

GEPHE SUMMARY

	Gephebase Gene		GepheID
CYC-like RAY1/RAY2 (#https://www.gephebase.org/search-criteria?/and+Gene+Gephebase+CYC-like+RAY1/RAY2)		GP00000194	
	Entry Status	Martin	Main curator
Published			

PHENOTYPIC CHANGE

	Trait Category		
Morphology (#https://www.gephebase.org/search-criteria?/and+Trait+Category+Morphology)			
	Trait		
Flower morphology (#https://www.gephebase.org/search-criteria?/and+Trait+Flower+morphology)			
	Trait State in Taxon A		
Senecio vulgaris - non-radiate			
	Trait State in Taxon B		
Senecio vulgaris - radiate			
	Ancestral State		
Data not curated			
	Taxonomic Status		
Intraspecific (#https://www.gephebase.org/search-criteria?/and+Taxonomic+Status+Intraspecific)			
Taxon A		Taxon B	
	Latin Name		Latin Name
Senecio vulgaris (#https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms+Senecio+vulgaris)		Senecio vulgaris (#https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms+Senecio+vulgaris)	
	Common Name		Common Name
-		-	
	Synonyms		Synonyms
old-man-in-the-Spring; Senecio vulgaris L.		old-man-in-the-Spring; Senecio vulgaris L.	
	Rank		Rank
species		species	
	Lineage		Lineage
cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; eudicotyledons; Gunneridae; Pentapetalae; asterids; campanulids; Asterales; Asteraceae; Asteroideae; Senecioneae; Senecioninae; Senecio		cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; eudicotyledons; Gunneridae; Pentapetalae; asterids; campanulids; Asterales; Asteraceae; Asteroideae; Senecioneae; Senecioninae; Senecio	
	Parent		Parent
Senecio () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=18794)		Senecio () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=18794)	
	NCBI Taxonomy ID		NCBI Taxonomy ID
76276 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=76276)		76276 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=76276)	
	is Taxon A an Intraspecies?		is Taxon B an Intraspecies?
No		No	

GENOTYPIC CHANGE

	Generic Gene Name		UniProtKB Antirrhinum majus
CYC		O49250 (http://www.uniprot.org/uniprot/O49250)	
	Synonyms		GenebankID or UniProtKB
-		ACJ71723 (https://www.ncbi.nlm.nih.gov/nucleotide/ACJ71723)	
	String		
-			
	Sequence Similarities		
-			
	GO - Molecular Function		
GO:0003700 : DNA-binding transcription factor activity (https://www.ebi.ac.uk/QuickGO/term/GO:0003700)			
GO:0003677 : DNA binding (https://www.ebi.ac.uk/QuickGO/term/GO:0003677)			
	GO - Biological Process		
GO:0009908 : flower development (https://www.ebi.ac.uk/QuickGO/term/GO:0009908)			
GO:0048262 : determination of dorsal/ventral asymmetry (https://www.ebi.ac.uk/QuickGO/term/GO:0048262)			
GO:0009799 : specification of symmetry (https://www.ebi.ac.uk/QuickGO/term/GO:0009799)			

GO:0005634 : nucleus (<https://www.ebi.ac.uk/QuickGO/term/GO:0005634>)

Presumptive Null

No ([https://www.gephebase.org/search-criteria?/and+Presumptive Null="+No^#gephebase-summary-title](https://www.gephebase.org/search-criteria?/and+Presumptive+Null=))

Molecular Type

Gene Amplification ([https://www.gephebase.org/search-criteria?/and+Molecular Type="+Gene Amplification^#gephebase-summary-title](https://www.gephebase.org/search-criteria?/and+Molecular+Type=))

Aberration Type

Complex Change ([https://www.gephebase.org/search-criteria?/and+Aberration Type="+Complex Change^#gephebase-summary-title](https://www.gephebase.org/search-criteria?/and+Aberration+Type=))

Molecular Details of the Mutation

Gene gain by hybridization

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=))

Main Reference

Regulatory genes control a key morphological and ecological trait transferred between species. (2008) (<https://pubmed.ncbi.nlm.nih.gov/19008450>)

Authors

Kim M; Cui ML; Cubas P; Gillies A; Lee K; Chapman MA; Abbott RJ; Coen E

Abstract

Hybridization between species can lead to introgression of genes from one species to another, providing a potential mechanism for preserving and recombining key traits during evolution. To determine the molecular basis of such transfers, we analyzed a natural polymorphism for flower-head development in *Senecio*. We show that the polymorphism arose by introgression of a cluster of regulatory genes, the RAY locus, from the diploid species *S. squalidus* into the tetraploid *S. vulgaris*. The RAY genes are expressed in the peripheral regions of the inflorescence meristem, where they promote flower asymmetry and lead to an increase in the rate of outcrossing. Our results highlight how key morphological and ecological traits controlled by regulatory genes may be gained, lost, and regained during evolution.

Additional References

RELATED GEPHE

No matches found.

Related Genes

No matches found.

Related Haplotypes

EXTERNAL LINKS

COMMENTS

@Introgression