GEPHE SUMMARY

Gephebase Gene
Pl6 (https://www.gephebase.org/search-criteria?/and+Gene Gephebase=^Pl6^#gephebase-summary-title)

GepheID
GP00000896

Entry Status
Published

Main curator
Martin

PHENOTYPIC CHANGE

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

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

Trait State in Taxon A
Helianthus annuus - susceptible to Plasmopara halstedii

Trait State in Taxon B
Helianthus annuus - resistant to Plasmopara halstedii

Ancestral State
Taxon A

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

Taxon A

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

Common Name
common sunflower

Synonyms
common sunflower; Helianthus annuus L.; Helianthus annua; Helianthus annus; Helianthus annuus8

Rank
species

Lineage
cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; eudicotyledons; Gunneridae; Pentapetalae; asterids; campanulids; Asterales; Asteraceae; Asteroideae; Heliantheae alliance; Heliantheae; Helianthus

Parent
Helianthus () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 4231)

NCBI Taxonomy ID
4232 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 4232)

is Taxon A an Infraspecies?
No

Taxon B

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

Common Name
common sunflower

Synonyms
common sunflower; Helianthus annuus L.; Helianthus annua; Helianthus annus; Helianthus annuus8

Rank
species

Lineage
cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; eudicotyledons; Gunneridae; Pentapetalae; asterids; campanulids; Asterales; Asteraceae; Asteroideae; Heliantheae alliance; Heliantheae; Helianthus

Parent
Helianthus () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 4231)

NCBI Taxonomy ID
4232 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 4232)

is Taxon B an Infraspecies?
Yes

Taxon B Description
Helianthus annuus - resistant to Plasmopara halstedii

GENOTYPIC CHANGE

Generic Gene Name
-

Synonyms
-

String
-

Sequence Similarities
-

GO - Molecular Function
GO:0043531 : ADP binding (https://www.ebi.ac.uk/QuickGO/term/GO:0043531)

GO - Biological Process
GO:0007165 : signal transduction (https://www.ebi.ac.uk/QuickGO/term/GO:0007165)

GO - Cellular Component
GO:0016021 : integral component of membrane (https://www.ebi.ac.uk/QuickGO/term/GO:0016021)

UniProtKB Helianthus annuus
F8R6K4 (http://www.uniprot.org/uniprot/F8R6K4)

GenebankID or UniProtKB
()

Presumptive Null

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

Molecular Type

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

Aberration Type

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

Molecular Details of the Mutation

unknown ; cluster of several R-protein coding genes; of which only one is expressed

Experimental Evidence

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

Main Reference

Positional cloning of a candidate gene for resistance to the sunflower downy mildew, Plasmopara halstedii race 300. (2013) (https://pubmed.ncbi.nlm.nih.gov/23052021)

Authors

Franchel J; Bouzidi MF; Bronner G; Vear F; Nicolas P; Mouzeyar S

Abstract

The resistance of sunflower to Plasmopara halstedii is conferred by major resistance genes denoted Pl. Previous genetic studies indicated that the majority of these genes are clustered on linkage groups 8 and 13. The Pl6 locus is one of the main clusters to have been identified, and confers resistance to several P. halstedii races. In this study, a map-based cloning strategy was implemented using a large segregating F2 population to establish a fine physical map of this cluster. A marker derived from a bacterial artificial chromosome (BAC) clone was found to be very tightly linked to the gene conferring resistance to race 300, and the corresponding BAC clone was sequenced and annotated. It contains several putative genes including three toll-interleukin receptor-nucleotide binding site-leucine rich repeats (TIR-NBS-LRR) genes. However, only one TIR-NBS-LRR appeared to be expressed, and thus constitutes a candidate gene for resistance to P. halstedii race 300.

Additional References

RELATED GEPHE

Related Genes

No matches found.

Related Haplotypes

No matches found.

EXTERNAL LINKS

COMMENTS

Cluster of paralogous genes