

## GEPHE SUMMARY

MaMyb2 ( <a +mamyb2+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Gene+Gephebase=">https://www.gephebase.org/search-criteria?/and+Gene+Gephebase="+MaMyb2+"#gephebase-summary-title</a> )	Gephebase Gene	GP00000563	GepheID
Published	Entry Status	Martin	Main curator

## PHENOTYPIC CHANGE

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

## GENOTYPIC CHANGE

Myb2	Generic Gene Name	M9QXG2 ( <a href="http://www.uniprot.org/uniprot/M9QXG2">http://www.uniprot.org/uniprot/M9QXG2</a> )	UniProtKB Diplacus aurantiacus
-	Synonyms	JX661265 ( <a href="https://www.ncbi.nlm.nih.gov/nucleotide/JX661265">https://www.ncbi.nlm.nih.gov/nucleotide/JX661265</a> )	GenebankID or UniProtKB
-	String		
-	Sequence Similarities		
GO:0003677 : DNA binding ( <a href="https://www.ebi.ac.uk/QuickGO/term/GO:0003677">https://www.ebi.ac.uk/QuickGO/term/GO:0003677</a> )	GO - Molecular Function		
-	GO - Biological Process		
GO:0005634 : nucleus ( <a href="https://www.ebi.ac.uk/QuickGO/term/GO:0005634">https://www.ebi.ac.uk/QuickGO/term/GO:0005634</a> )	GO - Cellular Component		
Unknown ( <a +unknown+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Presumptive+Null=">https://www.gephebase.org/search-criteria?/and+Presumptive+Null="+Unknown+"#gephebase-summary-title</a> )			Presumptive Null
Cis-regulatory ( <a +cis-regulatory+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Molecular+Type=">https://www.gephebase.org/search-criteria?/and+Molecular+Type="+Cis-regulatory+"#gephebase-summary-title</a> )			Molecular Type

Unknown ([https://www.gephebase.org/search-criteria?/and+Aberration Type=~Unknown~#gephebase-summary-title](https://www.gephebase.org/search-criteria?/and+Aberration+Type=~Unknown~#gephebase-summary-title))

Molecular Details of the Mutation

unknown expression-phenotype co-vary

Experimental Evidence

Linkage Mapping ([https://www.gephebase.org/search-criteria?/and+Experimental Evidence=~Linkage Mapping~#gephebase-summary-title](https://www.gephebase.org/search-criteria?/and+Experimental+Evidence=~Linkage+Mapping~#gephebase-summary-title))

Main Reference

Divergent selection drives genetic differentiation in an R2R3-MYB transcription factor that contributes to incipient speciation in *Mimulus aurantiacus*. (2013)  
(<https://pubmed.ncbi.nlm.nih.gov/23555295>)

Authors

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Abstract

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 *Mimulus aurantiacus* 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.

Additional References

## RELATED GEPHE

Related Genes

No matches found.

Related Haplotypes

No matches found.

## EXTERNAL LINKS

## COMMENTS