

GEPHE SUMMARY

	Gephebase Gene		GepheID
MaMyb2 (https://www.gephebase.org/search-criteria?/and+GeneGephebase=~MaMyb2~#gephebase-summary-title)		GP00000563	
	Entry Status	Martin	Main curator
Published			

PHENOTYPIC CHANGE

	Trait Category		
Morphology (https://www.gephebase.org/search-criteria?/and+TraitCategory=~Morphology~#gephebase-summary-title)		Trait	
Coloration (flowers) (https://www.gephebase.org/search-criteria?/and+Trait=~Coloration(flowers)~#gephebase-summary-title)			
	Trait State in Taxon A		
Mimulus aurantiacus - red; hummingbird pollinated		Trait State in Taxon B	
Mimulus aurantiacus - yellow; hawkmoth pollinated			
	Ancestral State		
Data not curated		Taxonomic Status	
Intraspecific (https://www.gephebase.org/search-criteria?/and+TaxonomicStatus=~Intraspecific~#gephebase-summary-title)			
	Taxon A		Taxon B
	Latin Name		Latin Name
Diplacus aurantiacus (https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=~Diplacusaurantiacus~#gephebase-summary-title)		Diplacus aurantiacus (https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=~Diplacusaurantiacus~#gephebase-summary-title)	
-	Common Name	-	Common Name
	Synonyms		Synonyms
Diplacus aurantiacus subsp. aurantiacus; Mimulus aurantiacus; Mimulus aurantiacus subsp. aurantiacus; Diplacus aurantiacus (Curtis) Jeps.; Mimulus aurantiacus Curtis		Diplacus aurantiacus subsp. aurantiacus; Mimulus aurantiacus; Mimulus aurantiacus subsp. aurantiacus; Diplacus aurantiacus (Curtis) Jeps.; Mimulus aurantiacus Curtis	
	Rank		Rank
species		species	
	Lineage		Lineage
cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; eudicotyledons; Gunneridae; Pentapetalae; asterids; lamiids; Lamiales; Phrymaceae; Diplacus		cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; eudicotyledons; Gunneridae; Pentapetalae; asterids; lamiids; Lamiales; Phrymaceae; Diplacus	
	Parent		Parent
Diplacus () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=318117)		Diplacus () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=318117)	
	NCBI Taxonomy ID		NCBI Taxonomy ID
68869 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=68869)		68869 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=68869)	
	is Taxon A an Intraspecies?		is Taxon B an Intraspecies?
No		No	

GENOTYPIC CHANGE

	Generic Gene Name		UniProtKB Diplacus aurantiacus
Myb2		M9QXG2 (http://www.uniprot.org/uniprot/M9QXG2)	
	Synonyms		GenebankID or UniProtKB
-		JX661265 (https://www.ncbi.nlm.nih.gov/nuccore/JX661265)	
	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)			
			Presumptive Null
Unknown (https://www.gephebase.org/search-criteria?/and+Presumptive+Null=~Unknown~#gephebase-summary-title)			
			Molecular Type
Cis-regulatory (https://www.gephebase.org/search-criteria?/and+Molecular+Type=~Cis-regulatory~#gephebase-summary-title)			

Unknown (https://www.gephebase.org/search-criteria?/and+Aberration+Type=~Unknown~#gephebase-summary-title)	Aberration Type
unknown expression-phenotype co-vary	Molecular Details of the Mutation
Linkage Mapping (https://www.gephebase.org/search-criteria?/and+Experimental+Evidence=~Linkage+Mapping~#gephebase-summary-title)	Experimental Evidence
Divergent selection drives genetic differentiation in an R2R3-MYB transcription factor that contributes to incipient speciation in <i>Mimulus aurantiacus</i> . (2013) (https://pubmed.ncbi.nlm.nih.gov/23555295)	Main Reference
Streisfeld MA; Young WN; Sobel JM	Authors
Identifying the molecular genetic basis of traits contributing to speciation is of crucial importance for understanding the ecological and evolutionary mechanisms that generate biodiversity. Despite several examples describing putative "speciation genes," it is often uncertain to what extent these genetic changes have contributed to gene flow reductions in nature. Therefore, considerable interest lies in characterizing the molecular basis of traits that actively confer reproductive isolation during the early stages of speciation, as these loci can be attributed directly to the process of divergence. In Southern California, two ecotypes of <i>Mimulus aurantiacus</i> are parapatric and differ primarily in flower color, with an anthocyanic, red-flowered morph in the west and an anthocyanin-lacking, yellow-flowered morph in the east. Evidence suggests that the genetic changes responsible for this shift in flower color have been essential for divergence and have become fixed in natural populations of each ecotype due to almost complete differences in pollinator preference. In this study, we demonstrate that a cis-regulatory mutation in an R2R3-MYB transcription factor results in differential regulation of enzymes in the anthocyanin biosynthetic pathway and is the major contributor to differences in floral pigmentation. In addition, molecular population genetic data show that, despite gene flow at neutral loci, divergent selection has driven the fixation of alternate alleles at this gene between ecotypes. Therefore, by identifying the genetic basis underlying ecologically based divergent selection in flower color between these ecotypes, we have revealed the ecological and functional mechanisms involved in the evolution of pre-mating isolation at the early stages of incipient speciation.	Abstract
	Additional References

RELATED GEPHE

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

EXTERNAL LINKS

COMMENTS