

## GEPHE SUMMARY

	Gephebase Gene		GepheID
Rp3 cluster ( <a href="https://www.gephebase.org/search-criteria?/and+Gene+Gephebase+^Rp3+cluster+^#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Gene+Gephebase+^Rp3+cluster+^#gephebase-summary-title</a> )		GP00000999	
	Entry Status	Martin	Main curator
Published			

## PHENOTYPIC CHANGE

	Trait Category	
Physiology ( <a href="https://www.gephebase.org/search-criteria?/and+Trait+Category+^Physiology+^#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Trait+Category+^Physiology+^#gephebase-summary-title</a> )		
	Trait	
Pathogen resistance ( <a href="https://www.gephebase.org/search-criteria?/and+Trait+^Pathogen+resistance+^#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Trait+^Pathogen+resistance+^#gephebase-summary-title</a> )		
	Trait State in Taxon A	
Zea mays - rust susceptible		
	Trait State in Taxon B	
Zea mays - rust resistant		
	Ancestral State	
Data not curated		
	Taxonomic Status	
Domesticated ( <a href="https://www.gephebase.org/search-criteria?/and+Taxonomic+Status+^Domesticated+^#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Taxonomic+Status+^Domesticated+^#gephebase-summary-title</a> )		

Taxon A	Latin Name	Taxon B	Latin Name
Zea mays ( <a href="https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms+^Zea+mays+^#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms+^Zea+mays+^#gephebase-summary-title</a> )	Zea mays ( <a href="https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms+^Zea+mays+^#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms+^Zea+mays+^#gephebase-summary-title</a> )	Zea mays ( <a href="https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms+^Zea+mays+^#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms+^Zea+mays+^#gephebase-summary-title</a> )	Zea mays ( <a href="https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms+^Zea+mays+^#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms+^Zea+mays+^#gephebase-summary-title</a> )
-	Common Name	-	Common Name
	Synonyms		Synonyms
Zea mays var. japonica; maize; Zea mays L.; Zea mays mays species		Zea mays var. japonica; maize; Zea mays L.; Zea mays mays species	
	Rank		Rank
	Lineage		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		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		Parent
Zea () - (Rank: genus) ( <a href="https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=4575">https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=4575</a> )		Zea () - (Rank: genus) ( <a href="https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=4575">https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=4575</a> )	
4577 ( <a href="https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=4577">https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=4577</a> )	NCBI Taxonomy ID	4577 ( <a href="https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=4577">https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=4577</a> )	NCBI Taxonomy ID
	is Taxon A an Intraspecies?		is Taxon B an Intraspecies?
No		No	

## GENOTYPIC CHANGE

	Generic Gene Name		UniProtKB Zea mays
rp3-1		Q6PW75 ( <a href="http://www.uniprot.org/uniprot/Q6PW75">http://www.uniprot.org/uniprot/Q6PW75</a> )	
	Synonyms		GenebankID or UniProtKB
ZmBb24C02/130N21.1		AY574035 ( <a href="https://www.ncbi.nlm.nih.gov/nucleotide/AY574035">https://www.ncbi.nlm.nih.gov/nucleotide/AY574035</a> )	
	String		
-			
	Sequence Similarities		
Belongs to the disease resistance NB-LRR family.			
	GO - Molecular Function		
GO:0043531 : ADP binding ( <a href="https://www.ebi.ac.uk/QuickGO/term/GO:0043531">https://www.ebi.ac.uk/QuickGO/term/GO:0043531</a> )			
	GO - Biological Process		
-			
	GO - Cellular Component		
-			
			Presumptive Null
Unknown ( <a href="https://www.gephebase.org/search-criteria?/and+Presumptive+Null+^Unknown+^#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Presumptive+Null+^Unknown+^#gephebase-summary-title</a> )			
			Molecular Type
Unknown ( <a href="https://www.gephebase.org/search-criteria?/and+Molecular+Type+^Unknown+^#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Molecular+Type+^Unknown+^#gephebase-summary-title</a> )			

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

Molecular Details of the Mutation

unknown

Experimental Evidence

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

Main Reference

Genetic and molecular characterization of the maize rp3 rust resistance locus. (2002) (<https://pubmed.ncbi.nlm.nih.gov/12242248>)

Authors

Webb CA; Richter TE; Collins NC; Nicolas M; Trick HN; Pryor T; Hulbert SH

Abstract

In maize, the Rp3 gene confers resistance to common rust caused by *Puccinia sorghi*. Flanking marker analysis of rust-susceptible rp3 variants suggested that most of them arose via unequal crossing over, indicating that rp3 is a complex locus like rp1. The PIC13 probe identifies a nucleotide binding site-leucine-rich repeat (NBS-LRR) gene family that maps to the complex. Rp3 variants show losses of PIC13 family members relative to the resistant parents when probed with PIC13, indicating that the Rp3 gene is a member of this family. Gel blots and sequence analysis suggest that at least 9 family members are at the locus in most Rp3-carrying lines and that at least 5 of these are transcribed in the Rp3-A haplotype. The coding regions of 14 family members, isolated from three different Rp3-carrying haplotypes, had DNA sequence identities from 93 to 99%. Partial sequencing of clones of a BAC contig spanning the rp3 locus in the maize inbred line B73 identified five different PIC13 paralogues in a region of approximately 140 kb.

Additional References

## RELATED GEPHE

Related Genes

5 (HM1 = HC toxin reductase (HCTR), HM1 = HC toxin reductase (HCTR) [possible pseudo-replicate from other Maize entry], HM2 = HC toxin reductase (HCTR), Lysine histidine transporter 1, Rp1-D) (<https://www.gephebase.org/search-criteria?/or+Taxon+ID=~4577~/and+Trait=Pathogen+resistance/and+groupHaplotypes=true#gephebase-summary-title>)

Related Haplotypes

No matches found.

## EXTERNAL LINKS

## COMMENTS

Cluster of paralogous genes