

GEPHE SUMMARY

| | | | |
|--|----------------|------------|--------------|
| | Gephebase Gene | | GepheID |
| Frigida (BnaA.FRI.a) (https://www.gephebase.org/search-criteria?/and+Gene+Gephebase+^Frigida+(BnaA.FRI.a)^#gephebase-summary-title) | | GP00000356 | |
| Published | Entry Status | Martin | Main curator |

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 | | |
| Brassica napus | | | |
| | Trait State in Taxon B | | |
| Brassica napus | | | |
| | Ancestral State | | |
| Data not curated | | | |
| | Taxonomic Status | | |
| Domesticated (https://www.gephebase.org/search-criteria?/and+Taxonomic+Status+^Domesticated^#gephebase-summary-title) | | | |
| Taxon A | | Taxon B | |
| | Latin Name | | Latin Name |
| Brassica napus (https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms+^Brassica+napus^#gephebase-summary-title) | | Brassica napus (https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms+^Brassica+napus^#gephebase-summary-title) | |
| | Common Name | | Common Name |
| rape | | rape | |
| | Synonyms | | Synonyms |
| rape; oilseed rape; rapeseeds; Brassica napus L., 1753 | | rape; oilseed rape; rapeseeds; Brassica napus L., 1753 | |
| | Rank | | Rank |
| species | | species | |
| | Lineage | | Lineage |
| cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; eudicotyledons; Gunneridae; Pentapetalae; rosids; malvids; Brassicales; Brassicaceae; Brassicaceae; Brassica | | cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; eudicotyledons; Gunneridae; Pentapetalae; rosids; malvids; Brassicales; Brassicaceae; Brassicaceae; Brassica | |
| | Parent | | Parent |
| Brassica () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=3705) | | Brassica () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=3705) | |
| | NCBI Taxonomy ID | | NCBI Taxonomy ID |
| 3708 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=3708) | | 3708 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=3708) | |
| | is Taxon A an Intraspecies? | | is Taxon B an Intraspecies? |
| No | | No | |

GENOTYPIC CHANGE

| | | | |
|---|-------------------------|--|--------------------------------|
| | Generic Gene Name | | UniProtKB Arabidopsis thaliana |
| FRI | | PoDH90 (http://www.uniprot.org/uniprot/PoDH90) | |
| | Synonyms | | GenebankID or UniProtKB |
| - | | XP_013677685 (https://www.ncbi.nlm.nih.gov/nucore/XP_013677685) | |
| | 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) | | | |
| | | | Presumptive Null |
| Unknown (https://www.gephebase.org/search-criteria?/and+Presumptive+Null+^Unknown^#gephebase-summary-title) | | | Molecular Type |

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

Aberration Type

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

Molecular Details of the Mutation

unknown

Experimental Evidence

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

Main Reference

Flowering time variation in oilseed rape (*Brassica napus* L.) is associated with allelic variation in the FRIGIDA homologue BnaA.FRI.a. (2011) (<https://pubmed.ncbi.nlm.nih.gov/21862478>)

Authors

Wang N; Qian W; Suppanz I; Wei L; Mao B; Long Y; Meng J; MÃ¼ller AE; Jung C

Abstract

Oilseed rape (*Brassica napus* L.) is a major oil crop which is grown worldwide. Adaptation to different environments and regional climatic conditions involves variation in the regulation of flowering time. Winter types have a strong vernalization requirement whereas semi-winter and spring types have a low vernalization requirement or flower without exposure to cold, respectively. In *Arabidopsis thaliana*, FRIGIDA (FRI) is a key regulator which inhibits floral transition through activation of FLOWERING LOCUS C (FLC), a central repressor of flowering which controls vernalization requirement and response. Here, four FRI homologues in *B. napus* were identified by BAC library screening and PCR-based cloning. While all homologues are expressed, two genes were found to be differentially expressed in aerial plant organs. One of these, BnaA.FRI.a, was mapped to a region on chromosome A03 which co-localizes with a major flowering time quantitative trait locus in multiple environments in a doubled-haploid mapping population. Association analysis of BnaA.FRI.a revealed that six SNPs, including at least one at a putative functional site, and one haplotype block, respectively, are associated with flowering time variation in 248 accessions, with flowering times differing by 13-19 d between extreme haplotypes. The results from both linkage analysis and association mapping indicate that BnaA.FRI.a is a major determinant of flowering time in oilseed rape, and suggest further that this gene also contributes to the differentiation between growth types. The putative functional polymorphisms identified here may facilitate adaptation of this crop to specific environments through marker-assisted breeding.

Additional References

RELATED GEPHE

No matches found.

Related Genes

No matches found.

Related Haplotypes

EXTERNAL LINKS

COMMENTS

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