

# GEPHE SUMMARY

RAS1 ( <a href="https://www.gephebase.org/search-criteria?/and+Gene">https://www.gephebase.org/search-criteria?/and+Gene</a> Gephebase=RAS1^#gephebase-summary-title)	Gephebase Gene	GP00000953	GephelD
Published	Entry Status	Martin	Main curator

## PHENOTYPIC CHANGE

Trait #1	Trait Category
Physiology ( <a href="https://www.gephebase.org/search-criteria?/and+Trait">https://www.gephebase.org/search-criteria?/and+Trait</a> Category=Physiology^#gephebase-summary-title)	Trait
Salt tolerance ( <a href="https://www.gephebase.org/search-criteria?/and+Trait=^Salt">https://www.gephebase.org/search-criteria?/and+Trait=^Salt</a> tolerance^#gephebase-summary-title)	Trait State in Taxon A
Arabidopsis thaliana - Sha	Trait State in Taxon B
Arabidopsis thaliana- Ler0	

Trait #2	Trait Category
Physiology ( <a href="https://www.gephebase.org/search-criteria?/and+Trait">https://www.gephebase.org/search-criteria?/and+Trait</a> Category=Physiology^#gephebase-summary-title)	Trait
Abscisic acid sensitivity ( <a href="https://www.gephebase.org/search-criteria?/and+Trait=^Abscisic acid sensitivity^#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Trait=^Abscisic acid sensitivity^#gephebase-summary-title</a> )	Trait State in Taxon A
-	Trait State in Taxon B
-	

Data not curated	Ancestral State	
Intraspecific ( <a href="https://www.gephebase.org/search-criteria?/and+Taxonomic">https://www.gephebase.org/search-criteria?/and+Taxonomic</a> Status=Intraspecific^#gephebase-summary-title)	Taxonomic Status	
Arabidopsis thaliana ( <a href="https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms=^Arabidopsis thaliana^#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms=^Arabidopsis thaliana^#gephebase-summary-title</a> )	Taxon A	Latin 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	
species	Rank	
cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; eudicotyledons; Gunneridae; Pentapetalae; rosids; malvids; Brassicales; Brassicaceae; Camelinae; Arabidopsis	Lineage	
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> )	Parent	
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> )	NCBI Taxonomy ID	NCBI Taxonomy ID
Yes	is Taxon A an Infraspecies?	
Arabidopsis thaliana - Sha	Taxon A Description	Taxon B Description
Arabidopsis thaliana- Ler0		

## GENOTYPIC CHANGE

RAS1	Generic Gene Name	UniProtKB Arabidopsis thaliana
F21M12.34; F21M12_34; RESPONSE TO ABA AND SALT 1; At1g09950	Synonyms	GenebankID or UniProtKB
3702.AT1G09950.1 ( <a href="http://string-db.org/newstring_cgi/show_network_section.pl?identifier=3702.AT1G09950.1">http://string-db.org/newstring_cgi/show_network_section.pl?identifier=3702.AT1G09950.1</a> )	String	CP002684 ( <a href="https://www.ncbi.nlm.nih.gov/nuccore/CP002684">https://www.ncbi.nlm.nih.gov/nuccore/CP002684</a> )
-	Sequence Similarities	
GO:0043565 : sequence-specific DNA binding ( <a href="https://www.ebi.ac.uk/QuickGO/term/GO:0043565">https://www.ebi.ac.uk/QuickGO/term/GO:0043565</a> )	GO - Molecular Function	
GO:0006351 : transcription, DNA-templated ( <a href="https://www.ebi.ac.uk/QuickGO/term/GO:0006351">https://www.ebi.ac.uk/QuickGO/term/GO:0006351</a> )	GO - Biological Process	
-	GO - Cellular Component	
Yes ( <a href="https://www.gephbase.org/search-criteria/?and+Presumptive+Null=%Yes%#gephbase-summary-title">https://www.gephbase.org/search-criteria/?and+Presumptive+Null=%Yes%#gephbase-summary-title</a> )		Presumptive Null
Coding ( <a href="https://www.gephbase.org/search-criteria/?and+Molecular+Type=%Coding%#gephbase-summary-title">https://www.gephbase.org/search-criteria/?and+Molecular+Type=%Coding%#gephbase-summary-title</a> )		Molecular Type
SNP ( <a href="https://www.gephbase.org/search-criteria/?and+Aberration+Type=%SNP%#gephbase-summary-title">https://www.gephbase.org/search-criteria/?and+Aberration+Type=%SNP%#gephbase-summary-title</a> )		Aberration Type
Nonsense		SNP Coding Change
Premature stop codon; Lys>STOP		Molecular Details of the Mutation
Linkage Mapping ( <a href="https://www.gephbase.org/search-criteria/?and+Experimental+Evidence=%Linkage+Mapping%#gephbase-summary-title">https://www.gephbase.org/search-criteria/?and+Experimental+Evidence=%Linkage+Mapping%#gephbase-summary-title</a> )		Experimental Evidence

	Taxon A	Taxon B	Position
Codon	-	-	-
Amino-acid	-	-	-

RAS1, a quantitative trait locus for salt tolerance and ABA sensitivity in *Arabidopsis*. (2010) (<https://pubmed.ncbi.nlm.nih.gov/20212128>)

Ren Z; Zheng Z; Chinnusamy V; Zhu J; Cui X; Iida K; Zhu JK

Soil salinity limits agricultural production and is a major obstacle for feeding the growing world population. We used natural genetic variation in salt tolerance among different *Arabidopsis* accessions to map a major quantitative trait locus (QTL) for salt tolerance and abscisic acid (ABA) sensitivity during seed germination and early seedling growth. A recombinant inbred population derived from Landsberg erecta (Ler; salt and ABA sensitive) x Shakdara (Sha; salt and ABA resistant) was used for QTL mapping. High-resolution mapping and cloning of this QTL, Response to ABA and Salt 1 (RAS1), revealed that it is an ABA- and salt stress-inducible gene and encodes a previously undescribed plant-specific protein. A premature stop codon results in a truncated RAS1 protein in Sha. Reducing the expression of RAS1 by transfer-DNA insertion in Col or RNA interference in Ler leads to decreased salt and ABA sensitivity, whereas overexpression of the Ler allele but not the Sha allele causes increased salt and ABA sensitivity. Our results suggest that RAS1 functions as a negative regulator of salt tolerance during seed germination and early seedling growth by enhancing ABA sensitivity and that its loss of function contributes to the increased salt tolerance of Sha.

Additional References

## RELATED GEPHE

1 (AtHKT1) ( <a href="https://www.gephbase.org/search-criteria/?or+Taxon+ID=%3702%and+Trait=Salt+tolerance/or+Taxon+ID=%3702%and+Trait=Abscisic+acid+sensitivity/groupHaplotypes=true#gephbase-summary-title">https://www.gephbase.org/search-criteria/?or+Taxon+ID=%3702%and+Trait=Salt+tolerance/or+Taxon+ID=%3702%and+Trait=Abscisic+acid+sensitivity/groupHaplotypes=true#gephbase-summary-title</a> )	Related Genes
No matches found.	Related Haplotypes

## EXTERNAL LINKS

## COMMENTS

