

## GEPHE SUMMARY

	Gephebase Gene	GephelD
MYB-FL ( <a href="https://www.gephebase.org/search-criteria/?and+Gene Gephebase=^MYB-FL^#gephebase-summary-title">https://www.gephebase.org/search-criteria/?and+Gene Gephebase=^MYB-FL^#gephebase-summary-title</a> )	GP00001589	Main curator
	Entry Status	Prigent
Published		

## PHENOTYPIC CHANGE

	Trait Category
Morphology ( <a href="https://www.gephebase.org/search-criteria/?and+Trait Category=^Morphology^#gephebase-summary-title">https://www.gephebase.org/search-criteria/?and+Trait Category=^Morphology^#gephebase-summary-title</a> )	
Coloration (flower ; UV absorbance) ( <a href="https://www.gephebase.org/search-criteria/?and+Trait=^Coloration (flower ; UV absorbance)^#gephebase-summary-title">https://www.gephebase.org/search-criteria/?and+Trait=^Coloration (flower ; UV absorbance)^#gephebase-summary-title</a> )	Trait
Petunia inflata bee pollinated (purple) flower without UV absorbance but UV reflective	Trait State in Taxon A
Petunia axillaris hawkmoth pollinated (white with abundant volatiles at dusk) flower with UV absorbance	Trait State in Taxon B
	Ancestral State
Taxon A	Taxonomic Status
Interspecific ( <a href="https://www.gephebase.org/search-criteria/?and+Taxonomic Status=^Interspecific^#gephebase-summary-title">https://www.gephebase.org/search-criteria/?and+Taxonomic Status=^Interspecific^#gephebase-summary-title</a> )	

Taxon A		Taxon B	
	Latin Name		Latin Name
Petunia integrifolia ( <a href="https://www.gephebase.org/search-criteria/?and+Taxon and Synonyms=^Petunia integrifolia^#gephebase-summary-title">https://www.gephebase.org/search-criteria/?and+Taxon and Synonyms=^Petunia integrifolia^#gephebase-summary-title</a> )	Petunia axillaris ( <a href="https://www.gephebase.org/search-criteria/?and+Taxon and Synonyms=^Petunia axillaris^#gephebase-summary-title">https://www.gephebase.org/search-criteria/?and+Taxon and Synonyms=^Petunia axillaris^#gephebase-summary-title</a> )		
-		-	
	Synonyms		Synonyms
violet-flowered petunia; Petunia integrifolia (Hook.) Schinz & Thell., 1915	large white petunia; white moon petunia; Petunia axillaris (Lam.) Britton, Stern & Pogggenb.; Petunia axillaris		
species	Rank		Rank
	Lineage	species	Lineage
cellular organisms; Eukaryota; Viriplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphylophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; eudicotyledons; Gunneridae; Pentapetalae; asterids; lamiids; Solanales; Solanaceae; Petunioideae; Petunia	Petunioideae; Petunia	cellular organisms; Eukaryota; Viriplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphylophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; eudicotyledons; Gunneridae; Pentapetalae; asterids; lamiids; Solanales; Solanaceae; Petunioideae; Petunia	Petunioideae; Petunia
Petunia () - (Rank: genus) ( <a href="https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 4101">https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 4101</a> )	Parent	Petunia () - (Rank: genus) ( <a href="https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 4101">https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 4101</a> )	Parent
4103 ( <a href="https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 4103">https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 4103</a> )	NCBI Taxonomy ID	33119 ( <a href="https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 33119">https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 33119</a> )	NCBI Taxonomy ID
	is Taxon A an Infraspecies?		is Taxon B an Infraspecies?
No		No	

## GENOTYPIC CHANGE

MYB-FL	Generic Gene Name	UniProtKB Petunia axillaris subsp. axillaris A0A0S3CVD3 ( <a href="http://www.uniprot.org/uniprot/A0A0S3CVD3">http://www.uniprot.org/uniprot/A0A0S3CVD3</a> )
-	Synonyms	GenebankID or UniProtKB
-	String	0
-	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 - Cellular Component	
GO:0005634 : nucleus ( <a href="https://www.ebi.ac.uk/QuickGO/term/GO:0005634">https://www.ebi.ac.uk/QuickGO/term/GO:0005634</a> )		Presumptive Null
No ( <a href="https://www.gephebase.org/search-criteria/?and+Presumptive Null=^No^#gephebase-summary-title">https://www.gephebase.org/search-criteria/?and+Presumptive Null=^No^#gephebase-summary-title</a> )		

Molecular Type

Cis-regulatory ([https://www.gephebase.org/search-criteria?/and+Molecular Type=%22Cis-regulatory%22#gephebase-summary-title](https://www.gephebase.org/search-criteria?/and+Molecular%20Type=%22Cis-regulatory%22#gephebase-summary-title))

Aberration Type

Insertion ([https://www.gephebase.org/search-criteria?/and+Aberration Type=%22Insertion%22#gephebase-summary-title](https://www.gephebase.org/search-criteria?/and+Aberration%20Type=%22Insertion%22#gephebase-summary-title))

Insertion Size

100-1000 kb

Molecular Details of the Mutation

A 977-kb insertion 12 bp upstream of the predicted TATA-binding box is causing upregulation of the promoter

Experimental Evidence

Linkage Mapping ([https://www.gephebase.org/search-criteria?/and+Experimental Evidence=%22Linkage Mapping%22#gephebase-summary-title](https://www.gephebase.org/search-criteria?/and+Experimental%20Evidence=%22Linkage%20Mapping%22#gephebase-summary-title))

Main Reference

MYB-FL controls gain and loss of floral UV absorbance, a key trait affecting pollinator preference and reproductive isolation. (2016) (<https://pubmed.ncbi.nlm.nih.gov/26656847/>)

Authors

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Abstract

Adaptations to new pollinators involve multiple floral traits, each requiring coordinated changes in multiple genes. Despite this genetic complexity, shifts in pollination syndromes have happened frequently during angiosperm evolution. Here we study the genetic basis of floral UV absorbance, a key trait for attracting nocturnal pollinators. In Petunia, mutations in a single gene, MYB-FL, explain two transitions in UV absorbance. A gain of UV absorbance in the transition from bee to moth pollination was determined by a cis-regulatory mutation, whereas a frameshift mutation caused subsequent loss of UV absorbance during the transition from moth to hummingbird pollination. The functional differences in MYB-FL provide insight into the process of speciation and clarify phylogenetic relationships between nascent species.

Additional References

## RELATED GEPHE

Related Genes

1 (anthocyanin2 (an2)) ([https://www.gephebase.org/search-criteria?/or+Taxon ID=%224103%22/and+Trait=Coloration/or+Taxon ID=%2233119%22/and+Trait=Coloration/and+groupHaplotypes=true#gephebase-summary-title](https://www.gephebase.org/search-criteria?/or+Taxon%20ID=%224103%22/and+Trait=Coloration/or+TaxonID=%2233119%22/and+Trait=Coloration/and+groupHaplotypes=true#gephebase-summary-title))

Related Haplotypes

No matches found.

## EXTERNAL LINKS

## COMMENTS

Non-null mutation