transcribed than q, and the two alleles differ for a single amino acid. An isoleucine at position 329 in the Q protein leads to an abundance of homodimer formation in yeast cells, whereas a valine in the q protein appears to limit homodimer formation. Ectopic expression analysis allowed us to observe both silencing and overexpression effects of Q. Rachis fragility, glume shape, and glume tenacity mimicked the q phenotype in transgenic plants exhibiting post-transcriptional silencing of the transgene and the endogenous Q gene. Variation in spike compactness and plant height were associated with the level of transgene transcription due to the dosage effects of Q. The q allele is the more primitive, and the mutation that gave rise to Q occurred only once leading to the world's cultivated wheats.	
Additional References	

RELATED GEPHE

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

EXTERNAL LINKS

COMMENTS

@Pleiotropy

