

## GEPHE SUMMARY

bHLH2 ( <a href="https://www.gephebase.org/search-criteria?/and+Gene+Gephebase=bHLH2">#gephebase-summary-title</a> )	Gephebase Gene	GP00002092	GephelD
Published	Entry Status	Courtier	Main curator

## PHENOTYPIC CHANGE

	Trait Category		
Morphology ( <a href="https://www.gephebase.org/search-criteria?/and+Trait+Category=Morphology">#gephebase-summary-title</a> )	Trait		
Coloration (flowers) ( <a href="https://www.gephebase.org/search-criteria?/and+Trait=^Coloration+(flowers)">#gephebase-summary-title</a> )	Trait State in Taxon A		
Petunia axillaris	Trait State in Taxon B		
Petunia axillaris - white flowers with red and pink revertant spots	Ancestral State		
Taxon A	Taxonomic Status		
Domesticated ( <a href="https://www.gephebase.org/search-criteria?/and+Taxonomic+Status=^Domesticated">#gephebase-summary-title</a> )			
Taxon A	Latin Name	Taxon B	Latin Name
Petunia axillaris ( <a href="https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=^Petunia+axillaris">#gephebase-summary-title</a> )	Petunia axillaris ( <a href="https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=^Petunia+axillaris">#gephebase-summary-title</a> )		
-		-	
large white petunia; white moon petunia; Petunia axillaris (Lam.) Britton, Stern & Poggеб.; Petunia axillaris	Synonyms	large white petunia; white moon petunia; Petunia axillaris (Lam.) Britton, Stern & Poggеб.; Petunia axillaris	Synonyms
species	Rank	species	Rank
cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; eudicotyledons; Gunneridae; Pentapetalae; asterids; lamiids; Solanales; Solanaceae; Petunioideae; Petunia	Lineage	cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; eudicotyledons; Gunneridae; Pentapetalae; asterids; lamiids; Solanales; Solanaceae; Petunioideae; Petunia	Lineage
Petunia () - (Rank: genus) ( <a href="https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 4101">https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 4101</a> )	Parent	Petunia () - (Rank: genus) ( <a href="https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 4101">https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 4101</a> )	Parent
33119 ( <a href="https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 33119">https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 33119</a> )	NCBI Taxonomy ID	33119 ( <a href="https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 33119">https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 33119</a> )	NCBI Taxonomy ID
No	is Taxon A an Infraspecies?	Yes	is Taxon B an Infraspecies?
		petunia line W138	Taxon B Description

## GENOTYPIC CHANGE

BHLH2	Generic Gene Name	UniProtKB Arabidopsis thaliana
AtEGL3; ATMYC-2; EGL1; ENHANCER OF GLABRA 3; F24D7.16; F24D7_16; EGL3; EN30; MYC146; At1g63650	Synonyms	GenebankID or UniProtKB
3702.AT1G63650.3 ( <a href="http://string-db.org/newstring_cgi/show_network_section.pl?identifier= 3702.AT1G63650.3">http://string-db.org/newstring_cgi/show_network_section.pl?identifier= 3702.AT1G63650.3</a> )	String	0
-	Sequence Similarities	
GO:0046983 : protein dimerization activity ( <a href="https://www.ebi.ac.uk/QuickGO/term/GO:0046983">https://www.ebi.ac.uk/QuickGO/term/GO:0046983</a> ) GO:0003700 : DNA-binding transcription factor activity	GO - Molecular Function	

