GEPHE SUMMARY

Gephebase Gene
Frigida (FRI) (https://www.gephebase.org/search-criteria?/and+Gene Gephebase=^Frigida (FRI)^#gephebase-summary-title)

GepheID
GP00000357

Entry Status
Published

Main curator
Martin

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 Col accession

Ancestral State
Taxon A

Taxonomic Status
Intraspecific (https://www.gephebase.org/search-criteria?/and+Taxonomic Status=^Intraspecific^#gephebase-summary-title)

Taxon A

Latin 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; mouse-ear cress; thale-cress; Arabidopsis thaliana (L.) Heynh.; Arabidopsis thaliana (thale cress); Arabidopsis_thaliana; Arbisopsis thaliana; thale kress

Rank
species

Lineage
cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; eudicotyledons; Gunneridae; Pentapetalae; rosids; malvids; Brassicales; Brassicaceae; Camelineae; Arabidopsis

Parent
Arabidopsis () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 3701)

NCBI Taxonomy ID
3702 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 3702)

is Taxon A an Infraspecies?
No

Taxon B

Latin 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; mouse-ear cress; thale-cress; Arabidopsis thaliana (L.) Heynh.; Arabidopsis thaliana (thale cress); Arabidopsis_thaliana; Arbisopsis thaliana; thale kress

Rank
species

Lineage
cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; eudicotyledons; Gunneridae; Pentapetalae; rosids; malvids; Brassicales; Brassicaceae; Camelineae; Arabidopsis

Parent
Arabidopsis () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 3701)

NCBI Taxonomy ID
3702 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 3702)

is Taxon B an Infraspecies?
Yes

Taxon B Description
Arabidopsis thaliana Col accession

GENOTYPIC CHANGE

Generic Gene Name
FRI

Synonyms
-

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 - Cellular Component
GO:0016607 : nuclear speck (https://www.ebi.ac.uk/QuickGO/term/GO:0016607)

UniProtKB Arabidopsis thaliana
P0DH90 (http://www.uniprot.org/uniprot/P0DH90)

GenebankID or UniProtKB
AF228499 (https://www.ncbi.nlm.nih.gov/nuccore/AF228499)

Presumptive Null

Yes (https://www.gephebase.org/search-criteria?/and+Presumptive Null=^Yes^#gephebase-summary-title)

Molecular Type

Coding (https://www.gephebase.org/search-criteria?/and+Molecular Type=^Coding^#gephebase-summary-title)

Aberration Type

Deletion (https://www.gephebase.org/search-criteria?/and+Aberration Type=^Deletion^#gephebase-summary-title)

Deletion Size

10-99 bp

Molecular Details of the Mutation

16bp deletion aa313-318 in exon 2 and premature stop codon

Experimental Evidence

Linkage Mapping (https://www.gephebase.org/search-criteria?/and+Experimental Evidence=^Linkage Mapping^#gephebase-summary-title)

Main Reference

Molecular analysis of FRIGIDA, a major determinant of natural variation in Arabidopsis flowering time. (2000) (https://pubmed.ncbi.nlm.nih.gov/11030654)

Authors

Johanson U; West J; Lister C; Michaels S; Amasino R; Dean C

Abstract

Vernalization, the acceleration of flowering by a long period of cold temperature, ensures that many plants overwinter vegetatively and flower in spring. In Arabidopsis, allelic variation at the FRIGIDA (FRI) locus is a major determinant of natural variation in flowering time. Dominant alleles of FRI confer late flowering, which is reversed to earliness by vernalization. We cloned FRI and analyzed the molecular basis of the allelic variation. Most of the early-flowering ecotypes analyzed carry FRI alleles containing one of two different deletions that disrupt the open reading frame. Loss-of-function mutations at FRI have thus provided the basis for the evolution of many early-flowering ecotypes.

Additional References

RELATED GEPHE

Related Genes

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) (https://www.gephebase.org/search-criteria?/or+Taxon ID=^3702^/and+Trait=Flowering time/and+groupHaplotypes=true#gephebase-summary-title)

Related Haplotypes

18 (https://www.gephebase.org/search-criteria?/or+Gene Gephebase=^Frigida (FRI)^/and+Taxon ID=^3702^/or+Gene Gephebase=^Frigida (FRI)^/and+Taxon ID=^3702^#gephebase-summary-title)

EXTERNAL LINKS

COMMENTS