

GEPHE SUMMARY

	Gephebase Gene	GephelD
R2R3-Myb (https://www.gephebase.org/search-criteria?/and+Gene Gephebase=%R2R3-Myb%#gephebase-summary-title)	GP00000948	Main curator
Published	Entry Status	Martin

PHENOTYPIC CHANGE

	Trait Category	
Morphology (https://www.gephebase.org/search-criteria?/and+Trait Category=%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	
Phlox drummondi - Blue-colored flowers	Trait State in Taxon B	
Phlox drummondi - Red-colored flowers	Ancestral State	
Data not curated	Taxonomic Status	
Intraspecific (https://www.gephebase.org/search-criteria?/and+Taxonomic Status=%Intraspecific%#gephebase-summary-title)		
Taxon A		Taxon B
Phlox drummondii (https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms=%Phlox drummondii%#gephebase-summary-title)	Latin Name	Latin Name
-	Common Name	Common Name
Phlox drummondii Hook.; Phlox drummondi species	Synonyms	Synonyms
cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; eudicotyledons; Gunneridae; Pentapetalae; asterids; Ericales; Polemoniaceae; Phlox	Rank	Rank
Phlox (phloxes) - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 40749)	Lineage	Lineage
103529 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 103529)	Parent	Parent
No	is Taxon A an Infraspecies?	is Taxon B an Infraspecies?
	No	

GENOTYPIC CHANGE

	Generic Gene Name	UniProtKB Phlox drummondii
-	H8ZS70 (http://www.uniprot.org/uniprot/H8ZS70)	GenebankID or UniProtKB
-	JN572510 (https://www.ncbi.nlm.nih.gov/nucore/JN572510)	
-	String	
-	Sequence Similarities	
-	GO - Molecular Function	
-	GO - Biological Process	
-	GO - Cellular Component	
-		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)		Aberration Type

unknown

Experimental Evidence

Linkage Mapping (<https://www.gephebase.org/search-criteria?/and+Experimental+Evidence=%5ELinkage+Mapping%5E#gephebase-summary-title>)

Main Reference

Identification of two genes causing reinforcement in the Texas wildflower *Phlox drummondii*. (2011) (<https://pubmed.ncbi.nlm.nih.gov/21217687/>)

Authors

Hopkins R; Rausher MD

Abstract

Species formation generates biological diversity and occurs when traits evolve that prevent gene flow between populations. Discerning the number and distribution of genes underlying these traits and, in a few cases, identifying the genes involved, has greatly enhanced our understanding over the past 15 years of species formation (reviewed by Noor and Feder and Wolf et al.). However, this work has almost exclusively focused on traits that restrict gene flow between populations that have evolved as a by-product of genetic divergence between geographically isolated populations. By contrast, little is known about the characteristics of genes associated with reinforcement, the process by which natural selection directly favours restricted gene flow during the formation of species. Here we identify changes in two genes that appear to cause a flower colour change in *Phlox drummondii*, which previous work has shown contributes to reinforcement. Both changes involve cis-regulatory mutations to genes in the anthocyanin biosynthetic pathway (ABP). Because one change is recessive whereas the other is dominant, hybrid offspring produce an intermediate flower colour that is visited less by pollinators, and is presumably maladaptive. Thus genetic change selected to increase prezygotic isolation also appears to result in increased postzygotic isolation.

Additional References

RELATED GEPHE

Related Genes

1 (flavonoid 3':5'-hydroxylase (F3'5'H)) (<https://www.gephebase.org/search-criteria?/or+Taxon+ID=%5E103529%5E/and+Trait=Coloration/and+groupHaplotypes=true#gephebase-summary-title>)

Related Haplotypes

No matches found.

EXTERNAL LINKS

COMMENTS