GEPHE SUMMARY

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

GepheID
GP00000179

Entry Status
Published

Main curator
Martin

PHENOTYPIC CHANGE

Trait #1

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 - Nure (winter)

Trait State in Taxon B
Hordeum vulgare - Tremois (spring)

Trait #2

Trait Category
Physiology (https://www.gephebase.org/search-criteria?/and+Trait Category=^Physiology^#gephebase-summary-title)

Trait
Seasonal growth (https://www.gephebase.org/search-criteria?/and+Trait=^Seasonal growth^#gephebase-summary-title)

Trait State in Taxon A
-

Trait State in Taxon B
-

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?
Yes

Taxon A Description
Hordeum vulgare - Nure (winter)

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?
Yes

Taxon B Description
Hordeum vulgare - Tremois (spring)

GENOTYPIC CHANGE

Generic Gene Name

CEN

Synonyms

centroradialis; F10A12.20; ATC; At2g27550; F10A12.22; F15K20.35

String

3702.AT2G27550.1 (http://string-db.org/newstring_cgi/show_network_section.pl?identifier= 3702.AT2G27550.1)

Sequence Similarities

Belongs to the phosphatidylethanolamine-binding protein family.

GO - Molecular Function

-

GO - Biological Process

GO:0010228 : vegetative to reproductive phase transition of meristem (https://www.ebi.ac.uk/QuickGO/term/GO:0010228)
GO:0009910 : negative regulation of flower development (https://www.ebi.ac.uk/QuickGO/term/GO:0009910)

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)

UniProtKB Arabidopsis thaliana

Q9ZNV5 (http://www.uniprot.org/uniprot/Q9ZNV5)

GenebankID or UniProtKB

AFV67816 (https://www.ncbi.nlm.nih.gov/nuccore/AFV67816)

Presumptive Null

No (https://www.gephebase.org/search-criteria?/and+Presumptive Null=^No^#gephebase-summary-title)

Molecular Type

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

Aberration Type

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

SNP Coding Change

Nonsynonymous

Molecular Details of the Mutation

P135A

Experimental Evidence

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

	Taxon A	Taxon B	Position
Codon	-	-	-
Amino-acid	-	-	-

Main Reference

Natural variation in a homolog of Antirrhinum CENTRORADIALIS contributed to spring growth habit and environmental adaptation in cultivated barley. (2012) (https://pubmed.ncbi.nlm.nih.gov/23160098)

Authors

Comadran J; Kilian B; Russell J; Ramsay L; Stein N; Ganal M; Shaw P; Bayer M; Thomas W; Marshall D; Hedley P; Tondelli A; Pecchioni N; Francia E; Korzun V; Walther A; Waugh R

Abstract

As early farming spread from the Fertile Crescent in the Near East around 10,000 years before the present, domesticated crops encountered considerable ecological and environmental change. Spring-sown crops that flowered without the need for an extended period of cold to promote flowering and day length-insensitive crops able to exploit the longer, cooler days of higher latitudes emerged and became established. To investigate the genetic consequences of adaptation to these new environments, we identified signatures of divergent selection in the highly differentiated modern-day spring and winter barleys. In one genetically divergent region, we identify a natural variant of the barley homolog of Antirrhinum CENTRORADIALIS (HvCEN) as a contributor to successful environmental adaptation. The distribution of HvCEN alleles in a large collection of wild and landrace accessions indicates that this involved selection and enrichment of preexisting genetic variants rather than the acquisition of mutations after domestication.

Additional References

RELATED GEPHE

Related Genes

6 (EARLY FLOWERING 3 (here = Mat-a), EARLY FLOWERING 3/ EARLY MATURITY 8, EARLY FLOWERING 3/ EARLYMATURITY8, Flowering locus T (=HvFT=VRN3), PRR37-like Photoperiod-H1 (Ppd-H1), VRN2) (https://www.gephebase.org/search-criteria?/or+Taxon ID=^4513^/and+Trait=Flowering time/or+Taxon ID=^4513^/and+Trait=Seasonal growth/and+groupHaplotypes=true#gephebase-summary-title)

Related Haplotypes

No matches found.

EXTERNAL LINKS

COMMENTS