( <a href="https://www.ebi.ac.uk/QuickGO/term/GO:0003700">https://www.ebi.ac.uk/QuickGO/term/GO:0003700</a> )	
GO:0003677 : DNA binding ( <a href="https://www.ebi.ac.uk/QuickGO/term/GO:0003677">https://www.ebi.ac.uk/QuickGO/term/GO:0003677</a> )	
	GO - Biological Process
GO:0007275 : multicellular organism development	
( <a href="https://www.ebi.ac.uk/QuickGO/term/GO:0007275">https://www.ebi.ac.uk/QuickGO/term/GO:0007275</a> )	
GO:0006355 : regulation of transcription, DNA-templated	
( <a href="https://www.ebi.ac.uk/QuickGO/term/GO:0006355">https://www.ebi.ac.uk/QuickGO/term/GO:0006355</a> )	
GO:0009867 : jasmonic acid mediated signaling pathway	
( <a href="https://www.ebi.ac.uk/QuickGO/term/GO:0009867">https://www.ebi.ac.uk/QuickGO/term/GO:0009867</a> )	
GO:0009957 : epidermal cell fate specification	
( <a href="https://www.ebi.ac.uk/QuickGO/term/GO:0009957">https://www.ebi.ac.uk/QuickGO/term/GO:0009957</a> )	
GO:0010026 : trichome differentiation	
( <a href="https://www.ebi.ac.uk/QuickGO/term/GO:0010026">https://www.ebi.ac.uk/QuickGO/term/GO:0010026</a> )	
	GO - Cellular Component
GO:0005634 : nucleus ( <a href="https://www.ebi.ac.uk/QuickGO/term/GO:0005634">https://www.ebi.ac.uk/QuickGO/term/GO:0005634</a> )	Presumptive Null
Yes ( <a href="https://www.gephebase.org/search-criteria?/and+Presumptive%20Null=%27Yes%27#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Presumptive Null=%27Yes%27#gephebase-summary-title</a> )	Molecular Type
Coding ( <a href="https://www.gephebase.org/search-criteria?/and+Molecular%20Type=%27Coding%27#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Molecular Type=%27Coding%27#gephebase-summary-title</a> )	Aberration Type
Insertion ( <a href="https://www.gephebase.org/search-criteria?/and+Aberration%20Type=%27Insertion%27#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Aberration Type=%27Insertion%27#gephebase-summary-title</a> )	Insertion Size
-	Molecular Details of the Mutation
insertion of a dTph1 transposon in the AN1 gene	Experimental Evidence
Candidate Gene ( <a href="https://www.gephebase.org/search-criteria?/and+Experimental%20Evidence=%27Candidate%20Gene%27#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Experimental Evidence=%27Candidate Gene%27#gephebase-summary-title</a> )	Main Reference
ANTHOCYANIN1 of petunia controls pigment synthesis, vacuolar pH, and seed coat development by genetically distinct mechanisms. (2002) ( <a href="https://pubmed.ncbi.nlm.nih.gov/12215510">https://pubmed.ncbi.nlm.nih.gov/12215510</a> )	Authors
Spelt C; Quattroccchio F; Mol J; Koes R	Abstract
ANTHOCYANIN1 (AN1) of petunia is a transcription factor of the basic helix-loop-helix (bHLH) family that is required for the synthesis of anthocyanin pigments. Here, we show that AN1 controls additional aspects of cell differentiation: the acidification of vacuoles in petal cells, and the size and morphology of cells in the seed coat epidermis. We identified an1 alleles, formerly known as ph6, that sustain anthocyanin synthesis but not vacuolar acidification and seed coat morphogenesis. These alleles express truncated proteins lacking the C-terminal half of AN1, including the bHLH domain, at an approximately 30-fold higher level than wild-type AN1. An allelic series in which one, two, or three amino acids were inserted into the bHLH domain indicated that this domain is required for both anthocyanin synthesis and vacuolar acidification. These findings show that AN1 controls more aspects of epidermal cell differentiation than previously thought through partially separable domains.	Additional References

## RELATED GEPHE

3 (anthocyanin2 (an2), MYB-FL, WDR1) ( <a href="https://www.gephebase.org/search-criteria?/or+Taxon%20ID=%2733119%27/and+Trait=Coloration/and+groupHaplotypes=true#gephebase-summary-title">https://www.gephebase.org/search-criteria?/or+Taxon ID=%2733119%27/and+Trait=Coloration/and+groupHaplotypes=true#gephebase-summary-title</a> )	Related Genes
	Related Haplotypes
No matches found.	

## EXTERNAL LINKS

## COMMENTS

@TE - bHLH2 is also named anthocyanin1 (an1).