

GEPHE SUMMARY

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

PHENOTYPIC CHANGE

Morphology (https://www.gephebase.org/search-criteria?/and+Trait)	Trait Category	
Category="Morphology"#gephebase-summary-title)		
Coloration (flowers) (https://www.gephebase.org/search-criteria?/and+Trait)	Trait	
(flowers)"#gephebase-summary-title)		
Petunia hybrida	Trait State in Taxon A	
Petunia hybrida	Trait State in Taxon B	
Data not curated	Ancestral State	
Domesticated (https://www.gephebase.org/search-criteria?/and+Taxonomic)	Taxonomic Status	
Status="Domesticated"#gephebase-summary-title)		

Taxon A	Latin Name	Taxon B	Latin Name
Petunia x hybrida (https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms="Petunia x hybrida"#gephebase-summary-title)		Petunia x hybrida (https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms="Petunia x hybrida"#gephebase-summary-title)	
-	Common Name	-	Common Name
	Synonyms		Synonyms
Petunia axillaris X Petunia integrifolia; Petunia hybrida; garden petunia; Petunia x hybrida hort. ex E.Vilm., 1863		Petunia axillaris X Petunia integrifolia; Petunia hybrida; garden petunia; Petunia x hybrida hort. ex E.Vilm., 1863	
species	Rank	species	Rank
	Lineage		Lineage
cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; eudicotyledons; Gunneridae; Pentapetalae; asterids; lamiids; Solanales; Solanaceae; Petunioideae; Petunia		cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; eudicotyledons; Gunneridae; Pentapetalae; asterids; lamiids; Solanales; Solanaceae; Petunioideae; Petunia	
Petunia () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=4101)	Parent	Petunia () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=4101)	Parent
4102 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=4102)	NCBI Taxonomy ID	4102 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=4102)	NCBI Taxonomy ID
No	is Taxon A an Infrasppecies?	No	is Taxon B an Infrasppecies?

GENOTYPIC CHANGE

CYP75B1	Generic Gene Name	Q9SD85 (http://www.uniprot.org/uniprot/Q9SD85)	UniProtKB Arabidopsis thaliana
CYP75B1; CYTOCHROME P450 75B1; D501; F13G24.190; F13G24_190; F3'H; FLAVONOID 3'-HYDROXYLASE; TRANSPARENT TESTA 7; TT7; At5g07990	Synonyms	AAD56282 (https://www.ncbi.nlm.nih.gov/nuccore/AAD56282)	GenebankID or UniProtKB
3702.AT5G07990.1 (http://string-db.org/newstring_cgi/show_network_section.pl?identifier=3702.AT5G07990.1)	String		
Belongs to the cytochrome P450 family.	Sequence Similarities		
GO:0020037 : heme binding (https://www.ebi.ac.uk/QuickGO/term/GO:0020037)	GO - Molecular Function		
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)			

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

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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