GEPHE SUMMARY

Gephebase Gene
NAM-B1 (=Gpc-B1) (https://www.gephebase.org/search-criteria?/and+Gene Gephebase=^NAM-B1 (=Gpc-B1)^#gephebase-summary-title)

GepheID
GP00000717

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

Trait State in Taxon A
Triticum turgidum ssp. Durum

Trait State in Taxon B
Triticum turgidum ssp. Durum

Trait #2

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

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

Trait State in Taxon A
-

Trait State in Taxon B
-

Ancestral State
Taxon A

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

Taxon A

Latin Name
Triticum turgidum (https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms=^Triticum turgidum^#gephebase-summary-title)

Common Name
-

Synonyms
Triticum aethiopicum; English wheat; cone wheat; poulard wheat; rivet wheat; Triticum aethiopicum Jakubz.; Triticum turgidum L.; Triticum turgidum8

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; Triticinae; Triticum

Parent
Triticum () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 4564)

NCBI Taxonomy ID
4571 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 4571)

is Taxon A an Infraspecies?
Yes

Taxon A Description
Triticum turgidum ssp. Durum

Taxon B

Latin Name
Triticum turgidum (https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms=^Triticum turgidum^#gephebase-summary-title)

Common Name
-

Synonyms
Triticum aethiopicum; English wheat; cone wheat; poulard wheat; rivet wheat; Triticum aethiopicum Jakubz.; Triticum turgidum L.; Triticum turgidum8

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; Triticinae; Triticum

Parent
Triticum () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 4564)

NCBI Taxonomy ID
4571 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 4571)

is Taxon B an Infraspecies?
Yes

Taxon B Description
Triticum turgidum ssp. Durum

GENOTYPIC CHANGE

Generic Gene Name

NAM-B1

Synonyms

GPC-B1

String

-

Sequence Similarities

-

GO - Molecular Function

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

GO - Biological Process

GO:0006355 : regulation of transcription, DNA-templated (https://www.ebi.ac.uk/QuickGO/term/GO:0006355)

GO - Cellular Component

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

UniProtKB Triticum dicoccoides

A0SPJ4 (http://www.uniprot.org/uniprot/A0SPJ4)

GenebankID or UniProtKB

()

Presumptive Null

Yes (https://www.gephebase.org/search-criteria?/and+Presumptive Null=^Yes^#gephebase-summary-title)

Molecular Type

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

Aberration Type

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

Insertion Size

1-9 bp

Molecular Details of the Mutation

1bp insertion resulting in frameshift

Experimental Evidence

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

Main Reference

A NAC Gene regulating senescence improves grain protein, zinc, and iron content in wheat. (2006) (https://pubmed.ncbi.nlm.nih.gov/17124321)

Authors

Uauy C; Distelfeld A; Fahima T; Blechl A; Dubcovsky J

Abstract

Enhancing the nutritional value of food crops is a means of improving human nutrition and health. We report here the positional cloning of Gpc-B1, a wheat quantitative trait locus associated with increased grain protein, zinc, and iron content. The ancestral wild wheat allele encodes a NAC transcription factor (NAM-B1) that accelerates senescence and increases nutrient remobilization from leaves to developing grains, whereas modern wheat varieties carry a nonfunctional NAM-B1 allele. Reduction in RNA levels of the multiple NAM homologs by RNA interference delayed senescence by more than 3 weeks and reduced wheat grain protein, zinc, and iron content by more than 30%.

Additional References

RELATED GEPHE

Related Genes

No matches found.

Related Haplotypes

No matches found.

EXTERNAL LINKS

COMMENTS