

GEPHE SUMMARY

	Gephebase Gene	GepheID
CNL9 (=Sr35) (<a +cnl9+"(='Sr35)""' href="https://www.gephebase.org/search-criteria?/and+Gene+Gephebase=">#gephebase-summary-title)	GP00000189	
	Entry Status	Main curator
Published	Courtier	

PHENOTYPIC CHANGE

	Trait Category	
Physiology (<a +physiology+""="" href="https://www.gephebase.org/search-criteria?/and+Trait+Category=">#gephebase-summary-title)		
	Trait	
Pathogen resistance (<a +pathogen+resistance+""="" href="https://www.gephebase.org/search-criteria?/and+Trait=">#gephebase-summary-title)		
	Trait State in Taxon A	
Triticum monococcum - susceptible		
	Trait State in Taxon B	
Triticum monococcum - resistant		
	Ancestral State	
Data not curated		
	Taxonomic Status	
Domesticated (<a +domesticated+""="" href="https://www.gephebase.org/search-criteria?/and+Taxonomic+Status=">#gephebase-summary-title)		
Taxon A	Taxon B	
		Latin Name
Triticum monococcum (<a +triticum+monococcum+""="" href="https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=">#gephebase-summary-title)	Triticum monococcum (<a +triticum+monococcum+""="" href="https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=">#gephebase-summary-title)	
	Common Name	Common Name
-	-	
	Synonyms	Synonyms
Crithodium monococcum; einkorn wheat; one-grained wheat; small spelt; Crithodium monococcum (L.) A.Love; Triticum monococcum L.	Crithodium monococcum; einkorn wheat; one-grained wheat; small spelt; Crithodium monococcum (L.) A.Love; Triticum monococcum L.	
	Rank	Rank
species	species	
	Lineage	Lineage
cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; Liliopsida; Petrosaviidae; commelinids; Poales; Poaceae; BOP clade; Pooideae; Triticodae; Triticeae; Triticinae; Triticum	cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; Liliopsida; Petrosaviidae; commelinids; Poales; Poaceae; BOP clade; Pooideae; Triticodae; Triticeae; Triticinae; Triticum	
	Parent	Parent
Triticum () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=4564)	Triticum () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=4564)	
	NCBI Taxonomy ID	NCBI Taxonomy ID
4568 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=4568)	4568 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=4568)	
	is Taxon A an Intraspecies?	is Taxon B an Intraspecies?
No	No	

GENOTYPIC CHANGE

	Generic Gene Name	UniProtKB Triticum monococcum subsp. monococcum
Sr35	S5ABD6 (http://www.uniprot.org/uniprot/S5ABD6)	
	Synonyms	GenebankID or UniProtKB
-	AGP75918 (https://www.ncbi.nlm.nih.gov/nuccore/AGP75918)	
	String	
-		
	Sequence Similarities	
Belongs to the disease resistance NB-LRR family.		
	GO - Molecular Function	
GO:0043531 : ADP binding (https://www.ebi.ac.uk/QuickGO/term/GO:0043531)		
	GO - Biological Process	
-		
	GO - Cellular Component	
-		
		Presumptive Null
No (<a +no+""="" href="https://www.gephebase.org/search-criteria?/and+Presumptive+Null=">#gephebase-summary-title)		
		Molecular Type

Coding (https://www.gephebase.org/search-criteria?/and+Molecular+Type=~Coding^#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
Coding variation in the LRR domain - a spontaneous gene conversion between CNL4 and CNL9 is the most parsimonious explanation for the three linked mutations in CNL9	Experimental Evidence
Linkage Mapping (https://www.gephebase.org/search-criteria?/and+Experimental+Evidence=~Linkage+Mapping^#gephebase-summary-title)	Main Reference
Identification of wheat gene Sr35 that confers resistance to Ug99 stem rust race group. (2013) (https://pubmed.ncbi.nlm.nih.gov/23811222)	Authors
Saintenac C; Zhang W; Salcedo A; Rouse MN; Trick HN; Akhunov E; Dubcovsky J	Abstract
Wheat stem rust, caused by <i>Puccinia graminis</i> f. sp. <i>tritici</i> (Pgt), is a devastating disease that can cause severe yield losses. A previously uncharacterized Pgt race, designated Ug99, has overcome most of the widely used resistance genes and is threatening major wheat production areas. Here, we demonstrate that the Sr35 gene from <i>Triticum monococcum</i> is a coiled-coil, nucleotide-binding, leucine-rich repeat gene that confers near immunity to Ug99 and related races. This gene is absent in the A-genome diploid donor and in polyploid wheat but is effective when transferred from <i>T. monococcum</i> to polyploid wheat. The cloning of Sr35 opens the door to the use of biotechnological approaches to control this devastating disease and to analyses of the molecular interactions that define the wheat-rust pathosystem.	
Additional References	

RELATED GEPHE

1 (Mla1) (https://www.gephebase.org/search-criteria?/or+Taxon+ID=~4568^/and+Trait=Pathogen+resistance/and+groupHaplotypes=true#gephebase-summary-title)	Related Genes
No matches found.	Related Haplotypes

EXTERNAL LINKS

COMMENTS

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