

GEPHE SUMMARY

Cf-4/9 (<a +cf-4="" 9+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Gene+Gephebase=">https://www.gephebase.org/search-criteria?/and+Gene Gephebase="^Cf-4/9^#gephebase-summary-title)	Gephebase Gene	GepheID
	GP00000181	
	Entry Status	Martin
Published		Main curator

PHENOTYPIC CHANGE

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 Category		
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		
Lycopersicon pimpinellifolium - resistant		Trait State in Taxon A		
Lycopersicon esculentum Moneymaker - sensitive		Trait State in Taxon B		
Data not curated		Ancestral State		
Domesticated (<a +domesticated+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Taxonomic+Status=">https://www.gephebase.org/search-criteria?/and+Taxonomic Status="^Domesticated^#gephebase-summary-title)		Taxonomic Status		
Taxon A		Taxon B		
Solanium pimpinellifolium (<a +solanium+pimpinellifolium+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=">https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms="^Solanium pimpinellifolium^#gephebase-summary-title)		Latin Name	Solanium lycopersicum (<a +solanium+lycopersicum+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=">https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms="^Solanium lycopersicum^#gephebase-summary-title)	
-		Common Name	tomato	
Lycopersicon pimpinellifolium; Solanium pimpinellifolium var. racemigerum; currant tomato; Lycopersicon pimpinellifolium (L.) Mill.; Solanium pimpinellifolium L.		Synonyms	Lycopersicon esculentum var. esculentum; Solanium esculentum; Solanium lycopersicum var. humboldtii; tomato; Lycopersicon esculentum Mill.; Solanium esculentum Dunal; Solanium lycopersicum L.; Lycopersicon lycopersicum; Lycopersicum esculentum; Solanium lycopersicon	
species		Rank		
cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; eudicotyledons; Gunneridae; Pentapetalae; asterids; lamiids; Solanales; Solanaceae; Solanoideae; Solaneae; Solanium; Lycopersicon		Lineage	species	
Lycopersicon () - (Rank: subgenus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=49274)		Parent	Lycopersicon () - (Rank: subgenus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=49274)	
4084 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=4084)		NCBI Taxonomy ID	4081 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=4081)	
No		is Taxon A an Intraspecies?	is Taxon B an Intraspecies?	
		Yes		
			Taxon B Description	
			Lycopersicon esculentum Moneymaker - sensitive	

GENOTYPIC CHANGE

Cf-4A	Generic Gene Name	UniProtKB Solanium lycopersicum
	Synonyms	Q7DLS4 (http://www.uniprot.org/uniprot/Q7DLS4)
	String	Y12640 (https://www.ncbi.nlm.nih.gov/nuccore/Y12640)
-		GenebankID or UniProtKB
-	Sequence Similarities	
-	GO - Molecular Function	
-	GO - Biological Process	
-	GO - Cellular Component	

GO:0016021 : integral component of membrane (https://www.ebi.ac.uk/QuickGO/term/GO:0016021)	Presumptive Null
No (https://www.gephebase.org/search-criteria?/and+Presumptive Null=~No^#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
partial loss of two gene coding regions located in tandem; resulting in a chimeric gene	Experimental Evidence
Linkage Mapping (https://www.gephebase.org/search-criteria?/and+Experimental Evidence=~Linkage Mapping^#gephebase-summary-title)	Main Reference
Novel disease resistance specificities result from sequence exchange between tandemly repeated genes at the Cf-4/9 locus of tomato. (1997) (https://pubmed.ncbi.nlm.nih.gov/9413991)	Authors
Parniske M; Hammond-Kosack KE; Golstein C; Thomas CM; Jones DA; Harrison K; Wulff BB; Jones JD	Abstract
Tomato Cf genes confer resistance to C. fulvum, reside in complex loci carrying multiple genes, and encode predicted membrane-bound proteins with extracytoplasmic leucine-rich repeats. At least two Cf-9 homologs confer novel C. fulvum resistance specificities. Comparison of 11 genes revealed 7 hypervariable amino acid positions in a motif of the leucine-rich repeats predicted to form a beta-strand/beta-turn in which the hypervariable residues are solvent exposed and potentially contribute to recognition specificity. Higher nonsynonymous than synonymous substitution rates in this region imply selection for sequence diversification. We propose that the level of polymorphism between intergenic regions determines the frequency of sequence exchange between the tandemly repeated genes. This permits sufficient exchange to generate sequence diversity but prevents sequence homogenization.	Additional References

RELATED GEPHE

1 (Cf-2.1 and Cf-2.2) (https://www.gephebase.org/search-criteria?/or+Taxon ID=~4084^/and+Trait=Pathogen resistance/or+Taxon ID=~4081^/and+Trait=Pathogen resistance/and+groupHaplotypes=true#gephebase-summary-title)	Related Genes
No matches found.	Related Haplotypes

EXTERNAL LINKS

COMMENTS

Diverse family of paralogous genes