

GEPHE SUMMARY

ZmCCT (https://www.gephebase.org/search-criteria?/and+GeneGephebase=^ZmCCT^#gephebase-summary-title)	Gephebase Gene	GP00001227	GepheID
Published	Entry Status	Martin	Main curator

PHENOTYPIC CHANGE

Physiology (https://www.gephebase.org/search-criteria?/and+Trait+Category=^Physiology^#gephebase-summary-title)		Trait Category	
Flowering time (https://www.gephebase.org/search-criteria?/and+Trait=^Flowering+time^#gephebase-summary-title)		Trait	
Zea mays		Trait State in Taxon A	
Zea mays		Trait State in Taxon B	
Taxon A		Ancestral State	
Domesticated (https://www.gephebase.org/search-criteria?/and+Taxonomic+Status=^Domesticated^#gephebase-summary-title)		Taxonomic Status	
Taxon A		Taxon B	
Zea mays (https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=^Zea+mays^#gephebase-summary-title)		Zea mays (https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=^Zea+mays^#gephebase-summary-title)	
-		-	
Zea mays var. japonica; maize; Zea mays L.; Zea mays mays		Zea mays var. japonica; maize; Zea mays L.; Zea mays mays	
species		species	
cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; Liliopsida; Petrosaviidae; commelinids; Poales; Poaceae; PACMAD clade; Panicoideae; Andropogonodae; Andropogoneae; Tripsacinae; Zea		cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; Liliopsida; Petrosaviidae; commelinids; Poales; Poaceae; PACMAD clade; Panicoideae; Andropogonodae; Andropogoneae; Tripsacinae; Zea	
Zea () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=4575)		Zea () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=4575)	
4577 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=4577)		4577 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=4577)	
No is Taxon A an Intraspecies?		No is Taxon B an Intraspecies?	

GENOTYPIC CHANGE

GHD7	Generic Gene Name	UniProtKB Oryza sativa subsp. japonica E5RQA1 (http://www.uniprot.org/uniprot/E5RQA1)
Ghd7; Os07g0261200; LOC_Os07g15770; P0046D03.119	Synonyms	GenebankID or UniProtKB AGW42769 (https://www.ncbi.nlm.nih.gov/nuccore/AGW42769)
39947.LOC_Os07g15770.1 (http://string-db.org/newstring.cgi/show_network_section.pl?identifier=39947.LOC_Os07g15770.1)	String	
-	Sequence Similarities	
GO:0003677 : DNA binding (https://www.ebi.ac.uk/QuickGO/term/GO:0003677)	GO - Molecular Function	
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:0048579 : negative regulation of long-day photoperiodism, flowering (https://www.ebi.ac.uk/QuickGO/term/GO:0048579)	GO - Biological Process	

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

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

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

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

1-10 kb

insertion of a CACTA-like transposon into the promoter of ZmCCT. This insertion suppresses ZmCCT expression through methylation and reduces maize sensitivity to photoperiod.

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

Fine mapping and haplotype structure analysis of a major flowering time quantitative trait locus on maize chromosome 10. (2009) (<https://pubmed.ncbi.nlm.nih.gov/19822732>)

Ducrocq S; Giauffret C; Madur D; Combes V; Dumas F; Jouanne S; Coubriche D; Jamin P; Moreau L; Charcosset A

Flowering time is a major adaptive trait in plants and an important selection criterion for crop species. In maize, however, little is known about its molecular basis. In this study, we report the fine mapping and characterization of a major quantitative trait locus located on maize chromosome 10, which regulates flowering time through photoperiod sensitivity. This study was performed in near-isogenic material derived from a cross between the day-neutral European flint inbred line FV286 and the tropical short-day inbred line FV331. Recombinant individuals were identified among a large segregating population and their progenies were scored for flowering time. Combined genotypic characterization led to delimit the QTL to an interval of 170 kb and highlighted an unbalanced recombination pattern. Two bacterial artificial chromosomes (BACs) covering the region were analyzed to identify putative candidate genes, and synteny with rice, sorghum, and brachypodium was investigated. A gene encoding a CCT domain protein homologous to the rice Ghd7 heading date regulator was identified, but its causative role was not demonstrated and deserves further analyses. Finally, an association study showed a strong level of linkage disequilibrium over the region and highlighted haplotypes that could provide useful information for the exploitation of genetic resources and marker-assisted selection in maize.

ZmCCT and the genetic basis of day-length adaptation underlying the postdomestication spread of maize. (2012) (<https://pubmed.ncbi.nlm.nih.gov/22711828>)

CACTA-like transposable element in ZmCCT attenuated photoperiod sensitivity and accelerated the postdomestication spread of maize. (2013) (<https://pubmed.ncbi.nlm.nih.gov/24089449>)

RELATED GEPHE

2 (Rap2.7 (vgt1), zfl2) (<https://www.gephebase.org/search-criteria?/or+Taxon ID=~4577~/and+Trait=Flowering time/and+groupHaplotypes=true#gephebase-summary-title>)

No matches found.

EXTERNAL LINKS

COMMENTS

@TE @Epigenetics