

	Gephebase Gene	GepheID
GLABROUS1 (https://www.gephebase.org/search-criteria?/and+GeneGephebase=^GLABROUS1^#gephebase-summary-title)	GP00001240	Main curator
Published	Entry Status	Arnoult

Morphology (#gephebase-summary-title)		Trait Category	
Trichome density (leaf) (https://www.gephebase.org/search-criteria?/and+Trait=~Trichome density (leaf)#gephebase-summary-title)		Trait	
Arabidopsis thaliana- Colo		Trait State in Taxon A	
Arabidopsis thaliana Fran-3 and PHW-2 - Glabrous		Trait State in Taxon B	
Data not curated		Ancestral State	
Intraspecific (#gephebase-summary-title)		Taxonomic Status	
Taxon A		Taxon B	
Arabidopsis thaliana (#gephebase-summary-title)		Arabidopsis thaliana (#gephebase-summary-title)	
thale cress		thale cress	
thale cress; mouse-ear cress; thale-cress; Arabidopsis thaliana (L.) Heynh.; Arabidopsis thaliana (thale cress); Arabidopsis_thaliana; Arbisopsis thaliana; thale kress		thale cress; mouse-ear cress; thale-cress; Arabidopsis thaliana (L.) Heynh.; Arabidopsis thaliana (thale cress); Arabidopsis_thaliana; Arbisopsis thaliana; thale kress	
species		species	
cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; eudicotyledons; Gunneridae; Pentapetalae; rosids; malvids; Brassicales; Brassicaceae; Camelineae; Arabidopsis		cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; eudicotyledons; Gunneridae; Pentapetalae; rosids; malvids; Brassicales; Brassicaceae; Camelineae; Arabidopsis	
Arabidopsis () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=3701)		Arabidopsis () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=3701)	
NCBI Taxonomy ID 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)	
is Taxon A an Intraspecies?		is Taxon B an Intraspecies?	
Yes		Yes	
Arabidopsis thaliana- Colo		Arabidopsis thaliana Fran-3 and PHW-2	
Taxon A Description		Taxon B Description	

GL1	Generic Gene Name	UniProtKB Arabidopsis thaliana
	Synonyms	GenebankID or UniProtKB
ATGL1; ATMYB0; GL1; GLABRA 1; myb domain protein 0; TRICHOME DIFFERENTIATION PROTEIN GL1; MYB0; At3g27920; K16N12.17		P27900 (http://www.uniprot.org/uniprot/P27900) ABD65321 (https://www.ncbi.nlm.nih.gov/nuccore/ABD65321)
	String	
3702.AT3G27920.1 (http://string-db.org/newstring.cgi/show_network_section.pl?identifier= 3702.AT3G27920.1)		
	Sequence Similarities	
-		
	GO - Molecular Function	
GO:0003700 : DNA-binding transcription factor activity (https://www.ebi.ac.uk/QuickGO/term/GO:0003700)		
GO:0043565 : sequence-specific DNA binding		

(<https://www.ebi.ac.uk/QuickGO/term/GO:0043565>)
GO:0044212 : transcription regulatory region DNA binding
(<https://www.ebi.ac.uk/QuickGO/term/GO:0044212>)
GO:0003677 : DNA binding (<https://www.ebi.ac.uk/QuickGO/term/GO:0003677>)
GO - Biological Process
GO:0030154 : cell differentiation (<https://www.ebi.ac.uk/QuickGO/term/GO:0030154>)
GO:0009740 : gibberellic acid mediated signaling pathway
(<https://www.ebi.ac.uk/QuickGO/term/GO:0009740>)
GO:0001708 : cell fate specification (<https://www.ebi.ac.uk/QuickGO/term/GO:0001708>)
GO:0009867 : jasmonic acid mediated signaling pathway
(<https://www.ebi.ac.uk/QuickGO/term/GO:0009867>)
GO:0010026 : trichome differentiation
(<https://www.ebi.ac.uk/QuickGO/term/GO:0010026>)
GO:0032880 : regulation of protein localization
(<https://www.ebi.ac.uk/QuickGO/term/GO:0032880>)
GO:2000039 : regulation of trichome morphogenesis
(<https://www.ebi.ac.uk/QuickGO/term/GO:2000039>)
GO:0048629 : trichome patterning (<https://www.ebi.ac.uk/QuickGO/term/GO:0048629>)
GO - Cellular Component
GO:0005634 : nucleus (<https://www.ebi.ac.uk/QuickGO/term/GO:0005634>)

Yes (#gephebase-summary-title)	Presumptive Null
Coding (#gephebase-summary-title)	Molecular Type
Insertion (#gephebase-summary-title)	Aberration Type
1-9 bp	Insertion Size
+1bp at position 352 causing premature stop	Molecular Details of the Mutation
Candidate Gene (#gephebase-summary-title)	Experimental Evidence
Trichome distribution in Arabidopsis thaliana and its close relative Arabidopsis lyrata: molecular analysis of the candidate gene GLABROUS1. (2001) (https://pubmed.ncbi.nlm.nih.gov/11504855)	Main Reference
Hauser MT; Harr B; Schl��tterer C	Authors

GLABROUS1 (GL1) belongs to the large family of MYB transcription factors and is known to play a central role in trichome initiation. We studied trichome distribution and the molecular variation of GL1 in 28 A. thaliana accessions. Trichome density on rosette leaves was highly variable among those accessions. On the molecular level, we detected substantial sequence variation in a 3-kb fragment which included the complete coding region of the GL1 locus (pi = 0.01). Phylogenetic analysis of GL1 indicates the presence of two diverged clades among 28 accessions. Using ANOVA, we show that the phenotypic variation in trichome density cannot be explained by the sequence divergence between the two phylogenetic lineages. Sequence analysis of wild-type Arabidopsis thaliana and Arabidopsis lyrata accessions indicates that all amino acid substitutions are located outside of the conserved helix-turn-helix DNA-binding domains R2 and R3. Using plants of A. thaliana and A. lyrata with either naturally occurring or ethyl methane sulfonate--induced glabrous phenotypes, we demonstrate that the last 14 C-terminal amino acids of the GL1 gene have no major impact on the initiation of trichomes.	Abstract
Trichome distribution in Arabidopsis thaliana and its close relative Arabidopsis lyrata: molecular analysis of the candidate gene GLABROUS1. (2001) (https://pubmed.ncbi.nlm.nih.gov/11504855)	Additional References

RELATED GEPHE

2 (AtMYC1, ETC2) (https://www.gephebase.org/search-criteria?/or+Taxon ID=~3702#/and+Trait=Trichome density/and+groupHaplotypes=true#gephebase-summary-title)	Related Genes
4 (https://www.gephebase.org/search-criteria?/or+Gene Gephebase=~GLABROUS1#/and+Taxon ID=~3702#/or+Gene Gephebase=~GLABROUS1#/and+Taxon ID=~3702#gephebase-summary-title)	Related Haplotypes

EXTERNAL LINKS

COMMENTS

Based on previous mappings showing the involvement of GL1 locus on trichome density; complementation test with glabrous mutant

