

## GEPHE SUMMARY

<p>SRF3 (<a href="https://www.gephebase.org/search-criteria?/and+Gene">https://www.gephebase.org/search-criteria?/and+Gene</a> Gephebase=<sup>^</sup>SRF3<sup>^</sup>#gephebase-summary-title)</p> <p>Published</p>	<p>Gephebase Gene</p> <p>Entry Status</p>	<p>GP00001072</p> <p>Martin</p>	<p>GepheID</p> <p>Main curator</p>
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## PHENOTYPIC CHANGE

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

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