

## GEPHE SUMMARY

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

<p>Morphology (<a href="https://www.gephebase.org/search-criteria?/and+Trait+Category=~Morphology~#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Trait+Category=~Morphology~#gephebase-summary-title</a>)</p>		<p>Trait Category</p>		
<p>Coloration (flowers) (<a href="https://www.gephebase.org/search-criteria?/and+Trait=~Coloration+flowers~#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Trait=~Coloration+flowers~#gephebase-summary-title</a>)</p>		<p>Trait</p>		
<p>Petunia axillaris</p>		<p>Trait State in Taxon A</p>		
<p>Petunia axillaris - white flowers with red and pink revertant spots</p>		<p>Trait State in Taxon B</p>		
<p>Taxon A</p>		<p>Ancestral State</p>		
<p>Domesticated (<a href="https://www.gephebase.org/search-criteria?/and+Taxonomic+Status=~Domesticated~#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Taxonomic+Status=~Domesticated~#gephebase-summary-title</a>)</p>		<p>Taxonomic Status</p>		
<p>Taxon A</p>	<p>Latin Name</p>	<p>Taxon B</p>	<p>Latin Name</p>	
<p>Petunia axillaris (<a href="https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=~Petunia+axillaris~#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=~Petunia+axillaris~#gephebase-summary-title</a>)</p>	<p>Petunia axillaris (<a href="https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=~Petunia+axillaris~#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=~Petunia+axillaris~#gephebase-summary-title</a>)</p>	<p>Petunia axillaris (<a href="https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=~Petunia+axillaris~#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=~Petunia+axillaris~#gephebase-summary-title</a>)</p>	<p>Petunia axillaris (<a href="https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=~Petunia+axillaris~#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=~Petunia+axillaris~#gephebase-summary-title</a>)</p>	
<p>-</p>	<p>-</p>	<p>-</p>	<p>-</p>	
<p>large white petunia; white moon petunia; Petunia axillaris (Lam.) Britton, Stern &amp; Poggenb.; Petunia axillaris</p>	<p>large white petunia; white moon petunia; Petunia axillaris (Lam.) Britton, Stern &amp; Poggenb.; Petunia axillaris</p>	<p>large white petunia; white moon petunia; Petunia axillaris (Lam.) Britton, Stern &amp; Poggenb.; Petunia axillaris</p>	<p>large white petunia; white moon petunia; Petunia axillaris (Lam.) Britton, Stern &amp; Poggenb.; Petunia axillaris</p>	
<p>species</p>	<p>species</p>	<p>species</p>	<p>species</p>	
<p>cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; eudicotyledons; Gunneridae; Pentapetalae; asterids; lamiids; Solanales; Solanaceae; Petunioideae; Petunia</p>		<p>cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; eudicotyledons; Gunneridae; Pentapetalae; asterids; lamiids; Solanales; Solanaceae; Petunioideae; Petunia</p>		
<p>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>)</p>		<p>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>)</p>		
<p>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>)</p>		<p>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>)</p>		
<p>No</p>		<p>Yes</p>		
<p>is Taxon A an Intraspecies?</p>		<p>is Taxon B an Intraspecies?</p>		
<p>-</p>		<p>petunia line W138</p>		
<p>-</p>		<p>Taxon B Description</p>		

## GENOTYPIC CHANGE

<p>BHLH2</p>	<p>Generic Gene Name</p>	<p>Q9CAD0 (<a href="http://www.uniprot.org/uniprot/Q9CAD0">http://www.uniprot.org/uniprot/Q9CAD0</a>)</p>	<p>UniProtKB Arabidopsis thaliana</p>
<p>AtEGL3; ATMYC-2; EGL1; ENHANCER OF GLABRA 3; F24D7.16; F24D7_16; EGL3; EN30; MYC146; At1g63650</p>	<p>Synonyms</p>	<p>()</p>	<p>GenebankID or UniProtKB</p>
<p>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>)</p>	<p>String</p>		
<p>-</p>		<p>Sequence Similarities</p>	
<p>-</p>		<p>GO - Molecular Function</p>	
<p>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>)</p>			
<p>GO:0003700 : DNA-binding transcription factor activity</p>			

(<https://www.ebi.ac.uk/QuickGO/term/GO:0003700>)  
GO:0003677 : DNA binding (<https://www.ebi.ac.uk/QuickGO/term/GO:0003677>)  
GO - Biological Process

GO:0007275 : multicellular organism development  
(<https://www.ebi.ac.uk/QuickGO/term/GO:0007275>)  
GO:0006355 : regulation of transcription, DNA-templated  
(<https://www.ebi.ac.uk/QuickGO/term/GO:0006355>)  
GO:0009867 : jasmonic acid mediated signaling pathway  
(<https://www.ebi.ac.uk/QuickGO/term/GO:0009867>)  
GO:0009957 : epidermal cell fate specification  
(<https://www.ebi.ac.uk/QuickGO/term/GO:0009957>)  
GO:0010026 : trichome differentiation  
(<https://www.ebi.ac.uk/QuickGO/term/GO:0010026>)

GO - Cellular Component

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

Presumptive Null

Yes ([https://www.gephebase.org/search-criteria?/and+Presumptive Null="+Yes"+#gephebase-summary-title](https://www.gephebase.org/search-criteria?/and+Presumptive+Null=))

Molecular Type

Coding ([https://www.gephebase.org/search-criteria?/and+Molecular Type="+Coding"+#gephebase-summary-title](https://www.gephebase.org/search-criteria?/and+Molecular+Type=))

Aberration Type

Insertion ([https://www.gephebase.org/search-criteria?/and+Aberration Type="+Insertion"+#gephebase-summary-title](https://www.gephebase.org/search-criteria?/and+Aberration+Type=))

Insertion Size

-

Molecular Details of the Mutation

insertion of a dTph1 transposon in the AN1 gene

Experimental Evidence

Candidate Gene ([https://www.gephebase.org/search-criteria?/and+Experimental Evidence="+Candidate Gene"+#gephebase-summary-title](https://www.gephebase.org/search-criteria?/and+Experimental+Evidence=))

Main Reference

ANTHOCYANIN1 of petunia controls pigment synthesis, vacuolar pH, and seed coat development by genetically distinct mechanisms. (2002) (<https://pubmed.ncbi.nlm.nih.gov/12215510>)

Authors

Spelt C; Quattrocchio 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

Related Genes

3 (anthocyanin2 (an2), MYB-FL, WDR1) ([https://www.gephebase.org/search-criteria?/or+Taxon ID="+33119"+/and+Trait=Coloration/and+groupHaplotypes=true#gephebase-summary-title](https://www.gephebase.org/search-criteria?/or+Taxon+ID=))

Related Haplotypes

No matches found.

## EXTERNAL LINKS

## COMMENTS

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