

	Gephebase Gene	GepheID
RAS1 (<a +ras1+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Gene+Gephebase=">https://www.gephebase.org/search-criteria?/and+Gene+Gephebase="+RAS1+"#gephebase-summary-title)	GP00000953	Main curator
Published	Entry Status: Martin	

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

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

Ancestral State
 Data not curated
 Taxonomic Status
 Intraspecific (<https://www.gephebase.org/search-criteria?/and+Taxonomic+Status=+Intraspecific+#+gephebase-summary-title>)

Taxon A	Latin Name
Arabidopsis thaliana (https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms="Arabidopsis thaliana"#gephebase-summary-title)	thale cress
thale cress; mouse-ear cress; thale-cress; Arabidopsis thaliana (L.) Heynh.; Arabidopsis thaliana (thale cress); Arabidopsis_thaliana; Arbisopsis thaliana; thale kress	species
cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; eudicotyledons; Gunneridae; Pentapetales; rosids; malvids; Brassicales; Brassicaceae; Camelineae; Arabidopsis	Rank
Arabidopsis () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 3701)	Lineage
3702 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 3702)	Parent
Yes	NCBI Taxonomy ID
is Taxon A an Intraspecies?	Taxon A Description
Arabidopsis thaliana - Sha	

Taxon B	Latin Name
Arabidopsis thaliana (https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms=~Arabidopsis thaliana~#gephebase-summary-title)	
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; Embryophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; eudicotyledons; Gunneridae; Pentapetales; rosids; malvids; Brassicales; Brassicaceae; Camelineae; Arabidopsis	Lineage
Arabidopsis () - (Rank: genus)	Parent
(https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 3701) 3702 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 3702)	NCBI Taxonomy ID
Yes	is Taxon B an Intraspecies?
Arabidopsis thaliana- Ler0	Taxon B Description

GENOTYPIC CHANGE

RAS1	Generic Gene Name	UniProtKB Arabidopsis thaliana	
		O04515 (http://www.uniprot.org/uniprot/O04515)	
	Synonyms	GenebankID or UniProtKB	
		CP002684 (https://www.ncbi.nlm.nih.gov/nucore/CP002684)	
F21M12.34; F21M12_34; RESPONSE TO ABA AND SALT 1; At1g09950			
String			
3702.AT1G09950.1			
(http://string-db.org/newstring.cgi/show_network_section.pl?identifier=3702.AT1G09950.1)			
)			
Sequence Similarities			
-			
GO - Molecular Function			
GO:0043565 : sequence-specific DNA binding			
(https://www.ebi.ac.uk/QuickGO/term/GO:0043565)			
GO - Biological Process			
GO:0006351 : transcription, DNA-templated			
(https://www.ebi.ac.uk/QuickGO/term/GO:0006351)			
GO - Cellular Component			
-			
Yes (https://www.gephebase.org/search-criteria?/and+Presumptive+Null=~Yes~#gephebase-summary-title)			Presumptive Null
Coding (https://www.gephebase.org/search-criteria?/and+Molecular+Type=~Coding~#gephebase-summary-title)			Molecular Type
SNP (https://www.gephebase.org/search-criteria?/and+Aberration+Type=~SNP~#gephebase-summary-title)			Aberration Type
Nonsense			SNP Coding Change
Premature stop codon; Lys>STOP			Molecular Details of the Mutation
Linkage Mapping (https://www.gephebase.org/search-criteria?/and+Experimental+Evidence=~Linkage+Mapping~#gephebase-summary-title)			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)			Main Reference
Ren Z; Zheng Z; Chinnusamy V; Zhu J; Cui X; lida K; Zhu JK			Authors
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.			Abstract
			Additional References

RELATED GEPHE

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

EXTERNAL LINKS

COMMENTS

