

GEPHE SUMMARY

SRF3 (https://www.gephebase.org/search-criteria?/and+Gene Gephebase= [^] SRF3 [^] #gephebase-summary-title)	Gephebase Gene	GP00001072	GepheID
Published	Entry Status	Martin	Main curator

PHENOTYPIC CHANGE

Physiology (https://www.gephebase.org/search-criteria?/and+Trait Category= [^] Physiology [^] #gephebase-summary-title)	Trait Category		
Hybrid Incompatibility (https://www.gephebase.org/search-criteria?/and+Trait = [^] Hybrid Incompatibility [^] #gephebase-summary-title)	Trait		
Arabidopsis thaliana - Ler and Col (Northern Europe) "compatible"	Trait State in Taxon A		
Arabidopsis thaliana - Kas-2 (Central Asia) "incompatible" [Hybrids with Ler show a stong growth defect at 14C]	Trait State in Taxon B		
Unknown	Ancestral State		
Intraspecific (https://www.gephebase.org/search-criteria?/and+Taxonomic Status= [^] Intraspecific [^] #gephebase-summary-title)	Taxonomic Status		
	Taxon A		Taxon B
Arabidopsis thaliana (https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms= [^] Arabidopsis thaliana [^] #gephebase-summary-title)	Latin Name	Arabidopsis thaliana (https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms= [^] Arabidopsis thaliana [^] #gephebase-summary-title)	Latin Name
thale cress	Common Name	thale cress	Common Name
thale cress; mouse-ear cress; thale-cress; Arabidopsis thaliana (L.) Heynh.; Arabidopsis thaliana (thale cress); Arabidopsis...thaliana; Arbisopsis thaliana; thale kress	Synonyms	thale cress; mouse-ear cress; thale-cress; Arabidopsis thaliana (L.) Heynh.; Arabidopsis thaliana (thale cress); Arabidopsis...thaliana; Arbisopsis thaliana; thale kress	Synonyms
species	Rank	species	Rank
cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; eudicotyledons; Gunneridae; Pentapetalae; rosids; malvids; Brassicales; Brassicaceae; Camelineae; Arabidopsis	Lineage	cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; eudicotyledons; Gunneridae; Pentapetalae; rosids; malvids; Brassicales; Brassicaceae; Camelineae; Arabidopsis	Lineage
Arabidopsis () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=3701)	Parent	Arabidopsis () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=3701)	Parent
3702 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=3702)	NCBI Taxonomy ID	3702 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=3702)	NCBI Taxonomy ID
Yes	is Taxon A an Intraspecies?	Yes	is Taxon B an Intraspecies?
Arabidopsis thaliana - Ler and Col (Northern Europe) "compatible"	Taxon A Description	Arabidopsis thaliana - Kas-2 (Central Asia) "incompatible" [Hybrids with Ler show a stong growth defect at 14C]	Taxon B Description

GENOTYPIC CHANGE

SRF3	Generic Gene Name	Q6R2K3 (http://www.uniprot.org/uniprot/Q6R2K3)	UniProtKB Arabidopsis thaliana
F4C21.35; F4C21_35; STRUBBELIG-receptor family 3; At4g03390	Synonyms	()	GenebankID or UniProtKB
3702.AT4G03390.1 (http://string-db.org/newstring.cgi/show_network_section.pl?identifier=3702.AT4G03390.1)	String		
Belongs to the protein kinase superfamily. Ser/Thr protein kinase family.	Sequence Similarities		
GO:0005524 : ATP binding (https://www.ebi.ac.uk/QuickGO/term/GO:0005524)	GO - Molecular Function		
GO:0004675 : transmembrane receptor protein serine/threonine kinase activity			

(<https://www.ebi.ac.uk/QuickGO/term/GO:0004675>)

GO - Biological Process

GO:0006468 : protein phosphorylation

(<https://www.ebi.ac.uk/QuickGO/term/GO:0006468>)

GO:0007623 : circadian rhythm (<https://www.ebi.ac.uk/QuickGO/term/GO:0007623>)

GO - Cellular Component

GO:0016021 : integral component of membrane

(<https://www.ebi.ac.uk/QuickGO/term/GO:0016021>)

GO:0005886 : plasma membrane (<https://www.ebi.ac.uk/QuickGO/term/GO:0005886>)

Presumptive Null

No ([https://www.gephebase.org/search-criteria?/and+Presumptive Null="+No^"#gephebase-summary-title](https://www.gephebase.org/search-criteria?/and+Presumptive+Null=))

Molecular Type

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

Aberration Type

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

Molecular Details of the Mutation

Complex haplotype

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=))

Main Reference

Natural variation at Strubbelig Receptor Kinase 3 drives immune-triggered incompatibilities between *Arabidopsis thaliana* accessions. (2010) (<https://pubmed.ncbi.nlm.nih.gov/21037570>)

Authors

Alcázar R; Garc a AV; Kronholm I; de Meaux J; Koornneef M; Parker JE; Reymond M

Abstract

Accumulation of genetic incompatibilities within species can lead to reproductive isolation and, potentially, speciation. In this study, we show that allelic variation at SRF3 (Strubbelig Receptor Family 3), encoding a receptor-like kinase, conditions the occurrence of incompatibility between *Arabidopsis thaliana* accessions. The geographical distribution of SRF3 alleles reveals that allelic forms causing epistatic incompatibility with a *Landsberg erecta* allele at the RPP1 resistance locus are present in *A. thaliana* accessions in central Asia. Incompatible SRF3 alleles condition for an enhanced early immune response to pathogens as compared to the resistance-dampening effect of compatible SRF3 forms in isogenic backgrounds. Variation in disease susceptibility suggests a basis for the molecular patterns of a recent selective sweep detected at the SRF3 locus in central Asian populations.

Additional References

Analysis of a plant complex resistance gene locus underlying immune-related hybrid incompatibility and its occurrence in nature. (2014) (<https://pubmed.ncbi.nlm.nih.gov/25503786>)

RELATED GEPHE

Related Genes

2 (AT5G41740/AT5G41750, RPP1) ([https://www.gephebase.org/search-criteria?/or+Taxon ID="+3702^"/and+Trait=Hybrid Incompatibility/and+groupHaplotypes=true#gephebase-summary-title](https://www.gephebase.org/search-criteria?/or+Taxon+ID=))

Related Haplotypes

1 ([https://www.gephebase.org/search-criteria?/or+Gene Gephebase="+SRF3^"/and+Taxon ID="+3702^"/or+Gene Gephebase="+SRF3^"/and+Taxon ID="+3702^"#gephebase-summary-title](https://www.gephebase.org/search-criteria?/or+Gene+Gephebase=))

EXTERNAL LINKS

COMMENTS

@Epistasis - Recessive incompatibility trait ; epistatic interaction with RPP1 resistance locus