

GEPHE SUMMARY

MYB1 (https://www.gephebase.org/search-criteria?/and+GeneGephebase=~MYB1~#gephebase-summary-title)	Gephebase Gene	GP00001458	GepheID
	Entry Status	Prigent	Main curator
	Published		

PHENOTYPIC CHANGE

Morphology (https://www.gephebase.org/search-criteria?/and+TraitCategory=~Morphology~#gephebase-summary-title)		Trait Category	
Coloration (flower) (https://www.gephebase.org/search-criteria?/and+Trait=~Coloration(flower)~#gephebase-summary-title)		Trait	
Common morning glory with purple flower		Trait State in Taxon A	
Common morning glory with white flower		Trait State in Taxon B	
Taxon A		Ancestral State	
Intraspecific (https://www.gephebase.org/search-criteria?/and+TaxonomicStatus=~Intraspecific~#gephebase-summary-title)		Taxonomic Status	
Taxon A		Taxon B	
Ipomoea purpurea (https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=~Ipomoea+purpurea~#gephebase-summary-title)		Ipomoea purpurea (https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=~Ipomoea+purpurea~#gephebase-summary-title)	
common morning-glory		common morning-glory	
Convolvulus purpureus; Pharbitis purpurea; common morning-glory; Convolvulus purpureus L., 1762; Ipomoea purpurea (L.) Roth, 1787; Pharbitis purpurea (L.) Voigt, 1845; Pharbits purpurea		Convolvulus purpureus; Pharbitis purpurea; common morning-glory; Convolvulus purpureus L., 1762; Ipomoea purpurea (L.) Roth, 1787; Pharbitis purpurea (L.) Voigt, 1845; Pharbits purpurea	
species		species	
cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; eudicotyledons; Gunneridae; Pentapetales; asterids; lamiids; Solanales; Convolvulaceae; Ipomoeae; Ipomoea		cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; eudicotyledons; Gunneridae; Pentapetales; asterids; lamiids; Solanales; Convolvulaceae; Ipomoeae; Ipomoea	
Ipomoea () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=4119)		Ipomoea () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=4119)	
4121 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=4121)		4121 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=4121)	
Yes		Yes	
Common morning glory with purple flower		Common morning glory with white flower	

GENOTYPIC CHANGE

myb1	Generic Gene Name	UniProtKB Ipomoea purpurea
	Synonyms	Q4QS21 (http://www.uniprot.org/uniprot/Q4QS21)
	String	AY986898 (https://www.ncbi.nlm.nih.gov/nuccore/AY986898)
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)		

Yes (https://www.gephebase.org/search-criteria?/and+Presumptive Null=~Yes~#gephebase-summary-title)	Presumptive Null
Coding (https://www.gephebase.org/search-criteria?/and+Molecular Type=~Coding~#gephebase-summary-title)	Molecular Type
Deletion (https://www.gephebase.org/search-criteria?/and+Aberration Type=~Deletion~#gephebase-summary-title)	Aberration Type
10-99 bp	Deletion Size
2 deletions; 6-bp and 19-bp long; the larger produces a frameshift and a premature stop	Molecular Details of the Mutation
Candidate Gene (https://www.gephebase.org/search-criteria?/and+Experimental Evidence=~Candidate Gene~#gephebase-summary-title)	Experimental Evidence
Neutral evolution of the nonbinding region of the anthocyanin regulatory gene <i>lpm1b1</i> in <i>Ipomoea</i> . (2005) (https://pubmed.ncbi.nlm.nih.gov/15944366)	Main Reference
Chang SM; Lu Y; Rausher MD	Authors
Plant transcription factors often contain domains that evolve very rapidly. Although it has been suggested that this rapid evolution may contribute substantially to phenotypic differentiation among species, this suggestion has seldom been tested explicitly. We tested the validity of this hypothesis by examining the rapidly evolving non-DNA-binding region of an R2R3-myb transcription factor that regulates anthocyanin expression in flowers of the genus <i>Ipomoea</i> . We first provide evidence that the W locus in <i>Ipomoea</i> <i>purpurea</i> , which determines whether flowers will be pigmented or white, corresponds to a myb gene segregating in southeastern U.S. populations for one functional allele and one nonfunctional allele. While the binding domain exhibits substantial selective constraint, the nonbinding region evolves at an average K(a)/K(s) ratio of 0.74. This elevated rate of evolution is due to relaxed constraint rather than to increased levels of positive selection. Despite this relaxed constraint, however, approximately 20-25% of the codons, randomly distributed throughout the nonbinding region, are highly constrained, with the remainder evolving neutrally, indicating that the entire region performs important function(s). Our results provide little indication that rapid evolution in this regulatory gene is driven by natural selection or that it is responsible for floral-color differences among <i>Ipomoea</i> species.	Abstract
	Additional References

RELATED GEPHE

3 (bHLH2, Chalcone synthase D (CHS-D), flavonoid 3'-hydroxylase (F3'H)) (https://www.gephebase.org/search-criteria?/or+Taxon ID=~4121~/and+Trait=Coloration/and+groupHaplotypes=true#gephebase-summary-title)	Related Genes
No matches found.	Related Haplotypes

EXTERNAL LINKS

COMMENTS