

GEPHE SUMMARY

	Gephebase Gene	Gephebase Gene	GephelD
Frigida (FRI) (https://www.gephebase.org/search-criteria/?and+Gene+Gephebase=%Frigida(FRI)%#gephebase-summary-title)	GP00000365		Main curator
	Entry Status	Martin	
Published			

PHENOTYPIC CHANGE

	Trait Category		
Physiology (https://www.gephebase.org/search-criteria/?and+Trait+Category=%Physiology%#gephebase-summary-title)		Trait	
Flowering time (https://www.gephebase.org/search-criteria/?and+Trait=%Flowering+time%#gephebase-summary-title)	Trait State in Taxon A		
Arabidopsis thaliana	Trait State in Taxon B		
Arabidopsis thaliana Cvi accession	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
		Latin Name	Latin Name
Arabidopsis thaliana (https://www.gephebase.org/search-criteria/?and+Taxon+and+Synonyms=%Arabidopsis+thaliana%#gephebase-summary-title)	Common Name	Arabidopsis thaliana (https://www.gephebase.org/search-criteria/?and+Taxon+and+Synonyms=%Arabidopsis+thaliana%#gephebase-summary-title)	Common Name
thale cress	Synonyms	thale cress	Synonyms
thale cress; mouse-ear cress; thale-cress; Arabidopsis thaliana (L.) Heynh.; Arabidopsis thaliana (thale cress); Arabidopsis_thaliana; Arbisopsis thaliana; thale kress		thale cress; mouse-ear cress; thale-cress; Arabidopsis thaliana (L.) Heynh.; Arabidopsis thaliana (thale cress); Arabidopsis_thaliana; Arbisopsis thaliana; thale kress	
species	Rank	species	Rank
	Lineage		Lineage
cellular organisms; Eukaryota; Viriplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphylophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; eudicotyledons; Gunneridae; Pentapetalae; rosids; malvids; Brassicales; Brassicaceae; Camelinae; Arabidopsis		cellular organisms; Eukaryota; Viriplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphylophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; eudicotyledons; Gunneridae; Pentapetalae; rosids; malvids; Brassicales; Brassicaceae; Camelinae; Arabidopsis	
Arabidopsis () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=3701)	Parent	Arabidopsis () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=3701)	Parent
3702 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=3702)	NCBI Taxonomy ID	3702 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=3702)	NCBI Taxonomy ID
No	is Taxon A an Infraspecies?	Yes	is Taxon B an Infraspecies?
			Taxon B Description
			Arabidopsis thaliana Cvi accession

GENOTYPIC CHANGE

FRI	Generic Gene Name	UniProtKB Arabidopsis thaliana
-	Synonyms	GenebankID or UniProtKB
-	String	
	Sequence Similarities	
Belongs to the Frigida family.	GO - Molecular Function	
-	GO - Biological Process	
GO:0030154 : cell differentiation (https://www.ebi.ac.uk/QuickGO/term/GO:0030154)		
GO:0009908 : flower development (https://www.ebi.ac.uk/QuickGO/term/GO:0009908)		
GO:0016607 : nuclear speck (https://www.ebi.ac.uk/QuickGO/term/GO:0016607)	GO - Cellular Component	

Yes (#gephebase-summary-title)	Presumptive Null
Coding (#gephebase-summary-title)	Molecular Type
SNP (#gephebase-summary-title)	Aberration Type
Nonsense	SNP Coding Change
K232* in exon 1	Molecular Details of the Mutation
Candidate Gene (#gephebase-summary-title)	Experimental Evidence

	Taxon A	Taxon B	Position
Codon	-	-	-
Amino-acid	-	-	-

Analysis of the molecular basis of flowering time variation in <i>Arabidopsis</i> accessions. (2003) (https://pubmed.ncbi.nlm.nih.gov/12805638)	Main Reference
Gazzani S; Gendall AR; Lister C; Dean C	Authors
Allelic variation at the FRI (FRIGIDA) and FLC (FLOWERING LOCUS C) loci are major determinants of flowering time in <i>Arabidopsis</i> accessions. Dominant alleles of FRI confer a vernalization requirement causing plants to overwinter vegetatively. Many early flowering accessions carry loss-of-function fri alleles containing one of two deletions. However, some accessions categorized as early flowering types do not carry these deletion alleles. We have analyzed the molecular basis of earliness in five of these accessions: Cvi, Shakhdara, Wil-2, Kondara, and Kz-9. The Cvi FRI allele carries a number of nucleotide differences, one of which causes an in-frame stop codon in the first exon. The other four accessions contain nucleotide differences that only result in amino acid substitutions. Preliminary genetic analysis was consistent with Cvi carrying a nonfunctional FRI allele; Wil-2 carrying either a defective FRI or a dominant suppressor of FRI function; and Shakhdara, Kondara, and Kz-9 carrying a functional FRI allele with earliness being caused by allelic variation at other loci including FLC. Allelic variation at FLC was also investigated in a range of accessions. A novel nonautonomous Mutator-like transposon was found in the weak FLC allele in Landsberg erecta, positioned in the first intron, a region required for normal FLC regulation. This transposon was not present in FLC alleles of most other accessions including Shakhdara, Kondara, or Kz-9. Thus, variation in <i>Arabidopsis</i> flowering time has arisen through the generation of nonfunctional or weak FRI and FLC alleles.	Abstract

[Additional References](#)

RELATED GEPHE

12 (AGAMOUS-LIKE 50, Cryptochrome 2 (CRY2) EDI allele, EARLY FLOWERING 3(ELF3), FLC (Flowering Locus C), FLM (MAF1), Flowering locus T (FT), Frigida like 1 (FRL1), Frigida like 2 (FRL2), MADS AFFECTING FLOWERING 2 (MAF2), SVP (SHORT VEGETATIVE PHASE), VIN3, HUA2) (#gephebase-summary-title)	Related Genes
18 (#gephebase-summary-title)	Related Haplotypes

EXTERNAL LINKS

COMMENTS