

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

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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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