

# GEPHE SUMMARY

	Gephebase Gene	GephelD
anthocyanin2 (an2) ( <a href="https://www.gephebase.org/search-criteria?/and+Gene">https://www.gephebase.org/search-criteria?/and+Gene</a> Gephebase=^anthocyanin2 (an2)^#gephebase-summary-title)	GP00000087	
	Entry Status	Main curator
Published	Martin	

## PHENOTYPIC CHANGE

	Trait Category	
Morphology ( <a href="https://www.gephebase.org/search-criteria?/and+Trait">https://www.gephebase.org/search-criteria?/and+Trait</a> Category=^Morphology^#gephebase-summary-title)	Trait	
Coloration (fruit) ( <a href="https://www.gephebase.org/search-criteria?/and+Trait=^Coloration">https://www.gephebase.org/search-criteria?/and+Trait=^Coloration</a> (fruit)^#gephebase-summary-title)	Trait State in Taxon A	
Capsicum annuum	Trait State in Taxon B	
Capsicum chinense	Ancestral State	
Data not curated	Taxonomic Status	
Domesticated ( <a href="https://www.gephebase.org/search-criteria?/and+Taxonomic">https://www.gephebase.org/search-criteria?/and+Taxonomic</a> Status=^Domesticated^#gephebase-summary-title)		
Taxon A		Taxon B
Capsicum annuum ( <a href="https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=^Capsicum+annuum^#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=^Capsicum+annuum^#gephebase-summary-title</a> )	Latin Name	Latin Name
-	Common Name	Common Name
Capsicum annuum L.; Capsicum annum; Capsicum capsicum species	Synonyms	Synonyms
cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; eudicotyledons; Gunneridae; Pentapetalae; asterids; lamiids; Solanales; Solanaceae; Solanoidae; Capsiceae; Capsicum	Rank	Rank
Capiscum (peppers) - (Rank: genus) ( <a href="https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 4071">https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 4071</a> )	Lineage	Lineage
4072 ( <a href="https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 4072">https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 4072</a> )	Parent	Parent
No	is Taxon A an Infraspecies?	is Taxon B an Infraspecies?

## GENOTYPIC CHANGE

	Generic Gene Name		
AN2	A4GRU8 ( <a href="http://www.uniprot.org/uniprot/A4GRU8">http://www.uniprot.org/uniprot/A4GRU8</a> )	UniProtKB Petunia integrifolia	
	Synonyms		
-	0	GenebankID or UniProtKB	
	String		
-			
	Sequence Similarities		
-			
	GO - Molecular Function		
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 - 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		
No ( <a href="https://www.gephebase.org/search-criteria?/and+Presumptive+Null=^No^#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Presumptive+Null=^No^#gephebase-summary-title</a> )			
	Molecular Type		
Cis-regulatory ( <a href="https://www.gephebase.org/search-criteria?/and+Molecular+Type=^Cis-regulatory^#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Molecular+Type=^Cis-regulatory^#gephebase-summary-title</a> )			

Unknown (<https://www.gephebase.org/search-criteria?/and+Aberration+Type=%5EUnknown%23gephebase-summary-title>)

Molecular Details of the Mutation

unknown

Experimental Evidence

Linkage Mapping (<https://www.gephebase.org/search-criteria?/and+Experimental+Evidence=%5ELinkage+Mapping%23gephebase-summary-title>)

Main Reference

The A locus that controls anthocyanin accumulation in pepper encodes a MYB transcription factor homologous to Anthocyanin2 of Petunia. (2004)  
(<https://pubmed.ncbi.nlm.nih.gov/14997303>)

Authors

Borovsky Y; Oren-Shamir M; Ovadia R; De Jong W; Paran I

Abstract

Pepper plants containing the dominant A gene accumulate anthocyanin pigments in the foliage, flower and immature fruit. We previously mapped A to pepper chromosome 10 in the F(2) progeny of a cross between 5226 (purple-fruited) and PI 159234 (green-fruited) to a region that corresponds, in tomato, to the location of Petunia anthocyanin 2 (An2), a regulator of anthocyanin biosynthesis. This suggested that A encodes a homologue of Petunia An2. Using the sequences of An2 and a corresponding tomato expressed sequence tag, we isolated a pepper cDNA orthologous to An2 that cosegregated with A. We subsequently determined the expression of A by Northern analysis, using RNA extracted from fruits, flowers and leaves of 5226 and PI 159234. In 5226, expression was detected in all stages of fruit development and in both flower and leaf. In contrast, A was not expressed in the sampled tissues in PI 159234. Genomic sequence comparison of A between green- and purple-fruited genotypes revealed no differences in the coding region, indicating that the lack of expression of A in the green genotypes can be attributed to variation in the promoter region. By analyzing the expression of the structural genes in the anthocyanin biosynthetic pathway in 5226 and PI 159234, it was determined that, similar to Petunia, the early genes in the pathway are regulated independently of A, while expression of the late genes is A-dependent.

Additional References

## RELATED GEPHE

Related Genes

No matches found.

Related Haplotypes

1 ([https://www.gephebase.org/search-criteria?/or+Gene+Gephebase=%5Eanthocyanin2+\(an2\)%23gephebase-summary-title](https://www.gephebase.org/search-criteria?/or+Gene+Gephebase=%5Eanthocyanin2+(an2)%23gephebase-summary-title))

## EXTERNAL LINKS

## COMMENTS