

	Gephebase Gene	GepheID
RPP13 (<a +rpp13+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Gene+Gephebase=">https://www.gephebase.org/search-criteria?/and+Gene+Gephebase="+RPP13+"#gephebase-summary-title)	GP00001005	Main curator
Published	Entry Status	Martin

	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
Arabidopsis thaliana	
	Trait State in Taxon B
Arabidopsis thaliana sensitive	
	Ancestral State
Data not curated	
	Taxonomic Status
Interspecific (https://www.gephebase.org/search-criteria?/and+Taxonomic+Status=^Interspecific^#gephebase-summary-title)	

Taxon A		Taxon B	
	Latin Name		Latin Name
Arabidopsis thaliana (https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms=~Arabidopsis thaliana^#gephebase-summary-title)		Arabidopsis thaliana (https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms=~Arabidopsis thaliana^#gephebase-summary-title)	
thale cress	Common Name	thale cress	Common Name
thale cress; mouse-ear cress; thale-cress; Arabidopsis thaliana (L.) Heynh.; Arabidopsis thaliana (thale cress); Arabidopsis_thaliana; Arbisopsis thaliana; thale kress	Synonyms	thale cress; mouse-ear cress; thale-cress; Arabidopsis thaliana (L.) Heynh.; Arabidopsis thaliana (thale cress); Arabidopsis_thaliana; Arbisopsis thaliana; thale kress	Synonyms
species	Rank	species	Rank
cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; eudicotyledons; Gunneridae; Pentapetales; rosids; malvids; Brassicales; Brassicaceae; Camelineae; Arabidopsis	Lineage	cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; eudicotyledons; Gunneridae; Pentapetales; rosids; malvids; Brassicales; Brassicaceae; Camelineae; Arabidopsis	Lineage
Arabidopsis () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=3701)	Parent	Arabidopsis () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=3701)	Parent
3702 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=3702)	NCBI Taxonomy ID	3702 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=3702)	NCBI Taxonomy ID
	is Taxon A an Intraspecies?		is Taxon B an Intraspecies?
No		No	

Generic Gene Name	UniProtKB Arabidopsis thaliana
RPP13	Q9M667 (http://www.uniprot.org/uniprot/Q9M667)
RECOGNITION OF PERONOSPORA PARASITICA 13; At3g46530; F12A12.50	GenebankID or UniProtKB AF209730 (https://www.ncbi.nlm.nih.gov/nuccore/AF209730)
3702.AT3G46530.1 (http://string-db.org/newstring.cgi/show_network_section.pl?identifier= 3702.AT3G46530.1)	
String	
Sequence Similarities	
Belongs to the disease resistance NB-LRR family. RPP13 subfamily.	
GO - Molecular Function	
GO:0005524 : ATP binding (https://www.ebi.ac.uk/QuickGO/term/GO:0005524)	
GO:0043531 : ADP binding (https://www.ebi.ac.uk/QuickGO/term/GO:0043531)	
GO - Biological Process	
GO:0009626 : plant-type hypersensitive response (https://www.ebi.ac.uk/QuickGO/term/GO:0009626)	
GO:0009814 : defense response, incompatible interaction	

(https://www.ebi.ac.uk/QuickGO/term/GO:0009814)	GO - Cellular Component	
GO:0005886 : plasma membrane (https://www.ebi.ac.uk/QuickGO/term/GO:0005886)		
GO:0005737 : cytoplasm (https://www.ebi.ac.uk/QuickGO/term/GO:0005737)		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
Various haplotypes		Experimental Evidence
Linkage Mapping (https://www.gephebase.org/search-criteria?/and+Experimental Evidence=~Linkage Mapping^#gephebase-summary-title)		Main Reference
The maintenance of extreme amino acid diversity at the disease resistance gene, RPP13, in Arabidopsis thaliana. (2004) (https://pubmed.ncbi.nlm.nih.gov/15082565)		Authors
Rose LE; Bittner-Eddy PD; Langley CH; Holub EB; Michelmore RW; Beynon JL		Abstract
We have used the naturally occurring plant-parasite system of Arabidopsis thaliana and its common parasite Peronospora parasitica (downy mildew) to study the evolution of resistance specificity in the host population. DNA sequence of the resistance gene, RPP13, from 24 accessions, including 20 from the United Kingdom, revealed amino acid sequence diversity higher than that of any protein coding gene reported so far in A. thaliana. A significant excess of amino acid polymorphism segregating within this species is localized within the leucine-rich repeat (LRR) domain of RPP13. These results indicate that single alleles of the gene have not swept through the population, but instead, a diverse collection of alleles have been maintained. Transgenic complementation experiments demonstrate functional differences among alleles in their resistance to various pathogen isolates, suggesting that the extreme amino acid polymorphism in RPP13 is maintained through continual reciprocal selection between host and pathogen.		
		Additional References

RELATED GEPHE

	Related Genes
20 (ACD6 = ACCELERATED CELL DEATH 6, ERECTA, RAC1, Resistance related Kinase 1 (RKS1), RLM1, RLM2 cluster, RLM3, RPM1, RPP1-WsA, RPP1-WsB, RPP1-WsC, RPP2A-RPP2B, RPP4, RPP5, RPP8, RPS2, RPS4, RPS5, RRS1, WRR4) (https://www.gephebase.org/search-criteria?/or+Taxon ID=~3702^/and+Trait=Pathogen resistance/and+groupHaplotypes=true#gephebase-summary-title)	
No matches found.	Related Haplotypes

EXTERNAL LINKS

COMMENTS