

GEPHE SUMMARY

GLABROUS1 (https://www.gephebase.org/search-criteria?/and+GeneGephebase=^GLABROUS1^#gephebase-summary-title)	Gephbase Gene	GP00000398	GephelD
Published	Entry Status	Martin	Main curator

PHENOTYPIC CHANGE

Morphology (https://www.gephebase.org/search-criteria?/and+TraitCategory=Morphology^#gephebase-summary-title)	Trait Category		
Trichome (leaves) (https://www.gephebase.org/search-criteria?/and+Trait=^Trichome(^leaves)^#gephebase-summary-title)	Trait		
Arabidopsis spp.	Trait State in Taxon A		
Arabidopsis spp.	Trait State in Taxon B		
Data not curated	Ancestral State		
Intraspecific (https://www.gephebase.org/search-criteria?/and+TaxonomicStatus=^Intraspecific^#gephebase-summary-title)	Taxonomic Status		
Arabidopsis (https://www.gephebase.org/search-criteria?/and+Taxon andSynonyms=^Arabidopsis^#gephebase-summary-title)	Latin Name		Latin Name
-	Common Name		Common Name
Cardaminopsis; Arabidopsis (DC.) Heynh., 1842; Cardaminopsis Hayek genus	Synonyms		Synonyms
cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; eudicotyledons; Gunneridae; Pentapetalae; rosids; malvids; Brassicales; Brassicaceae; Camelinae	Rank		Rank
Camelineae () - (Rank: tribe) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 980083)	Lineage		Lineage
3701 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 3701)	Parent		Parent
No	NCBI Taxonomy ID		NCBI Taxonomy ID
is Taxon A an Infraspecies?			is Taxon B an Infraspecies?

GENOTYPIC CHANGE

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

Unknown (<https://www.gepbase.org/search-criteria?/and+Presumptive+Null=^Unknown^#gepbase-summary-title>) Molecular Type

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

Unknown (<https://www.gepbase.org/search-criteria?/and+Aberration+Type=^Unknown^#gepbase-summary-title>) Molecular Details of the Mutation

unknown Experimental Evidence

Candidate Gene (<https://www.gepbase.org/search-criteria?/and+Experimental+Evidence=^Candidate+Gene^#gepbase-summary-title>) Main Reference

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>) Authors

Hauser MT; Harr B; Schläfli C Abstract

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.

Gene, phenotype and function: GLABROUS1 and resistance to herbivory in natural populations of *Arabidopsis lyrata*. (2007) (<https://pubmed.ncbi.nlm.nih.gov/17217357>) Additional References

RELATED GEPHE

2 (AtMYC1, ETC2) (<https://www.gepbase.org/search-criteria?/or+Taxon+ID=^3701^/and+Trait=Trichome/and+groupHaplotypes=true#gepbase-summary-title>) Related Genes
5 (<https://www.gepbase.org/search-criteria?/or+Gene+Gephebase=^GLABROUS1^/and+Taxon+ID=^3701^/or+Gene+Gephebase=^GLABROUS1^/and+Taxon+ID=^3701^#gepbase-summary-title>) Related Haplotypes

EXTERNAL LINKS

COMMENTS