

GEPHE SUMMARY

	Gephebase Gene	GephelD
flavonoid 3'-hydroxylase (F3'H) (https://www.gephebase.org/search-criteria?/and+Gene	GP00000320	
Gephebase=^flavonoid 3'-hydroxylase (F3'H)^#gephebase-summary-title)		Main curator
	Entry Status	Martin
Published		

PHENOTYPIC CHANGE

	Trait Category	
Morphology (https://www.gephebase.org/search-criteria?/and+Trait		
Category=^Morphology^#gephebase-summary-title)		
	Trait	
Coloration (flowers) (https://www.gephebase.org/search-criteria?/and+Trait=^Coloration		
(flowers)^#gephebase-summary-title)		
	Trait State in Taxon A	
Petunia hybrida		
	Trait State in Taxon B	
Petunia hybrida		
	Ancestral State	
Data not curated		
	Taxonomic Status	
Domesticated (https://www.gephebase.org/search-criteria?/and+Taxonomic		
Status=^Domesticated^#gephebase-summary-title)		
Taxon A		Taxon B
	Latin Name	Latin Name
Petunia x hybrida		
(https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=^Petunia+x+hybrida^#gephebase-summary-title)		
	Common Name	
-		
	Synonyms	
Petunia axillaris X Petunia integrifolia; Petunia hybrida; garden petunia; Petunia x hybrida		
hort. ex E.Vilm., 1863		
	Rank	
species		
	Lineage	
cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; eudicotyledons; Gunneridae; Pentapetalae; asterids; lamiids; Solanales; Solanaceae; Petunioideae; Petunia		
	Parent	
Petunia () - (Rank: genus)		
(https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 4101)		
	NCBI Taxonomy ID	
4102		
(https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 4102)		
	is Taxon A an Infraspecies?	
No		
GENOTYPIC CHANGE		
	Generic Gene Name	UniProtKB Arabidopsis thaliana
CYP75B1		
	Synonyms	GenebankID or UniProtKB
CYP75B1; CYTOCHROME P450 75B1; D501; F13G24.190; F13G24_190; F3'H; FLAVONOID 3'-HYDROXYLASE; TRANSPARENT TESTA 7; TT7; At5g07990		
	String	
3702.AT5G07990.1		
(http://string-db.org/newstring_cgi/show_network_section.pl?identifier= 3702.AT5G07990.1)		
	Sequence Similarities	
Belongs to the cytochrome P450 family.		
	GO - Molecular Function	
GO:0020037 : heme binding (https://www.ebi.ac.uk/QuickGO/term/GO:0020037)		
GO:0005506 : iron ion binding (https://www.ebi.ac.uk/QuickGO/term/GO:0005506)		
GO:0016709 : oxidoreductase activity, acting on paired donors, with incorporation or reduction of molecular oxygen, NAD(P)H as one donor, and incorporation of one atom of oxygen (https://www.ebi.ac.uk/QuickGO/term/GO:0016709)		

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GO - Biological Process

GO:0009733 : response to auxin (<https://www.ebi.ac.uk/QuickGO/term/GO:0009733>)

GO:0009813 : flavonoid biosynthetic process

(<https://www.ebi.ac.uk/QuickGO/term/GO:0009813>)

GO - Cellular Component

GO:0016021 : integral component of membrane

(<https://www.ebi.ac.uk/QuickGO/term/GO:0016021>)GO:0016020 : membrane (<https://www.ebi.ac.uk/QuickGO/term/GO:0016020>)

GO:0005789 : endoplasmic reticulum membrane

(<https://www.ebi.ac.uk/QuickGO/term/GO:0005789>)

Presumptive Null

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

Molecular Type

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

Aberration Type

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

Molecular Details of the Mutation

Not identified

Experimental Evidence

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

Main Reference

Isolation and characterization of a flavonoid 3'-hydroxylase cDNA clone corresponding to the Ht1 locus of Petunia hybrida. (1999) (<https://pubmed.ncbi.nlm.nih.gov/10504566>)

Authors

Brugliera F; Barri-Rewell G; Holton TA; Mason JG

Abstract

We have isolated a cDNA clone that corresponds to the Ht1 locus of petunia which controls the hydroxylation of dihydrokaempferol to dihydroquercetin and of naringenin to eriodictyol by the action of flavonoid 3'-hydroxylase (F3'H). The cDNA encodes a 512 amino acid polypeptide with regions of similarity to petunia flavonoid 3',5'-hydroxylases (F3'5'H). Both F3'H and F3'5'H are cytochromes P450 and are key enzymes in the flavonoid pathway leading to the production of the coloured anthocyanins. The F3'H transcript is most abundant in petals from flowers at an early stage of development and levels decline as the flower matures. Transcripts are also detected in the ovaries, sepals, peduncles, stems and anthers of the petunia plant. No or very reduced levels of transcripts are detected in ht1/ht1 lines. This is the first report of isolation of a F3'H cDNA clone from any species.

Additional References

RELATED GEPHE

Related Genes

No matches found.

Related Haplotypes

No matches found.

EXTERNAL LINKS

COMMENTS