

## GEPHE SUMMARY

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)	Gephebase Gene	GP00000087	GepheID
Published	Entry Status	Martin	Main curator

## PHENOTYPIC CHANGE

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 Category		
Coloration (fruit) ( <a coloration"="" href="https://www.gephebase.org/search-criteria?/and+Trait=">https://www.gephebase.org/search-criteria?/and+Trait="Coloration</a> (fruit)"#gephebase-summary-title)	Trait		
Capsicum annuum	Trait State in Taxon A		
Capsicum chinense	Trait State in Taxon B		
Data not curated	Ancestral State		
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)	Taxonomic Status		

Taxon A	Latin Name	Taxon B	Latin Name
Capsicum annuum ( <a capsicum"="" href="https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=">https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms="Capsicum</a> annuum"#gephebase-summary-title)	Capsicum chinense ( <a capsicum"="" href="https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=">https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms="Capsicum</a> chinense"#gephebase-summary-title)		
-	Common Name	-	Common Name
Capsicum annuum L.; Capsicum annum; Capsicum capsicum	Synonyms	Scotch bonnet; bonnet pepper; habanero; piri piri; rocotillo; Capsicum chinense Jacq.	Synonyms
species	Rank	species	Rank
cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; eudicotyledons; Gunneridae; Pentapetalae; asterids; lamiids; Solanales; Solanaceae; Solanoideae; Capsiceae; Capsicum	Lineage	cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; eudicotyledons; Gunneridae; Pentapetalae; asterids; lamiids; Solanales; Solanaceae; Solanoideae; Capsiceae; Capsicum	Lineage
Capsicum (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> )	Parent	Capsicum (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> )	Parent
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> )	NCBI Taxonomy ID	80379 ( <a href="https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=80379">https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=80379</a> )	NCBI Taxonomy ID
No	is Taxon A an Intraspecies?	No	is Taxon B an Intraspecies?

## GENOTYPIC CHANGE

AN2	Generic Gene Name	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: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 - Molecular Function		
-	GO - Biological Process		
GO:0005634 : nucleus ( <a href="https://www.ebi.ac.uk/QuickGO/term/GO:0005634">https://www.ebi.ac.uk/QuickGO/term/GO:0005634</a> )	GO - Cellular Component		
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> )			Presumptive Null
Cis-regulatory ( <a cis-regulatory"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Molecular+Type=">https://www.gephebase.org/search-criteria?/and+Molecular+Type="Cis-regulatory"#gephebase-summary-title</a> )			Molecular Type

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

Aberration Type

unknown

Molecular Details of the Mutation

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

Experimental Evidence

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/>)

Main Reference

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

Authors

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.

Abstract

Additional References

## RELATED GEPHE

No matches found.

Related Genes

1 ([https://www.gephebase.org/search-criteria?/or+Gene Gephebase=^anthocyanin2 \(an2\)^/and+Taxon ID=^4072^/or+Gene Gephebase=^anthocyanin2 \(an2\)^/and+Taxon ID=^80379^#gephebase-summary-title](https://www.gephebase.org/search-criteria?/or+Gene Gephebase=^anthocyanin2 (an2)^/and+Taxon ID=^4072^/or+Gene Gephebase=^anthocyanin2 (an2)^/and+Taxon ID=^80379^#gephebase-summary-title))

Related Haplotypes

## EXTERNAL LINKS

## COMMENTS