

## GEPHE SUMMARY

	Gephebase Gene	GepheID
Flowering locus T (LpFT3) ( <a href="https://www.gephebase.org/search-criteria?/and+Gene">https://www.gephebase.org/search-criteria?/and+Gene</a> Gephebase=^Flowering locus T (LpFT3)^#gephebase-summary-title)	GP00000347	
Published	Entry Status	Main curator

## PHENOTYPIC CHANGE

	Trait Category		
Physiology ( <a href="https://www.gephebase.org/search-criteria?/and+Trait">https://www.gephebase.org/search-criteria?/and+Trait</a> Category=^Physiology^#gephebase-summary-title)	Trait		
Flowering time ( <a href="https://www.gephebase.org/search-criteria?/and+Trait=^Flowering">https://www.gephebase.org/search-criteria?/and+Trait=^Flowering</a> time^#gephebase-summary-title)	Trait State in Taxon A		
Lolium perenne	Trait State in Taxon B		
Lolium perenne	Ancestral State		
Data not curated	Taxonomic Status		
Domesticated ( <a href="https://www.gephebase.org/search-criteria?/and+Taxonomic">https://www.gephebase.org/search-criteria?/and+Taxonomic</a> Status=^Domesticated^#gephebase-summary-title)			
Taxon A	Latin Name	Taxon B	Latin Name
Lolium perenne ( <a href="https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=^Lolium+perenne^#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=^Lolium+perenne^#gephebase-summary-title</a> )		Lolium perenne ( <a href="https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=^Lolium+perenne^#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=^Lolium+perenne^#gephebase-summary-title</a> )	
-	Common Name	-	Common Name
Festuca perennis; Festuca perennis (L.) Columbus & J.P.Sm., 2010; Lolium vulgare; perennial ryegrass; Lolium perenne L., 1753; Lolium vulgare Host, 1801	Synonyms	Festuca perennis; Festuca perennis (L.) Columbus & J.P.Sm., 2010; Lolium vulgare; perennial ryegrass; Lolium perenne L., 1753; Lolium vulgare Host, 1801	Synonyms
species	Rank	species	Rank
cellular organisms; Eukaryota; Viridiplanteae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphylophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; Liliopsida; Petrosaviidae; commelinids; Poales; Poaceae; BOP clade; Pooideae; Pooideae; Poeae; Poeae Chloroplast Group 2 (Poeae type); Loliinae; Lolium	Lineage	cellular organisms; Eukaryota; Viridiplanteae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphylophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; Liliopsida; Petrosaviidae; commelinids; Poales; Poaceae; BOP clade; Pooideae; Pooideae; Poeae; Poeae Chloroplast Group 2 (Poeae type); Loliinae; Lolium	Lineage
Lolium () - (Rank: genus) ( <a href="https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 4520">https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 4520</a> )	Parent	Lolium () - (Rank: genus) ( <a href="https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 4520">https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 4520</a> )	Parent
4522 ( <a href="https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 4522">https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 4522</a> )	NCBI Taxonomy ID	4522 ( <a href="https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 4522">https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 4522</a> )	NCBI Taxonomy ID
No	is Taxon A an Infraspecies?	No	is Taxon B an Infraspecies?

## GENOTYPIC CHANGE

	Generic Gene Name		
FT	Synonyms		UniProtKB Arabidopsis thaliana
F5l14.3; F5l14_3; FLOWERING LOCUS T; REDUCED STEM BRANCHING 8; RSB8; At1g65480		Q9SXZ2 ( <a href="http://www.uniprot.org/uniprot/Q9SXZ2">http://www.uniprot.org/uniprot/Q9SXZ2</a> )	GenebankID or UniProtKB
3702.AT1G65480.1 ( <a href="http://string-db.org/newstring_cgi/show_network_section.pl?identifier= 3702.AT1G65480.1">http://string-db.org/newstring_cgi/show_network_section.pl?identifier= 3702.AT1G65480.1</a> )	String	CBN73222 ( <a href="https://www.ncbi.nlm.nih.gov/nucore/CBN73222">https://www.ncbi.nlm.nih.gov/nucore/CBN73222</a> )	
Belongs to the phosphatidylethanolamine-binding protein family.	Sequence Similarities		
GO:0008429 : phosphatidylethanolamine binding ( <a href="https://www.ebi.ac.uk/QuickGO/term/GO:0008429">https://www.ebi.ac.uk/QuickGO/term/GO:0008429</a> )	GO - Molecular Function		
GO:0030154 : cell differentiation ( <a href="https://www.ebi.ac.uk/QuickGO/term/GO:0030154">https://www.ebi.ac.uk/QuickGO/term/GO:0030154</a> )	GO - Biological Process		
GO:0009911 : positive regulation of flower development			

