

GEPHE SUMMARY

colored plant 1 (<a +colored+plant+1+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Gene+Gephebase=">https://www.gephebase.org/search-criteria?/and+Gene+Gephebase="+colored+plant+1+"#gephebase-summary-title)	Gephebase Gene	GP00000190	GepheID
Published	Entry Status	Martin	Main curator

PHENOTYPIC CHANGE

Trait Category	
Morphology (https://www.gephebase.org/search-criteria?/and+Trait+Category=~Morphology~#gephebase-summary-title)	
Trait	
Coloration (seed) (https://www.gephebase.org/search-criteria?/and+Trait=~Coloration(seed)~#gephebase-summary-title)	
Trait State in Taxon A	
Zea mays - white seeds	
Trait State in Taxon B	
Zea mays - purple seeds - allele B1-Peru	
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	Latin Name
Zea mays (https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=~Zea+mays~#gephebase-summary-title)	Zea mays (https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=~Zea+mays~#gephebase-summary-title)
Common Name	Common Name
-	-
Synonyms	Synonyms
Zea mays var. japonica; maize; Zea mays L.; Zea mays mays	Zea mays var. japonica; maize; Zea mays L.; Zea mays mays
Rank	Rank
species	species
Lineage	Lineage
cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; Liliopsida; Petrosaviidae; commelinids; Poales; Poaceae; PACMAD clade; Panicoideae; Andropogonodae; Andropogoneae; Tripsacinae; Zea	cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; Liliopsida; Petrosaviidae; commelinids; Poales; Poaceae; PACMAD clade; Panicoideae; Andropogonodae; Andropogoneae; Tripsacinae; Zea
Parent	Parent
Zea () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 4575)	Zea () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 4575)
NCBI Taxonomy ID	NCBI Taxonomy ID
4577 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 4577)	4577 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 4577)
is Taxon A an Intraspecies?	is Taxon B an Intraspecies?
No	No

GENOTYPIC CHANGE

	Generic Gene Name	UniProtKB Zea mays
b1	W5S3Q3 (http://www.uniprot.org/uniprot/W5S3Q3)	
-	Synonyms	GenebankID or UniProtKB
-	KF835723 (https://www.ncbi.nlm.nih.gov/nuccore/KF835723)	
-	String	
-	Sequence Similarities	
-	GO - Molecular Function	
-	GO - Biological Process	
-	GO - Cellular Component	
-	Unknown (https://www.gephebase.org/search-criteria?/and+Presumptive Null=~Unknown~#gephebase-summary-title)	Presumptive Null
-	Cis-regulatory (https://www.gephebase.org/search-criteria?/and+Molecular Type=~Cis-regulatory~#gephebase-summary-title)	Molecular Type

Unknown (https://www.gephebase.org/search-criteria?/and+Aberration+Type=~Unknown~#gephebase-summary-title)	Aberration Type
Not identified	Molecular Details of the Mutation
Linkage Mapping (https://www.gephebase.org/search-criteria?/and+Experimental+Evidence=~Linkage+Mapping~#gephebase-summary-title)	Experimental Evidence
Allelic diversity of the maize B regulatory gene: different leader and promoter sequences of two B alleles determine distinct tissue specificities of anthocyanin production. (1992) (https://pubmed.ncbi.nlm.nih.gov/1427078)	Main Reference
Radicella JP; Brown D; Tolar LA; Chandler VL	Authors
The B gene encodes a transcription factor of the basic helix-loop-helix class, which controls the synthesis of the anthocyanin pigments in maize. This gene, as well as the highly homologous R gene family, displays extensive allelic variation in that different alleles cause distinct distributions of anthocyanin pigments in different tissues and at different developmental times. The analysis of the expression of two B alleles, with distinct tissue-specific patterns of anthocyanin synthesis in plant and seed tissues, demonstrates that the amount of B transcripts correlates with the accumulation of anthocyanins in the various tissues. The comparison of the genomic clones for the two alleles reveals high sequence identity in the coding and 3'-flanking regions (98% and approximately 90%, respectively). In contrast, the most 5' region of their mRNAs and the 5'-flanking sequences share no significant sequence identity. This result suggests that the alleles diverged from each other by complex genome rearrangements rather than by simple base pair substitutions. We have used the high velocity microprojectile transformation assay to demonstrate that the differential expression of the two alleles in the seed is determined by their 5' variant sequences. Thus, the variation in tissue-specific anthocyanin synthesis in plants with these different B alleles is controlled at the level of B gene expression.	Abstract
	Additional References

RELATED GEPHE

3 (c1, pericarp color1 (P1), r1 colored1) (https://www.gephebase.org/search-criteria?/or+Taxon+ID=~4577~/and+Trait=Coloration/and+groupHaplotypes=true#gephebase-summary-title)	Related Genes
No matches found.	Related Haplotypes

EXTERNAL LINKS

COMMENTS