

GEPHE SUMMARY

<p>DOG1 (DELAY OF GERMINATION 1) (https://www.gephebase.org/search-criteria?/and+Gene+Gephebase=^DOG1+(DELAY+OF+GERMINATION+1)^#gephebase-summary-title)</p> <p>Published</p>	<p>Gephebase Gene</p> <p>Entry Status</p>	<p>GP00000231</p> <p>Martin</p>	<p>GepheID</p> <p>Main curator</p>
---	---	---------------------------------	------------------------------------

PHENOTYPIC CHANGE

<p>Physiology (https://www.gephebase.org/search-criteria?/and+Trait+Category=^Physiology^#gephebase-summary-title)</p> <p>Seed dormancy (https://www.gephebase.org/search-criteria?/and+Trait=^Seed+dormancy^#gephebase-summary-title)</p> <p>Arabidopsis thaliana- Ler0</p> <p>Arabidopsis thaliana- Cvi and other lines</p> <p>Data not curated</p> <p>Intraspecific (https://www.gephebase.org/search-criteria?/and+Taxonomic+Status=^Intraspecific^#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>Arabidopsis thaliana (https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=^Arabidopsis+thaliana^#gephebase-summary-title)</p> <p>thale cress</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>species</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>Arabidopsis () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=3701)</p> <p>3702 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=3702)</p> <p>Yes</p> <p>Arabidopsis thaliana- Ler0</p>	<p>Latin Name</p> <p>Common Name</p> <p>Synonyms</p> <p>Rank</p> <p>Lineage</p> <p>Parent</p> <p>NCBI Taxonomy ID</p> <p>is Taxon A an Intraspecies?</p> <p>Taxon A Description</p>	<p>Taxon B</p> <p>Arabidopsis thaliana (https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=^Arabidopsis+thaliana^#gephebase-summary-title)</p> <p>thale cress</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>species</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>Arabidopsis () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=3701)</p> <p>3702 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=3702)</p> <p>Yes</p> <p>Arabidopsis thaliana- Cvi and other lines</p>	<p>Latin Name</p> <p>Common Name</p> <p>Synonyms</p> <p>Rank</p> <p>Lineage</p> <p>Parent</p> <p>NCBI Taxonomy ID</p> <p>is Taxon B an Intraspecies?</p> <p>Taxon B Description</p>
--	---	--	---	---	---

GENOTYPIC CHANGE

<p>DOG1</p> <p>ATDOG1; DELAY OF GERMINATION 1; GAAS5; germination ability after storage 5; GLUCOSE SENSING QTL 5; GSQ5; K15122.3; K15122_3; At5g45830</p> <p>3702.AT5G45830.1 (http://string-db.org/newstring.cgi/show_network_section.pl?identifier=3702.AT5G45830.1)</p> <p>-</p> <p>GO:0043565 : sequence-specific DNA binding (https://www.ebi.ac.uk/QuickGO/term/GO:0043565)</p>	<p>Generic Gene Name</p> <p>Synonyms</p> <p>String</p> <p>Sequence Similarities</p> <p>GO - Molecular Function</p>	<p>A0SVK0 (http://www.uniprot.org/uniprot/A0SVK0)</p> <p>EF028469 (https://www.ncbi.nlm.nih.gov/nucleotide/EF028469)</p>	<p>UniProtKB Arabidopsis thaliana</p> <p>GenebankID or UniProtKB</p>
--	--	---	--

GO - Biological Process

GO:0006351 : transcription, DNA-templated
(<https://www.ebi.ac.uk/QuickGO/term/GO:0006351>)
GO:0009738 : abscisic acid-activated signaling pathway
(<https://www.ebi.ac.uk/QuickGO/term/GO:0009738>)
GO:2000033 : regulation of seed dormancy process
(<https://www.ebi.ac.uk/QuickGO/term/GO:2000033>)
GO:0010162 : seed dormancy process
(<https://www.ebi.ac.uk/QuickGO/term/GO:0010162>)
GO:0010182 : sugar mediated signaling pathway
(<https://www.ebi.ac.uk/QuickGO/term/GO:0010182>)

GO - Cellular Component

GO:0005634 : nucleus (<https://www.ebi.ac.uk/QuickGO/term/GO:0005634>)

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

Cis-regulatory (<https://www.gephebase.org/search-criteria?/and+Molecular Type=^Cis-regulatory^#gephebase-summary-title>)

Unknown (<https://www.gephebase.org/search-criteria?/and+Aberration Type=^Unknown^#gephebase-summary-title>)

Not identified (possibly polyallelic as each cross to the Ler accession showed different DOG1 effects)

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

Cloning of DOG1, a quantitative trait locus controlling seed dormancy in Arabidopsis. (2006) (<https://pubmed.ncbi.nlm.nih.gov/17065317>)

Bentsink L; Jowett J; Hanhart CJ; Koornneef M

Genetic variation for seed dormancy in nature is a typical quantitative trait controlled by multiple loci on which environmental factors have a strong effect. Finding the genes underlying dormancy quantitative trait loci is a major scientific challenge, which also has relevance for agriculture and ecology. In this study we describe the identification of the DELAY OF GERMINATION 1 (DOG1) gene previously identified as a quantitative trait locus involved in the control of seed dormancy. This gene was isolated by a combination of positional cloning and mutant analysis and is absolutely required for the induction of seed dormancy. DOG1 is a member of a small gene family of unknown molecular function, with five members in Arabidopsis. The functional natural allelic variation present in Arabidopsis is caused by polymorphisms in the cis-regulatory region of the DOG1 gene and results in considerable expression differences between the DOG1 alleles of the accessions analyzed.

Genome-wide association study of 107 phenotypes in Arabidopsis thaliana inbred lines. (2010) (<https://pubmed.ncbi.nlm.nih.gov/20336072>)

Genome-wide patterns of genetic variation in worldwide Arabidopsis thaliana accessions from the RegMap panel. (2012) (<https://pubmed.ncbi.nlm.nih.gov/22231484>)

Seed Dormancy in Arabidopsis Requires Self-Binding Ability of DOG1 Protein and the Presence of Multiple Isoforms Generated by Alternative Splicing. (2015) (<https://pubmed.ncbi.nlm.nih.gov/26684465>)

Presumptive Null

Molecular Type

Aberration Type

Molecular Details of the Mutation

Experimental Evidence

Main Reference

Authors

Abstract

Additional References

RELATED GEPHE

2 (D14 (KAI2 paralog), RDO5 REDUCED DORMANCY5) (<https://www.gephebase.org/search-criteria?/or+Taxon ID=^3702^/and+Trait=Seed dormancy/and+groupHaplotypes=true#gephebase-summary-title>)

1 ([https://www.gephebase.org/search-criteria?/or+Gene Gephebase=^DOG1 \(DELAY OF GERMINATION 1\)^/and+Taxon ID=^3702^/or+Gene Gephebase=^DOG1 \(DELAY OF GERMINATION 1\)^/and+Taxon ID=^3702^#gephebase-summary-title](https://www.gephebase.org/search-criteria?/or+Gene Gephebase=^DOG1 (DELAY OF GERMINATION 1)^/and+Taxon ID=^3702^/or+Gene Gephebase=^DOG1 (DELAY OF GERMINATION 1)^/and+Taxon ID=^3702^#gephebase-summary-title))

Related Genes

Related Haplotypes

EXTERNAL LINKS

COMMENTS

@GxE