

GEPHE SUMMARY

Gephebase Gene
Barren inflorescence2 (BIF2)

Entry Status
Published

GepheID
GP00000135

Main curator
Martin

PHENOTYPIC CHANGE

Trait #1
Trait Category
Morphology

Trait
Plant architecture

Trait State in Taxon A
Zea mays

Trait State in Taxon B
Zea mays

Trait #2
Trait Category
Morphology

Trait
Inflorescence architecture

Trait State in Taxon A
-

Trait State in Taxon B
-

Ancestral State
Data not curated

Taxonomic Status
Domesticated

Taxon A

Latin Name
Zea mays

Common Name
-

Synonyms
Zea mays var. japonica; maize; Zea mays L.; Zea mays mays

Rank
species

Lineage
cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; Liliopsida; Petrosaviidae; commelinids; Poales; Poaceae; PACMAD clade; Panicoideae; Andropogonodae; Andropogoneae; Tripsacinae; Zea

Parent
Zea () - (Rank: genus)

NCBI Taxonomy ID
4577

is Taxon A an Intraspecies?
No

Taxon B

Latin Name
Zea mays

Common Name
-

Synonyms
Zea mays var. japonica; maize; Zea mays L.; Zea mays mays

Rank
species

Lineage
cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; Liliopsida; Petrosaviidae; commelinids; Poales; Poaceae; PACMAD clade; Panicoideae; Andropogonodae; Andropogoneae; Tripsacinae; Zea

Parent
Zea () - (Rank: genus)

NCBI Taxonomy ID
4577

is Taxon B an Intraspecies?
No

GENOTYPIC CHANGE

Generic Gene Name
bif2

Synonyms

UniProtKB *Zea mays*
A6MW92

GenebankID or UniProtKB

String

-

Sequence Similarities

-

GO - Molecular Function

GO:0005524 : ATP binding

GO:0004674 : protein serine/threonine kinase activity

GO - Biological Process

GO:0009908 : flower development

GO:0006468 : protein phosphorylation

GO:0048364 : root development

GO - Cellular Component

GO:0005886 : plasma membrane

GO:0005737 : cytoplasm

GO:0005634 : nucleus

Presumptive Null

Unknown

Molecular Type

Unknown

Aberration Type

Unknown

Molecular Details of the Mutation

unknown

Experimental Evidence**Linkage Mapping****Main Reference**

Natural variation in maize architecture is mediated by allelic differences at the PINOID co-ortholog barren inflorescence2. (2009)

Authors

Pressoir G; Brown PJ; Zhu W; Upadyayula N; Rocheford T; Buckler ES; Kresovich S

Abstract

We characterized allelic variation at barren inflorescence2 (bif2), a maize co-ortholog of the Arabidopsis PINOID protein kinase (PID), and tested for trait associations with bif2 in both an association mapping population of 277 diverse maize inbreds and in the inter-mated B73 x Mo17 (IBM) linkage population. Results from the quantitative analyses were compared with previous reports of bif2 phenotypes in mutagenesis studies. All three approaches (association, linkage, and mutagenesis) detect a significant effect of bif2 on tassel architecture. Association mapping implicates bif2 in an unexpectedly wide range of traits including plant height, node number, leaf length, and flowering time. Linkage mapping finds a significant interaction effect for node number between bif2 and other loci, in keeping with previous reports that bif2;spi1 and Bif2;Bif1 double mutants produce fewer phytomers. The Mo17 allele is associated with a reduced tassel branch zone and shows lower expression than the B73 allele in hybrid B73-Mo17 F(1) inflorescences, consistent with the complete absence of tassel branches in the bif2 knockout mutant. Overall, these data suggest that allelic variation at bif2 affects maize architecture by modulating auxin transport during vegetative and inflorescence development.

Additional References

The genetic architecture of maize flowering time. (2009)

RELATED GEPHE**Related Genes**

2 (teosinte branched 1 (tb1), grassy tillers1)

Related Haplotypes

No matches found.

EXTERNAL LINKS**COMMENTS**

