

GEPHE SUMMARY

Gephebase Gene		GepheID
c1 (<a +c1+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Gene+Gephebase=">https://www.gephebase.org/search-criteria?/and+Gene+Gephebase="+c1+"#gephebase-summary-title)	GP00000167	
Entry Status		Main curator
Published		

PHENOTYPIC CHANGE

Trait Category			
Morphology (<a +morphology+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Trait+Category=">https://www.gephebase.org/search-criteria?/and+Trait+Category="+Morphology+"#gephebase-summary-title)		Trait	
Coloration (seed) (<a +coloration+(seed)+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Trait=">https://www.gephebase.org/search-criteria?/and+Trait="+Coloration+(seed)+"#gephebase-summary-title)		Trait State in Taxon A	
Zea mays ssp. Mays - white seeds - allele c1-p		Trait State in Taxon B	
Zea mays ssp. Mays - colored seeds - allele C1		Ancestral State	
Taxon A		Taxonomic Status	
Domesticated (<a +domesticated+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Taxonomic+Status=">https://www.gephebase.org/search-criteria?/and+Taxonomic+Status="+Domesticated+"#gephebase-summary-title)			
Taxon A		Taxon B	
Latin Name		Latin Name	
Zea mays (<a +zea+mays+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=">https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms="+Zea+mays+"#gephebase-summary-title)		Zea mays (<a +zea+mays+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=">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?	
Yes		Yes	
Taxon A Description		Taxon B Description	
Zea mays ssp. Mays - white seeds - allele c1-p		Zea mays ssp. Mays - colored seeds - allele C1	

GENOTYPIC CHANGE

Generic Gene Name		UniProtKB Zea mays
C1	P10290 (http://www.uniprot.org/uniprot/P10290)	
Synonyms		GenebankID or UniProtKB
c1; C1-I; MYB1; Myb37; C1-B73; c1-I-2K1; GRMZM2G005066; Z438D03.27		AF320613 (https://www.ncbi.nlm.nih.gov/nucore/AF320613)
String		
-		
Sequence Similarities		
-		
GO - Molecular Function		
GO:0043565 : sequence-specific DNA binding (https://www.ebi.ac.uk/QuickGO/term/GO:0043565)		
GO:0044212 : transcription regulatory region DNA binding (https://www.ebi.ac.uk/QuickGO/term/GO:0044212)		
GO - Biological Process		
GO:0030154 : cell differentiation (https://www.ebi.ac.uk/QuickGO/term/GO:0030154)		
GO - Cellular Component		

GO:0005634 : nucleus (https://www.ebi.ac.uk/QuickGO/term/GO:0005634)	Presumptive Null
No (https://www.gephebase.org/search-criteria?/and+Presumptive Null=^No^#gephebase-summary-title)	Molecular Type
Cis-regulatory (https://www.gephebase.org/search-criteria?/and+Molecular Type=^Cis-regulatory^#gephebase-summary-title)	Aberration Type
Insertion (https://www.gephebase.org/search-criteria?/and+Aberration Type=^Insertion^#gephebase-summary-title)	Insertion Size
1-9 bp	Molecular Details of the Mutation
5bp insertion in the proximal promoter that creates a new binding site for VP1; a transcription factor that regulates kernel maturation; so that the pigment pathway is turned on while the kernel matures; giving blue kernels	Experimental Evidence
Linkage Mapping (https://www.gephebase.org/search-criteria?/and+Experimental Evidence=^Linkage Mapping^#gephebase-summary-title)	Main Reference
The Viviparous-1 gene and abscisic acid activate the C1 regulatory gene for anthocyanin biosynthesis during seed maturation in maize. (1992) (https://pubmed.ncbi.nlm.nih.gov/1532784)	Authors
Hattori T; Vasil V; Rosenkrans L; Hannah LC; McCarty DR; Vasil IK	Abstract
The Viviparous-1 (Vp1) gene is required for expression of the C1 regulatory gene of the anthocyanin pathway in the developing maize seed. We show that VP1 overexpression and the hormone, abscisic acid (ABA), activate a reporter gene driven by the C1 promoter in maize protoplasts. Cis-acting sequences essential for these responses were localized. Mutation of a conserved sequence in the C1 promoter abolishes both ABA regulation and VP1 trans-activation. An adjacent 5-bp deletion blocks ABA regulation but not VP1 trans-activation. The latter mutant reconstructs the promoter of c1-p, an allele that is expressed during seed germination but not during seed maturation. We suggest that VP1 activates C1 specifically during maturation by interacting with one or more ABA-regulated transcription factors.	Additional References
Evolution of anthocyanin biosynthesis in maize kernels: the role of regulatory and enzymatic loci. (1996) (https://pubmed.ncbi.nlm.nih.gov/8807310)	

RELATED GEPHE

3 (colored plant 1, 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