

GEPHE SUMMARY

	Gephebase Gene		GepheID
Cf-2.1 and Cf-2.2 (https://www.gephebase.org/search-criteria?/and+Gene+Gephebase=~Cf-2.1+and+Cf-2.2^#gephebase-summary-title)		GP00000180	
Published	Entry Status	Courtier	Main curator

PHENOTYPIC CHANGE

	Trait Category		
Physiology (https://www.gephebase.org/search-criteria?/and+Trait+Category=~Physiology^#gephebase-summary-title)			
	Trait		
Pathogen resistance (leaf mold fungus ; root parasitic nematode) (https://www.gephebase.org/search-criteria?/and+Trait=~Pathogen+resistance+(leaf+mold+fungus+;+root+parasitic+nematode)^#gephebase-summary-title)			
	Trait State in Taxon A		
Lycopersicon pimpinellifolium - resistant ; Lycopersicon esculentum MoneyMaker - resistance re-acquired from L. pimpinellifolium			
	Trait State in Taxon B		
Lycopersicon esculentum sensitive strains			
	Ancestral State		
Taxon A			
	Taxonomic Status		
Domesticated (https://www.gephebase.org/search-criteria?/and+Taxonomic+Status=~Domesticated^#gephebase-summary-title)			
Taxon A		Taxon B	
	Latin Name		Latin Name
Solanum pimpinellifolium (https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=~Solanum+pimpinellifolium^#gephebase-summary-title)		Solanum lycopersicum (https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=~Solanum+lycopersicum^#gephebase-summary-title)	
	Common Name		Common Name
-		tomato	
	Synonyms		Synonyms
Lycopersicon pimpinellifolium; Solanum pimpinellifolium var. racemigerum; currant tomato; Lycopersicon pimpinellifolium (L.) Mill.; Solanum pimpinellifolium L.		Lycopersicon esculentum var. esculentum; Solanum esculentum; Solanum lycopersicum var. humboldtii; tomato; Lycopersicon esculentum Mill.; Solanum esculentum Dunal; Solanum lycopersicum L.; Lycopersicon lycopersicum; Lycopersicon esculentum; Solanum lycopersicon	
	Rank		Rank
species		species	
	Lineage		Lineage
cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; eudicotyledons; Gunneridae; Pentapetalae; asterids; lamiids; Solanales; Solanaceae; Solanoideae; Solaneae; Solanum; Lycopersicon		cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; eudicotyledons; Gunneridae; Pentapetalae; asterids; lamiids; Solanales; Solanaceae; Solanoideae; Solaneae; Solanum; Lycopersicon	
	Parent		Parent
Lycopersicon () - (Rank: subgenus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=49274)		Lycopersicon () - (Rank: subgenus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=49274)	
	NCBI Taxonomy ID		NCBI Taxonomy ID
4084 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=4084)		4081 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=4081)	
	is Taxon A an Intraspecies?		is Taxon B an Intraspecies?
No		No	

GENOTYPIC CHANGE

	Generic Gene Name		UniProtKB Solanum pimpinellifolium
-		Q41398 (http://www.uniprot.org/uniprot/Q41398)	
	Synonyms		GenebankID or UniProtKB
-		AAC15779 (https://www.ncbi.nlm.nih.gov/nucore/AAC15779)	
	String		
-			
	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

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

Molecular Type

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

Aberration Type

Deletion ([https://www.gephebase.org/search-criteria?/and+Aberration Type=~Deletion^#gephebase-summary-title](https://www.gephebase.org/search-criteria?/and+Aberration+Type=~Deletion^#gephebase-summary-title))

Deletion Size

-

Molecular Details of the Mutation

loss of the two genes Cf-2.1 and Cf-2.2 (see Dixon et al. 1998) in cultivated tomato - resistance re-acquired from related species

Experimental Evidence

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

Main Reference

The tomato Cf-2 disease resistance locus comprises two functional genes encoding leucine-rich repeat proteins. (1996) (<https://pubmed.ncbi.nlm.nih.gov/8608599>)

Authors

Dixon MS; Jones DA; Keddie JS; Thomas CM; Harrison K; Jones JD

Abstract

In plants, resistance to pathogens is frequently determined by dominant resistance genes, whose products are proposed to recognize pathogen-encoded avirulence gene (*Avr*) products. The tomato resistance locus Cf-2 was isolated by positional cloning and found to contain two almost identical genes, each conferring resistance to isolates of tomato leaf mould (*C. fulvum*) expressing the corresponding *Avr2* gene. The two Cf-2 genes encode protein products that differ from each other by only three amino acids and contain 38 leucine-rich repeat (LRR) motifs. Of the LRRs, 20 show extremely conserved alternating repeats. The C-terminus of Cf-2 carries regions of pronounced homology to the protein encoded by the unlinked Cf-9 gene. We suggest that this conserved region interacts with other proteins involved in activating plant defense mechanisms.

Additional References

The tomato Cf-5 disease resistance gene and six homologs show pronounced allelic variation in leucine-rich repeat copy number. (1998) (<https://pubmed.ncbi.nlm.nih.gov/9811798>)

Dual disease resistance mediated by the immune receptor Cf-2 in tomato requires a common virulence target of a fungus and a nematode. (2012) (<https://pubmed.ncbi.nlm.nih.gov/22675118>)

RELATED GEPHE

Related Genes

1 (Cf-4/9) ([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](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 Haplotypes

No matches found.

EXTERNAL LINKS

COMMENTS

Diverse family of paralogous genes : @Introgression