

GEPHE SUMMARY

	Gephebase Gene		GepheID
RLM2 cluster (<a +rlm2+cluster+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Gene+Gephebase=">https://www.gephebase.org/search-criteria?/and+Gene+Gephebase="+RLM2+cluster+"#gephebase-summary-title)	GP00000992		
	Entry Status	Martin	Main curator
Published			

PHENOTYPIC CHANGE

	Trait Category		
Physiology (<a +physiology+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Trait+Category=">https://www.gephebase.org/search-criteria?/and+Trait+Category="+Physiology+"#gephebase-summary-title)		Trait	
Pathogen resistance (<a +pathogen+resistance+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Trait=">https://www.gephebase.org/search-criteria?/and+Trait="+Pathogen+resistance+"#gephebase-summary-title)			
	Trait State in Taxon A		
Arabidopsis thaliana- Col0 - resistant		Trait State in Taxon B	
Arabidopsis thaliana- Ler-0 (sensitive)			
	Ancestral State		
Data not curated		Taxonomic Status	
Intraspecific (<a +intraspecific+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Taxonomic+Status=">https://www.gephebase.org/search-criteria?/and+Taxonomic+Status="+Intraspecific+"#gephebase-summary-title)			
	Taxon A		Taxon B
	Latin Name		Latin Name
Arabidopsis thaliana (<a +arabidopsis+thaliana+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=">https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms="+Arabidopsis+thaliana+"#gephebase-summary-title)		Arabidopsis thaliana (<a +arabidopsis+thaliana+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=">https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms="+Arabidopsis+thaliana+"#gephebase-summary-title)	
	Common Name		Common Name
thale cress		thale cress	
	Synonyms		Synonyms
thale cress; mouse-ear cress; thale-cress; Arabidopsis thaliana (L.) Heynh.; Arabidopsis thaliana (thale cress); Arabidopsis_thaliana; Arbisopsis thaliana; thale kress		thale cress; mouse-ear cress; thale-cress; Arabidopsis thaliana (L.) Heynh.; Arabidopsis thaliana (thale cress); Arabidopsis_thaliana; Arbisopsis thaliana; thale kress	
	Rank		Rank
species		species	
	Lineage		Lineage
cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; eudicotyledons; Gunneridae; Pentapetales; rosids; malvids; Brassicales; Brassicaceae; Camelineae; Arabidopsis		cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; eudicotyledons; Gunneridae; Pentapetales; rosids; malvids; Brassicales; Brassicaceae; Camelineae; Arabidopsis	
	Parent		Parent
Arabidopsis () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=3701)		Arabidopsis () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=3701)	
	NCBI Taxonomy ID		NCBI Taxonomy ID
3702 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=3702)		3702 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=3702)	
	is Taxon A an Intraspecies?		is Taxon B an Intraspecies?
Yes		Yes	
	Taxon A Description		Taxon B Description
Arabidopsis thaliana- Col0 - resistant		Arabidopsis thaliana- Ler-0 (sensitive)	

GENOTYPIC CHANGE

	Generic Gene Name		UniProtKB Arabidopsis thaliana
RLM1B		Q9CAK1 (http://www.uniprot.org/uniprot/Q9CAK1)	
	Synonyms		GenebankID or UniProtKB
T12P18.10; T12P18_10; At1g63880		CP002684 (https://www.ncbi.nlm.nih.gov/nucleotide/CP002684)	
	String		
3702.AT1G63880.1 (http://string-db.org/newstring.cgi/show_network_section.pl?identifier=3702.AT1G63880.1)			
	Sequence Similarities		
-			
	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:0007165 : signal transduction (https://www.ebi.ac.uk/QuickGO/term/GO:0007165)			

GO:0050832 : defense response to fungus
(<https://www.ebi.ac.uk/QuickGO/term/GO:0050832>)

GO - Cellular Component

-

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

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

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

the locus contains two paralogues; one of which is deleted and the other pseudogenized in Ler-0

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

Transgressive segregation reveals two Arabidopsis TIR-NB-LRR resistance genes effective against Leptosphaeria maculans, causal agent of blackleg disease. (2006)
(<https://pubmed.ncbi.nlm.nih.gov/16623885>)

Staal J; Kaliff M; Bohman S; Dixelius C

In a cross between the two resistant accessions Col-0 and Ler-0, a 15:1 segregation was found in F2, suggesting the presence of unlinked resistance loci to Leptosphaeria maculans. One hundred Col-4 x Ler-0, and 50 Ler-2 x Cvi-1 recombinant inbred lines, and seven susceptible Ler-0 x Ws-0 F2 progenies were examined to identify the two loci. Resistance in Col-4, Ws-0 and Cvi-1 (RLM1) was mapped to the marker m305 on chromosome 1. Col-4 x Ler-0 and Ler-2 x Cvi-1 mapping populations located RLM2(Ler) on the same arm of chromosome 4. A tight physical location of RLM2 was established through near-isogenic lines. This region was found to correspond to an ancient duplication event between the RLM1 and RLM2 loci. Two independent T-DNA mutants in a TIR-NB-LRR R gene (At1g64070) displayed susceptibility, and L. maculans susceptible mutant phenotypes were confirmed to be allelic for rlm1 in F1 after crosses with susceptible rlm1(Ler)rlm2(Col) plants. Complementation of rlm1(Ler)rlm2(Col) with the genomic Col-0 sequence of At1g64070 conferred resistance. In addition, two T-DNA mutants in a neighbouring homologous TIR-NB-LRR gene (At1g63880) displayed moderate susceptibility to L. maculans. Sequence analysis revealed that At1g64070 was truncated by a premature stop codon, and that At1g63880 was absent in Ler-0. RNA interference confirmed that Ler-0 resistance is dependent on genes structurally related to RLM1. Camalexin was identified as a quantitative co-dominant resistance factor of Col-0 origin, but independent of RLM1. RLM1/RLM2 resistance was, however, found to require RAR1 and partially HSP90.1.

Additional References

RELATED GEPHE

20 (ACD6 = ACCELERATED CELL DEATH 6, ERECTA, RAC1, Resistance related Kinase 1 (RKS1), RLM1, RLM3, RPM1, RPP1-WsA, RPP1-WsB, RPP1-WsC, RPP13, 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.

EXTERNAL LINKS

COMMENTS