

	Gephebase Gene	GepheID
Cycloidea (Lcyc) (<a +cycloidea+(lcyc)+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+GeneGephebase=">https://www.gephebase.org/search-criteria?/and+GeneGephebase="+Cycloidea+(Lcyc)+"#gephebase-summary-title)	GP00000197	Main curator
Published	Entry Status	Martin

Morphology (https://www.gephebase.org/search-criteria?/and+Trait+Category=~Morphology^#gephebase-summary-title)		Trait Category	
Flower morphology (https://www.gephebase.org/search-criteria?/and+Trait=~Flower+morphology^#gephebase-summary-title)		Trait	
Linaria vulgaris - bilateral		Trait State in Taxon A	
Linaria vulgaris - radial		Trait State in Taxon B	
Taxon A		Ancestral State	
Intraspecific (https://www.gephebase.org/search-criteria?/and+Taxonomic+Status=~Intraspecific^#gephebase-summary-title)		Taxonomic Status	
Taxon A		Taxon B	
Linaria vulgaris (https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=~Linaria+vulgaris^#gephebase-summary-title)	Latin Name	Linaria vulgaris (https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=~Linaria+vulgaris^#gephebase-summary-title)	Latin Name
common toadflax	Common Name	common toadflax	Common Name
common toadflax; Linaria vulgaris Mill.	Synonyms	common toadflax; Linaria vulgaris Mill.	Synonyms
species	Rank	species	Rank
cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; eudicotyledons; Gunneridae; Pentapetalae; asterids; lamiids; Lamiales; Plantaginaceae; Antirrhineae; Linaria	Lineage	cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; eudicotyledons; Gunneridae; Pentapetalae; asterids; lamiids; Lamiales; Plantaginaceae; Antirrhineae; Linaria	Lineage
Linaria (toadflaxes) - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=43170)	Parent	Linaria (toadflaxes) - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=43170)	Parent
43171 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=43171)	NCBI Taxonomy ID	43171 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=43171)	NCBI Taxonomy ID
No	is Taxon A an Intraspecies?	No	is Taxon B an Intraspecies?

	Generic Gene Name	UniProtKB Antirrhinum majus
CYC		O49250 (http://www.uniprot.org/uniprot/O49250)
-	Synonyms	GenebankID or UniProtKB
-	String	AAP84101 (https://www.ncbi.nlm.nih.gov/nuccore/AAP84101)
-	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 - Cellular Component	
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)	Molecular Type
Cis-regulatory (https://www.gephebase.org/search-criteria?/and+Molecular Type=~Cis-regulatory^#gephebase-summary-title)	Aberration Type
Epigenetic Change (https://www.gephebase.org/search-criteria?/and+Aberration Type=~Epigenetic Change^#gephebase-summary-title)	Molecular Details of the Mutation
Stable methylation	Experimental Evidence
Linkage Mapping (https://www.gephebase.org/search-criteria?/and+Experimental Evidence=~Linkage Mapping^#gephebase-summary-title)	Main Reference
An epigenetic mutation responsible for natural variation in floral symmetry. (1999) (https://pubmed.ncbi.nlm.nih.gov/10490023)	Authors
Cubas P; Vincent C; Coen E	Abstract
Although there have been many molecular studies of morphological mutants generated in the laboratory, it is unclear how these are related to mutants in natural populations, where the constraints of natural selection and breeding structure are quite different. Here we characterize a naturally occurring mutant of <i>Linaria vulgaris</i>, originally described more than 250 years ago by Linnaeus, in which the fundamental symmetry of the flower is changed from bilateral to radial. We show that the mutant carries a defect in <i>Lcyc</i>, a homologue of the <i>cycloidea</i> gene which controls dorsoventral asymmetry in <i>Antirrhinum</i>. The <i>Lcyc</i> gene is extensively methylated and transcriptionally silent in the mutant. This modification is heritable and co-segregates with the mutant phenotype. Occasionally the mutant reverts phenotypically during somatic development, correlating with demethylation of <i>Lcyc</i> and restoration of gene expression. It is surprising that the first natural morphological mutant to be characterized should trace to methylation, given the rarity of this mutational mechanism in the laboratory. This indicates that epigenetic mutations may play a more significant role in evolution than has hitherto been suspected.	
	Additional References

RELATED GEPHE

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

EXTERNAL LINKS

COMMENTS