

GEPHE SUMMARY

VRN1 (https://www.gephebase.org/search-criteria/?and+Gene Gephebase="VRN1">#gephebase-summary-title)	Gephebase Gene	GP00001184	GephelD
	Entry Status	Martin	Main curator
Published			

PHENOTYPIC CHANGE

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

Flowering time (<https://www.gephebase.org/search-criteria/?and+Trait=^Flowering>
time>#gephebase-summary-title)

Triticum aestivum

Triticum aestivum

Taxon A

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

Taxon A

Triticum aestivum
(<https://www.gephebase.org/search-criteria/?and+Taxon+and+Synonyms=^Triticum>
aestivum)#gephebase-summary-title)

bread wheat

Triticum aestivum subsp. aestivum; Triticum vulgare; bread wheat; Canadian hard winter wheat; common wheat; wheat; Triticum aestivum L.; Triticum vulgare L.; Triticum vulgare Vill., nom. illeg.; Tricum aestivum; Triticum aestivam; Triticum aestivum8

species

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

Triticum () - (Rank: genus)

(<https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=4564>)

4565

(<https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=4565>)

No

is Taxon A an Infraspecies?

No

is Taxon B an Infraspecies?

No

GENOTYPIC CHANGE

VRN1

REDUCED VERNALIZATION RESPONSE 1; REM39; REPRODUCTIVE MERISTEM

39; At3g18990; K13E13.10

3702.AT3G18990.1

(http://string-db.org/newstring_cgi/show_network_section.pl?identifier=3702.AT3G18990.1)

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Sequence Similarities

GO:0043565 : sequence-specific DNA binding

(<https://www.ebi.ac.uk/QuickGO/term/GO:0043565>)

GO:0003677 : DNA binding (<https://www.ebi.ac.uk/QuickGO/term/GO:0003677>)

GO - Biological Process

UniProtKB Arabidopsis thaliana

Q8L3W1 (<http://www.uniprot.org/uniprot/Q8L3W1>)

GenebankID or UniProtKB

ACV86673 (<https://www.ncbi.nlm.nih.gov/nuccore/ACV86673>)

GO - Molecular Function

GO:0009909 : regulation of flower development
(<https://www.ebi.ac.uk/QuickGO/term/GO:0009909>)
GO:0010048 : vernalization response
(<https://www.ebi.ac.uk/QuickGO/term/GO:0010048>)

GO - Cellular Component

GO:0005654 : nucleoplasm (<https://www.ebi.ac.uk/QuickGO/term/GO:0005654>)

Presumptive Null

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

Molecular Type

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

Aberration Type

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

Deletion Size

unknown

Molecular Details of the Mutation

Deletion

Experimental Evidence

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

Main Reference

MADS box genes control vernalization-induced flowering in cereals. (2003) (<https://pubmed.ncbi.nlm.nih.gov/14557548>)

Authors

Trevaskis B; Bagnall DJ; Ellis MH; Peacock WJ; Dennis ES

Abstract

By comparing expression levels of MADS box transcription factor genes between near-isogenic winter and spring lines of bread wheat, *Triticum aestivum*, we have identified WAP1 as the probable candidate for the Vrn-1 gene, the major locus controlling the vernalization flowering response in wheat. WAP1 is strongly expressed in spring wheats and moderately expressed in semispring wheats, but is not expressed in winter wheat plants that have not been exposed to vernalization treatment. Vernalization promotes flowering in winter wheats and strongly induces expression of WAP1. WAP1 is located on chromosome 5 in wheat and, by synteny with other cereal genomes, is likely to be collocated with Vrn-1. These results in hexaploid bread wheat cultivars extend the conclusion made by Yan et al. [Yan, L., Loukoianov, A., Tranquilli, G., Helguera, M., Fahima, T. & Dubcovsky, J. (2003) Proc. Natl. Acad. Sci. USA 100, 6263-6268] in the diploid wheat progenitor *Triticum monococcum* that WAP1 (TmAP1) corresponds to the Vrn-1 gene. The barley homologue of WAP1, BM5, shows a similar pattern of expression to WAP1 and TmAP1. BM5 is not expressed in winter barleys that have not been vernalized, but as with WAP1, expression of BM5 is strongly induced by vernalization treatment. In spring barleys, the level of BM5 expression is determined by interactions between the Vrn-H1 locus and a second locus for spring habit, Vrn-H2. There is now evidence that AP1-like genes determine the time of flowering in a range of cereal and grass species.

Additional References

RELATED GEPHE

1 (Flowering locus T (=TaFT=VRN3)) (<https://www.gephebase.org/search-criteria?/or+Taxon+ID=^4565^/and+Trait=Flowering+time/and+groupHaplotypes=true#gephebase-summary-title>)

Related Genes

Related Haplotypes

No matches found.

EXTERNAL LINKS

COMMENTS