( <a href="https://www.ebi.ac.uk/QuickGO/term/GO:0009911">https://www.ebi.ac.uk/QuickGO/term/GO:0009911</a> )	
GO:0009908 : flower development ( <a href="https://www.ebi.ac.uk/QuickGO/term/GO:0009908">https://www.ebi.ac.uk/QuickGO/term/GO:0009908</a> )	
GO:0009909 : regulation of flower development	
( <a href="https://www.ebi.ac.uk/QuickGO/term/GO:0009909">https://www.ebi.ac.uk/QuickGO/term/GO:0009909</a> )	
GO:0048573 : photoperiodism, flowering	
( <a href="https://www.ebi.ac.uk/QuickGO/term/GO:0048573">https://www.ebi.ac.uk/QuickGO/term/GO:0048573</a> )	
GO:0010119 : regulation of stomatal movement	
( <a href="https://www.ebi.ac.uk/QuickGO/term/GO:0010119">https://www.ebi.ac.uk/QuickGO/term/GO:0010119</a> )	
GO - Cellular Component	
GO:0005737 : cytoplasm ( <a href="https://www.ebi.ac.uk/QuickGO/term/GO:0005737">https://www.ebi.ac.uk/QuickGO/term/GO:0005737</a> )	Presumptive Null
GO:0005634 : nucleus ( <a href="https://www.ebi.ac.uk/QuickGO/term/GO:0005634">https://www.ebi.ac.uk/QuickGO/term/GO:0005634</a> )	
GO:0005783 : endoplasmic reticulum	
( <a href="https://www.ebi.ac.uk/QuickGO/term/GO:0005783">https://www.ebi.ac.uk/QuickGO/term/GO:0005783</a> )	
Unknown ( <a href="https://www.gephebase.org/search-criteria?/and+Presumptive Null=^Unknown^#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Presumptive Null=^Unknown^#gephebase-summary-title</a> )	Molecular Type
Cis-regulatory ( <a href="https://www.gephebase.org/search-criteria?/and+Molecular Type=^Cis-regulatory^#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Molecular Type=^Cis-regulatory^#gephebase-summary-title</a> )	Aberration Type
Unknown ( <a href="https://www.gephebase.org/search-criteria?/and+Aberration Type=^Unknown^#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Aberration Type=^Unknown^#gephebase-summary-title</a> )	Molecular Details of the Mutation
unknown	Experimental Evidence
Candidate Gene ( <a href="https://www.gephebase.org/search-criteria?/and+Experimental Evidence=^Candidate Gene^#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Experimental Evidence=^Candidate Gene^#gephebase-summary-title</a> )	Main Reference
Allelic variation in the perennial ryegrass FLOWERING LOCUS T gene is associated with changes in flowering time across a range of populations. (2011) ( <a href="https://pubmed.ncbi.nlm.nih.gov/21115808">https://pubmed.ncbi.nlm.nih.gov/21115808</a> )	Authors
Skřítk L; Sanderson R; Thomas A; Skřítk K; Thorogood D; Latypova G; Asp T; Armstead I	Abstract
The Arabidopsis ( <i>Arabidopsis thaliana</i> ) FLOWERING LOCUS T (FT) gene and its orthologs in other plant species (e.g. rice [ <i>Oryza sativa</i> ] OsFTL2/Hd3a) have an established role in the photoperiodic induction of flowering response. The genomic and phenotypic variations associated with the perennial ryegrass ( <i>Lolium perenne</i> ) ortholog of FT, designated LpFT3, was assessed in a diverse collection of nine European germplasm populations, which together constituted an association panel of 864 plants. Sequencing and genotyping of a series of amplicons derived from the nine populations, containing the complete exon and intron sequences as well as 5' and 3' noncoding sequences of LpFT3, identified a total of seven haplotypes. Genotyping assays designed to detect the genomic variation showed that three haplotypes were present in approximately equal proportions and represented 84% of the total, with a fourth representing a further 11%. Of the three major haplotypes, two were predicted to code for identical protein products and the third contained two amino acid substitutions. Association analysis using either a mixed model with a relationship matrix to correct for population structure and relatedness or structured association with further correction using genomic control indicated significant associations between LpFT3 and variation in flowering time. These associations were corroborated in a validation population segregating for the same major alleles. The most "diagnostic" region of genomic variation was situated 5' of the coding sequence. Analysis of this region identified that the interhaplotype variation was closely associated with sequence motifs that were apparently conserved in the 5' region of orthologs of LpFT3 from other plant species. These may represent cis-regulatory elements involved in influencing the expression of this gene.	Additional References

## RELATED GEPHE

1 (VRN1) ( <a href="https://www.gephebase.org/search-criteria?/or+Taxon ID=^4522^/and+Trait=Flowering time/and+groupHaplotypes=true#gephebase-summary-title">https://www.gephebase.org/search-criteria?/or+Taxon ID=^4522^/and+Trait=Flowering time/and+groupHaplotypes=true#gephebase-summary-title</a> )	Related Genes
No matches found.	Related Haplotypes

## EXTERNAL LINKS

## COMMENTS