

Gephebase Gene		GepheID
Chalcone synthase D (CHS-D) (https://www.gephebase.org/search-criteria?and+Gene=Gephebase~Chalcone+synthase+D+(CHS-D)^#gephebase-summary-title)	GP00001460	Main curator
Published	Entry Status Prigent	

Morphology (https://www.gephebase.org/search-criteria?/and+Trait+Category=~Morphology~#gephebase-summary-title)		Trait Category	
Coloration (flower) (https://www.gephebase.org/search-criteria?/and+Trait=~Coloration (flower)~#gephebase-summary-title)		Trait	
Common morning glory with white flower with variegated colored flakes and sectors (KK/VR-37 & KK/VR-40a & KK/VP-347 & YY/VP-SU2001 & KK/WR-321)		Trait State in Taxon A	
Common morning glory with stable white flower (KK/WP-3)		Trait State in Taxon B	
Taxon A		Ancestral State	
Intraspecific (https://www.gephebase.org/search-criteria?/and+Taxonomic Status=~Intraspecific~#gephebase-summary-title)		Taxonomic Status	
Taxon A		Taxon B	
Ipomoea purpurea (https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms=~Ipomoea purpurea~#gephebase-summary-title)		Ipomoea purpurea (https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms=~Ipomoea purpurea~#gephebase-summary-title)	
common morning-glory		common morning-glory	
Convolvulus purpureus; Pharbitis purpurea; common morning-glory; Convolvulus purpureus L., 1762; Ipomoea purpurea (L.) Roth, 1787; Pharbitis purpurea (L.) Voigt, 1845; Pharbits purpurea		Convolvulus purpureus; Pharbitis purpurea; common morning-glory; Convolvulus purpureus L., 1762; Ipomoea purpurea (L.) Roth, 1787; Pharbitis purpurea (L.) Voigt, 1845; Pharbits purpurea	
species		species	
cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; eudicotyledons; Gunneridae; Pentapetalae; asterids; lamiids; Solanales; Convolvulaceae; Ipomoeae; Ipomoea		cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; eudicotyledons; Gunneridae; Pentapetalae; asterids; lamiids; Solanales; Convolvulaceae; Ipomoeae; Ipomoea	
Ipomoea () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=4119)		Ipomoea () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=4119)	
4121 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=4121)		4121 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=4121)	
is Taxon A an Intraspecies?		is Taxon B an Intraspecies?	
Yes		Yes	
Common morning glory with white flower with variegated colored flakes and sectors (KK/VR-37 & KK/VR-40a & KK/VP-347 & YY/VP-SU2001 & KK/WR-321)		Common morning glory with stable white flower (KK/WP-3)	

CHSD	Generic Gene Name	O22045 (http://www.uniprot.org/uniprot/O22045)	UniProtKB
CHSD; CHS-D	Synonyms	AB004905 (https://www.ncbi.nlm.nih.gov/nuccore/AB004905)	GenebankID or UniProtKB
-	String		
Belongs to the chalcone/stilbene synthases family.	Sequence Similarities		
GO:0016210 : naringenin-chalcone synthase activity (https://www.ebi.ac.uk/QuickGO/term/GO:0016210)	GO - Molecular Function		
	GO - Biological Process		

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

GO - Cellular Component

-

Presumptive Null

No (<https://www.gephebase.org/search-criteria?/and+Presumptive Null=~No~#gephebase-summary-title>)

Molecular Type

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

Aberration Type

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

Insertion Size

1-10 kb

Molecular Details of the Mutation

2 insertions of Tip100 in opposite orientation at different sites within the same intron

Experimental Evidence

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

Main Reference

Molecular characterization of the mutable flaked allele for flower variegation in the common morning glory. (1998) (<https://pubmed.ncbi.nlm.nih.gov/9881157>)

Authors

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Abstract

The mutable flaked (or af) lines of the common morning glory bear white flowers with colored flakes and sectors. The af allele shows incomplete dominance. Plants in the heterozygous state A/af bear lightly colored flowers with intensely colored flakes and occasionally with white sectors. We showed that the mutable af allele is caused by insertion of a new transposable element, Tip100, into the CHS-D gene intron. Tip100 is 3.9 kb long and belongs to the Ac/Ds family. Although the timing and frequency of the flower variegation vary in different lines, they carry an identical mutable allele. We also noticed that a flaked subline, bearing variegated flowers, carries a Tip100 derivative, Tip100-1. The structure of Tip100-1 contains an additional 48 bp terminal sequence as tandem repeats and its integration site is identical to that of Tip100. Another line, with stable white flowers, is a double mutant carrying two copies of Tip100 in the CHS-D gene. These results are discussed with regard to the variegated phenotypes of flowers in various mutable lines.

Additional References

RELATED GEPHE

Related Genes

3 (bHLH2, flavonoid 3'-hydroxylase (F3'H), MYB1) (<https://www.gephebase.org/search-criteria?/or+Taxon ID=~4121~/and+Trait=Coloration/and+groupHaplotypes=true#gephebase-summary-title>)

Related Haplotypes

1 ([https://www.gephebase.org/search-criteria?/or+Gene Gephebase=~Chalcone synthase D \(CHS-D\)~/and+Taxon ID=~4121~/or+Gene Gephebase=~Chalcone synthase D \(CHS-D\)~/and+Taxon ID=~4121~#gephebase-summary-title](https://www.gephebase.org/search-criteria?/or+Gene Gephebase=~Chalcone synthase D (CHS-D)~/and+Taxon ID=~4121~/or+Gene Gephebase=~Chalcone synthase D (CHS-D)~/and+Taxon ID=~4121~#gephebase-summary-title))

EXTERNAL LINKS

COMMENTS

this allele with 2 @TE is supposed to derive from an allele with 1 TE. coding or regulatory mutation