

GEPHE SUMMARY

Gephebase Gene		GepheID
pericarp color1 (P1) (https://www.gephebase.org/search-criteria?/and+Gene+Gephebase=~pericarp+color1+(P1)~#gephebase-summary-title)	GP00000859	Main curator
Published	Entry Status: Martin	

PHENOTYPIC CHANGE

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

GENOTYPIC CHANGE

P1	Generic Gene Name	O24579 (http://www.uniprot.org/uniprot/O24579)	UniProtKB Zea mays
P; GRMZM2G084799	Synonyms	EF165349 (https://www.ncbi.nlm.nih.gov/nucore/EF165349)	GenebankID or UniProtKB
-	String		
-	Sequence Similarities		
-	GO - Molecular Function		
GO:0003677 : DNA binding (https://www.ebi.ac.uk/QuickGO/term/GO:0003677)	GO - Biological Process		
-	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
Cis-regulatory (https://www.gephebase.org/search-criteria?/and+Molecular Type=^Cis-regulatory^#gephebase-summary-title)			Molecular Type

Aberration Type	Insertion (https://www.gephebase.org/search-criteria?/and+Aberration Type=~Insertion~#gephebase-summary-title)
Insertion Size	1-10 kb
Molecular Details of the Mutation	insertion of transposable element Ac within a large intron; affecting transcripts. The five transcripts found in P-RR plants are absent in P-VV. A chimeric transcript containing part of Ac sequence is found.
Experimental Evidence	Linkage Mapping (https://www.gephebase.org/search-criteria?/and+Experimental Evidence=~Linkage Mapping~#gephebase-summary-title)
Main Reference	Isolation and molecular analysis of the maize P locus. (1989) (https://pubmed.ncbi.nlm.nih.gov/2559311)
Authors	Lechelt C; Peterson T; Laird A; Chen J; Dellaporta SL; Dennis E; Peacock WJ; Starlinger P
Abstract	The maize P locus is involved in the synthesis of a red flavonoid pigment in the pericarp, cob and other floral tissues. The tissue-specific pattern of expression of certain P alleles suggests that P may be a complex locus, with more than one functional unit. The P-VV allele, which specifies variegated pericarp and variegated cob, however, shows that insertion and excision of the transposable element Ac affects both pericarp and cob expression as though cob and pericarp pigmentation are controlled by a single gene. Using Ac as a transposon tag, we have isolated 34 kb of genomic DNA from the P-VV and P-RR allele. The cloned DNA contains two 5.8 kb cross-hybridizing regions, in direct orientation relative to each other, separated by 6.6 kb of intervening DNA. A sequence motif of 250 bp is repeated at three locations within the cloned region: once within each of the 5.8 kb repeats, and once outside the 5.8 kb repeats. DNA fragments flanking the Ac element detect five transcripts in RNA from wild type (P-RR) that are absent from mutant (P-VV) tissues. To localize the transcribed sequences, DNA probes spanning the 34 kb of cloned DNA were used in Northern analysis of RNA from mutant and wild-type kernels. The results suggest the presence of a single transcriptional unit located primarily within the DNA between the 5.8 kb repeats. The five RNAs transcribed from this region may be formed by alternative splicing. The size of the P gene derived from the length of the transcribed region seems much smaller than the gene size estimated from Ac-induced P-VV mutations.
Additional References	

RELATED GEPHE

Related Genes	3 (c1, colored plant 1, r1 colored1) (https://www.gephebase.org/search-criteria?/or+Taxon ID=~4577~/and+Trait=Coloration/and+groupHaplotypes=true#gephebase-summary-title)
Related Haplotypes	No matches found.

EXTERNAL LINKS

COMMENTS

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