

GEPHE SUMMARY

<p>Flowering locus T (FT) (https://www.gephebase.org/search-criteria?/and+Gene+Gephebase+^Flowering+locus+T+(FT)^#gephebase-summary-title)</p> <p>Published</p>	<p>Gephebase Gene</p> <p>Entry Status</p>	<p>GP00000345</p> <p>Martin</p>	<p>GepheID</p> <p>Main curator</p>
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PHENOTYPIC CHANGE

<p>Physiology (https://www.gephebase.org/search-criteria?/and+Trait+Category+^Physiology^#gephebase-summary-title)</p> <p>Flowering time (https://www.gephebase.org/search-criteria?/and+Trait+^Flowering+time^#gephebase-summary-title)</p> <p>Arabidopsis thaliana</p> <p>Arabidopsis thaliana</p> <p>Data not curated</p> <p>Domesticated (https://www.gephebase.org/search-criteria?/and+Taxonomic+Status+^Domesticated^#gephebase-summary-title)</p>	<p>Trait Category</p> <p>Trait</p> <p>Trait State in Taxon A</p> <p>Trait State in Taxon B</p> <p>Ancestral State</p> <p>Taxonomic Status</p>	<p>Arabidopsis thaliana</p> <p>Arabidopsis thaliana</p> <p>Domesticated</p>	<p>Latin Name</p> <p>Latin Name</p> <p>Common Name</p> <p>Common Name</p> <p>Synonyms</p> <p>Synonyms</p> <p>Rank</p> <p>Rank</p> <p>Lineage</p> <p>Lineage</p> <p>Parent</p> <p>Parent</p> <p>NCBI Taxonomy ID</p> <p>NCBI Taxonomy ID</p> <p>is Taxon A an Intraspecies?</p> <p>is Taxon B an Intraspecies?</p>
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GENOTYPIC CHANGE

<p>FT</p> <p>F5l14.3; F5l14_3; FLOWERING LOCUS T; REDUCED STEM BRANCHING 8; RSB8; At1g65480</p> <p>3702.AT1G65480.1 (http://string-db.org/newstring_cgi/show_network_section.pl?identifier=3702.AT1G65480.1)</p> <p>Belongs to the phosphatidylethanolamine-binding protein family.</p> <p>GO:0008429 : phosphatidylethanolamine binding (https://www.ebi.ac.uk/QuickGO/term/GO:0008429)</p> <p>GO:0030154 : cell differentiation (https://www.ebi.ac.uk/QuickGO/term/GO:0030154)</p> <p>GO:0009911 : positive regulation of flower development</p>	<p>Generic Gene Name</p> <p>Synonyms</p> <p>String</p> <p>Sequence Similarities</p> <p>GO - Molecular Function</p> <p>GO - Biological Process</p>	<p>Q9SXZ2 (http://www.uniprot.org/uniprot/Q9SXZ2)</p> <p>AC001229 (https://www.ncbi.nlm.nih.gov/nuccore/AC001229)</p>	<p>UniProtKB Arabidopsis thaliana</p> <p>GenebankID or UniProtKB</p>
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(<https://www.ebi.ac.uk/QuickGO/term/GO:0009911>)
GO:0009908 : flower development (<https://www.ebi.ac.uk/QuickGO/term/GO:0009908>)
GO:0009909 : regulation of flower development
(<https://www.ebi.ac.uk/QuickGO/term/GO:0009909>)
GO:0048573 : photoperiodism, flowering
(<https://www.ebi.ac.uk/QuickGO/term/GO:0048573>)
GO:0010119 : regulation of stomatal movement
(<https://www.ebi.ac.uk/QuickGO/term/GO:0010119>)

GO - Cellular Component

GO:0005737 : cytoplasm (<https://www.ebi.ac.uk/QuickGO/term/GO:0005737>)
GO:0005634 : nucleus (<https://www.ebi.ac.uk/QuickGO/term/GO:0005634>)
GO:0005783 : endoplasmic reticulum
(<https://www.ebi.ac.uk/QuickGO/term/GO:0005783>)

Presumptive Null

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

Molecular Type

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

Aberration Type

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

Molecular Details of the Mutation

Promoter region

Experimental Evidence

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

Main Reference

Hd3a, a rice ortholog of the Arabidopsis FT gene, promotes transition to flowering downstream of Hd1 under short-day conditions. (2002) (<https://pubmed.ncbi.nlm.nih.gov/12407188>)

Authors

Kojima S; Takahashi Y; Kobayashi Y; Monna L; Sasaki T; Araki T; Yano M

Abstract

Heading date 3a (Hd3a) has been detected as a heading-date-related quantitative trait locus in a cross between rice cultivars Nipponbare and Kasalath. A previous study revealed that the Kasalath allele of Hd3a promotes heading under short-day (SD) conditions. High-resolution linkage mapping located the Hd3a locus in a approximately 20-kb genomic region. In this region, we found a candidate gene that shows high similarity to the FLOWERING LOCUS T (FT) gene, which promotes flowering in Arabidopsis: Introduction of the gene caused an early-heading phenotype in rice. The transcript levels of Hd3a were increased under SD conditions. The rice Heading date 1 (Hd1) gene, a homolog of CONSTANS (CO), has been shown to promote heading under SD conditions. By expression analysis, we showed that the amount of Hd3a mRNA is up-regulated by Hd1 under SD conditions, suggesting that Hd3a promotes heading under the control of Hd1. These results indicate that Hd3a encodes a protein closely related to Arabidopsis FT and that the function and regulatory relationship with Hd1 and CO, respectively, of Hd3a and FT are conserved between rice (an SD plant) and Arabidopsis (a long-day plant).

Additional References

Cis-regulatory changes at FLOWERING LOCUS T mediate natural variation in flowering responses of Arabidopsis thaliana. (2009) (<https://pubmed.ncbi.nlm.nih.gov/19652183>)

RELATED GEPHE

Related Genes

12 (AGAMOUS-LIKE 50, Cryptochrome 2 (CRY2) ED1 allele, EARLY FLOWERING 3(ELF3), FLC (Flowering Locus C), FLM (MAF1), Frigida (FRI), 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

No matches found.

EXTERNAL LINKS

COMMENTS