GEPHE SUMMARY

Gephebase Gene
Hs1 = pro-1 (https://www.gephebase.org/search-criteria?/and+Gene Gephebase=^Hs1 = pro-1^#gephebase-summary-title)

GepheID
GP00000490

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

Trait State in Taxon A
Beta procumbens; Beta webbiana; Beta patellaris

Trait State in Taxon B
Beta vulgaris - sensitive

Ancestral State
Data not curated

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

Taxon A

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

Common Name
-

Synonyms
Patellifolia A.J.Scott, Ford-Lloyd & J.T.Williams, 1977

Rank
genus

Lineage
cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; eudicotyledons; Gunneridae; Pentapetalae; Caryophyllales; Chenopodiaceae; Betoideae

Parent
Betoideae () - (Rank: subfamily) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 1804621)

NCBI Taxonomy ID
319553 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 319553)

is Taxon A an Infraspecies?
No

Taxon B

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

Common Name
-

Synonyms
Beta altissima; beet; Beta altissima Steud.; Beta vulgaris L.

Rank
species

Lineage
cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; eudicotyledons; Gunneridae; Pentapetalae; Caryophyllales; Chenopodiaceae; Betoideae; Beta

Parent
Beta () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 3554)

NCBI Taxonomy ID
161934 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 161934)

is Taxon B an Infraspecies?
No

GENOTYPIC CHANGE

Generic Gene Name
HSPRO1

Synonyms
At3g55840; F27K19.20

String
3702.AT3G55840.1 (http://string-db.org/newstring_cgi/show_network_section.pl?identifier= 3702.AT3G55840.1)

Sequence Similarities
-

GO - Molecular Function
GO:0046872 : metal ion binding (https://www.ebi.ac.uk/QuickGO/term/GO:0046872)
GO:0020037 : heme binding (https://www.ebi.ac.uk/QuickGO/term/GO:0020037)

GO - Biological Process
GO:0006952 : defense response (https://www.ebi.ac.uk/QuickGO/term/GO:0006952)
GO:0019441 : tryptophan catabolic process to kynurenine (https://www.ebi.ac.uk/QuickGO/term/GO:0019441)

UniProtKB Arabidopsis thaliana
Q9LY61 (http://www.uniprot.org/uniprot/Q9LY61)

GenebankID or UniProtKB
()

GO - Cellular Component

GO:0005737 : cytoplasm (https://www.ebi.ac.uk/QuickGO/term/GO:0005737)

Presumptive Null

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

Molecular Type

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

Aberration Type

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

Molecular Details of the Mutation

cDNA sequence lacking in genomic DNA

Experimental Evidence

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

Main Reference

Positional cloning of a gene for nematode resistance in sugar beet. (1997) (https://pubmed.ncbi.nlm.nih.gov/9012350)

Authors

Cai D; Kleine M; Kifle S; Harloff HJ; Sandal NN; Marcker KA; Klein-Lankhorst RM; Salentijn EM; Lange W; Stiekema WJ; Wyss U; Grundler FM; Jung C

Abstract

The Hs1(pro-1) locus confers resistance to the beet cyst nematode (Heterodera schachtii Schmidt), a major pest in the cultivation of sugar beet (Beta vulgaris L.). The Hs1(pro-1) gene was cloned with the use of genome-specific satellite markers and chromosomal break-point analysis. Expression of the corresponding complementary DNA in a susceptible sugar beet conferred resistance to infection with the beet cyst nematode. The native Hs1(pro-1) gene, expressed in roots, encodes a 282-amino acid protein with imperfect leucine-rich repeats and a putative membrane-spanning segment, features similar to those of disease resistance genes previously cloned from higher plants.

Additional References

RELATED GEPHE

Related Genes

No matches found.

Related Haplotypes

No matches found.

EXTERNAL LINKS

COMMENTS