GEPHE SUMMARY

Gephebase Gene

PRR37-like Photoperiod-H1 (Ppd-H1) (https://www.gephebase.org/search-criteria?/and+Gene Gephebase=^PRR37-like Photoperiod-H1 (Ppd-H1)^#gephebase-summary-title)

Entry Status

Published

GepheID

GP00000933

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

Hordeum vulgare - (winter)

Trait State in Taxon B

Hordeum vulgare - (spring)

Ancestral State

Data not curated

Taxonomic Status

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

Taxon A

Latin Name

Hordeum vulgare (https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms=^Hordeum vulgare^#gephebase-summary-title)

Common Name

-

Synonyms

barley; Hordeum vulgare L.; Horedum vulgare

Rank

species

Lineage

cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; Liliopsida; Petrosaviidae; commelinids; Poales; Poaceae; BOP clade; Pooideae; Triticodae; Triticeae; Hordeinae; Hordeum

Parent

Hordeum () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 4512)

NCBI Taxonomy ID

4513 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 4513)

is Taxon A an Infraspecies?

No

Taxon B

Latin Name

Hordeum vulgare (https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms=^Hordeum vulgare^#gephebase-summary-title)

Common Name

-

Synonyms

barley; Hordeum vulgare L.; Horedum vulgare

Rank

species

Lineage

cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; Liliopsida; Petrosaviidae; commelinids; Poales; Poaceae; BOP clade; Pooideae; Triticodae; Triticeae; Hordeinae; Hordeum

Parent

Hordeum () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 4512)

NCBI Taxonomy ID

4513 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 4513)

is Taxon B an Infraspecies?

No

GENOTYPIC CHANGE

Generic Gene Name

PRR37

Synonyms

PRR37; OsPRR37; DTH7; HD2; Os07g0695100; LOC_Os07g49460; P0627E10.21

String

39947.LOC_Os07g49460.1 (http://string-db.org/newstring_cgi/show_network_section.pl?identifier=39947.LOC_Os07g49460.1)

Sequence Similarities

Belongs to the ARR-like family.

GO - Molecular Function

-

GO - Biological Process

GO:0009908 : flower development (https://www.ebi.ac.uk/QuickGO/term/GO:0009908)
GO:0000160 : phosphorelay signal transduction system (https://www.ebi.ac.uk/QuickGO/term/GO:0000160)
GO:0009585 : red, far-red light phototransduction

UniProtKB Oryza sativa subsp. japonica

Q0D3B6 (http://www.uniprot.org/uniprot/Q0D3B6)

GenebankID or UniProtKB

()

(https://www.ebi.ac.uk/QuickGO/term/GO:0009585)
GO:0048579 : negative regulation of long-day photoperiodism, flowering
(https://www.ebi.ac.uk/QuickGO/term/GO:0048579)
GO:0048511 : rhythmic process (https://www.ebi.ac.uk/QuickGO/term/GO:0048511)

GO - Cellular Component

GO:0005634 : nucleus (https://www.ebi.ac.uk/QuickGO/term/GO:0005634)

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

The pseudo-response regulator Ppd-H1 provides adaptation to photoperiod in barley. (2005) (https://pubmed.ncbi.nlm.nih.gov/16284181)

Authors

Turner A; Beales J; Faure S; Dunford RP; Laurie DA

Abstract

Plants commonly use photoperiod (day length) to control the timing of flowering during the year, and variation in photoperiod response has been selected in many crops to provide adaptation to different environments and farming practices. Positional cloning identified Ppd-H1, the major determinant of barley photoperiod response, as a pseudo-response regulator, a class of genes involved in circadian clock function. Reduced photoperiod responsiveness of the ppd-H1 mutant, which is highly advantageous in spring-sown varieties, is explained by altered circadian expression of the photoperiod pathway gene CONSTANS and reduced expression of its downstream target, FT, a key regulator of flowering.

Additional References

Expression conservation within the circadian clock of a monocot: natural variation at barley Ppd-H1 affects circadian expression of flowering time genes, but not clock orthologs. (2012) (https://pubmed.ncbi.nlm.nih.gov/22720803)

RELATED GEPHE

Related Genes

6 (CENTRORADIALIS (HvCEN), EARLY FLOWERING 3 (here = Mat-a), EARLY FLOWERING 3/ EARLY MATURITY 8, EARLY FLOWERING 3/ EARLYMATURITY8, Flowering locus T (=HvFT=VRN3), VRN2) (https://www.gephebase.org/search-criteria?/or+Taxon ID=^4513^/and+Trait=Flowering time/and+groupHaplotypes=true#gephebase-summary-title)

Related Haplotypes

No matches found.

EXTERNAL LINKS

COMMENTS

@GxE