

## GEPHE SUMMARY

flavonoid 3':5'-hydroxylase (F3'5'H) ( <a href="https://www.gephebase.org/search-criteria?/and+Gene">https://www.gephebase.org/search-criteria?/and+Gene</a> )	Gephebase Gene	GP00000328	GepheID
Gephebase="flavonoid 3':5'-hydroxylase (F3'5'H)"#gephebase-summary-title)			Main curator
Published	Entry Status	Martin	

## PHENOTYPIC CHANGE

Morphology ( <a href="https://www.gephebase.org/search-criteria?/and+Trait">https://www.gephebase.org/search-criteria?/and+Trait</a> )	Trait Category		
Category="Morphology"#gephebase-summary-title)			
Coloration (tuber skin) ( <a coloration"="" href="https://www.gephebase.org/search-criteria?/and+Trait=">https://www.gephebase.org/search-criteria?/and+Trait="Coloration</a> )	Trait		
(tuber skin)"#gephebase-summary-title)			
Solanum tuberosum - purple tuber	Trait State in Taxon A		
Solanum tuberosum -white tuber	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> )	Taxonomic Status		
Status="Domesticated"#gephebase-summary-title)			

Taxon A	Latin Name	Taxon B	Latin Name
Solanum tuberosum	Solanum tuberosum	Solanum tuberosum	Solanum tuberosum
( <a href="https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=" solanum"="">https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms="Solanum</a> )	( <a href="https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=" solanum"="">https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms="Solanum</a> )	( <a href="https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=" solanum"="">https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms="Solanum</a> )	( <a href="https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=" solanum"="">https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms="Solanum</a> )
tuberosum"#gephebase-summary-title)	tuberosum"#gephebase-summary-title)	tuberosum"#gephebase-summary-title)	tuberosum"#gephebase-summary-title)
potato	Common Name	potato	Common Name
Solanum tuberosum subsp. tuberosum; potato; potatoes; Solanum tuberosum L.	Synonyms	Solanum tuberosum subsp. tuberosum; potato; potatoes; Solanum tuberosum L.	Synonyms
species	Rank	species	Rank
cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta;	Lineage	cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta;	Lineage
Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae;		Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae;	
eudicotyledons; Gunneridae; Pentapetalae; asterids; lamiids; Solanales; Solanaceae;		eudicotyledons; Gunneridae; Pentapetalae; asterids; lamiids; Solanales; Solanaceae;	
Solanoideae; Solaneae; Solanum	Parent	Solanoideae; Solaneae; Solanum	Parent
Solanum () - (Rank: genus)	NCBI Taxonomy ID	Solanum () - (Rank: genus)	NCBI Taxonomy ID
( <a href="https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=4107">https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=4107</a> )	4113	( <a href="https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=4107">https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=4107</a> )	4113
( <a href="https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=4113">https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=4113</a> )	is Taxon A an Intraspecies?	( <a href="https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=4113">https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=4113</a> )	is Taxon B an Intraspecies?
No		No	

## GENOTYPIC CHANGE

CYP75A2	Generic Gene Name	UniProtKB Solanum melongena
CYP75; CYPEG1	Synonyms	P37120 ( <a href="http://www.uniprot.org/uniprot/P37120">http://www.uniprot.org/uniprot/P37120</a> )
-	String	GenebankID or UniProtKB
	Sequence Similarities	NP_001274807 ( <a href="https://www.ncbi.nlm.nih.gov/nuccore/NP_001274807">https://www.ncbi.nlm.nih.gov/nuccore/NP_001274807</a> )
Belongs to the cytochrome P450 family.	GO - Molecular Function	
GO:0020037 : heme binding ( <a href="https://www.ebi.ac.uk/QuickGO/term/GO:0020037">https://www.ebi.ac.uk/QuickGO/term/GO:0020037</a> )		
GO:0005506 : iron ion binding ( <a href="https://www.ebi.ac.uk/QuickGO/term/GO:0005506">https://www.ebi.ac.uk/QuickGO/term/GO:0005506</a> )		
GO:0004497 : monooxygenase activity		
( <a href="https://www.ebi.ac.uk/QuickGO/term/GO:0004497">https://www.ebi.ac.uk/QuickGO/term/GO:0004497</a> )		
GO:0016705 : oxidoreductase activity, acting on paired donors, with incorporation or		
reduction of molecular oxygen ( <a href="https://www.ebi.ac.uk/QuickGO/term/GO:0016705">https://www.ebi.ac.uk/QuickGO/term/GO:0016705</a> )		
GO:0009718 : anthocyanin-containing compound biosynthetic process	GO - Biological Process	
( <a href="https://www.ebi.ac.uk/QuickGO/term/GO:0009718">https://www.ebi.ac.uk/QuickGO/term/GO:0009718</a> )		

-	Presumptive Null
Unknown ( <a +unknown`#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Presumptive+Null=">https://www.gephebase.org/search-criteria?/and+Presumptive Null=`Unknown`#gephebase-summary-title</a> )	
	Molecular Type
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> )	
	Aberration Type
Unknown ( <a +unknown`#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Aberration+Type=">https://www.gephebase.org/search-criteria?/and+Aberration Type=`Unknown`#gephebase-summary-title</a> )	
	Molecular Details of the Mutation
unknown	
	Experimental Evidence
Linkage Mapping ( <a +linkage+mapping`#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Experimental+Evidence=">https://www.gephebase.org/search-criteria?/and+Experimental Evidence=`Linkage Mapping`#gephebase-summary-title</a> )	
	Main Reference
The potato P locus codes for flavonoid 3',5'-hydroxylase. (2005) ( <a href="https://pubmed.ncbi.nlm.nih.gov/15565378">https://pubmed.ncbi.nlm.nih.gov/15565378</a> )	
	Authors
Jung CS; Griffiths HM; De Jong DM; Cheng S; Bodis M; De Jong WS	
	Abstract
The potato P locus is required for the production of blue/purple anthocyanin pigments in any tissue of the potato plant such as tubers, flowers, or stems. We have previously reported, based on RFLP mapping in tomato, that the gene coding for the anthocyanin biosynthetic enzyme flavonoid 3',5'-hydroxylase (f3'5'h) maps to the same region of the tomato genome as P maps in potato. To further evaluate this association a Petunia f3'5'h gene was used to screen a potato cDNA library prepared from purple-colored flowers and stems. Six positively hybridizing cDNA clones were sequenced and all appeared to be derived from a single gene that shares 85% sequence identity at the amino acid level with Petunia f3'5'h. The potato gene cosegregated with purple tuber color in a diploid F1 sub-population of 37 purple and 25 red individuals and was found to be expressed in tuber skin only in the presence of the anthocyanin regulatory locus I. A potato f3'5'h cDNA clone was placed under the control of a doubled CaMV 35S promoter and introduced into the red-skinned cultivar 'Desiree'. Tuber and stem tissues that are colored red in Desiree were purple in nine of 17 independently transformed lines.	
	Additional References

## RELATED GEPHE

	Related Genes
2 (an2-like (Stan2), dihydroflavonol reductase (DFR)) ( <a +4113`="" and+trait='Coloration/and+groupHaplotypes=true#gephebase-summary-title"' href="https://www.gephebase.org/search-criteria?/or+Taxon+ID=">https://www.gephebase.org/search-criteria?/or+Taxon ID=`4113`/and+Trait=Coloration/and+groupHaplotypes=true#gephebase-summary-title</a> )	
	Related Haplotypes
No matches found.	

## EXTERNAL LINKS

## COMMENTS