

	Gephebase Gene		GepheID
Ruby (<a +ruby+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Gene+Gephebase=">https://www.gephebase.org/search-criteria?/and+Gene+Gephebase="+Ruby+"#gephebase-summary-title)		GP00001017	
	Entry Status	Martin	Main curator
Published			

[illegible]

	Generic Gene Name	UniProtKB Citrus sinensis
Ruby		H6U1F1 (http://www.uniprot.org/uniprot/H6U1F1)
-	Synonyms	GenebankID or UniProtKB
-	String	JN402330 (https://www.ncbi.nlm.nih.gov/nuccore/JN402330)
-	Sequence Similarities	
-	GO - Molecular Function	
	GO:0003677 : DNA binding (https://www.ebi.ac.uk/QuickGO/term/GO:0003677)	
-	GO - Biological Process	
	GO - Cellular Component	
	GO:0005634 : nucleus (https://www.ebi.ac.uk/QuickGO/term/GO:0005634)	
		Presumptive Null

No (https://www.gephebase.org/search-criteria?/and+Presumptive Null=~No~#gephebase-summary-title)	Molecular Type
Cis-regulatory (https://www.gephebase.org/search-criteria?/and+Molecular Type=~Cis-regulatory~#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
TE (Tcs2) insertion triggering cold-dependent expression	Experimental Evidence
Candidate Gene (https://www.gephebase.org/search-criteria?/and+Experimental Evidence=~Candidate Gene~#gephebase-summary-title)	Main Reference
Retrotransposons control fruit-specific, cold-dependent accumulation of anthocyanins in blood oranges. (2012) (https://pubmed.ncbi.nlm.nih.gov/22427337)	Authors
Butelli E; Licciardello C; Zhang Y; Liu J; Mackay S; Bailey P; Reforgiato-Recupero G; Martin C	Abstract
Traditionally, Sicilian blood oranges (<i>Citrus sinensis</i>) have been associated with cardiovascular health, and consumption has been shown to prevent obesity in mice fed a high-fat diet. Despite increasing consumer interest in these health-promoting attributes, production of blood oranges remains unreliable due largely to a dependency on cold for full color formation. We show that Sicilian blood orange arose by insertion of a Copia-like retrotransposon adjacent to a gene encoding Ruby, a MYB transcriptional activator of anthocyanin production. The retrotransposon controls Ruby expression, and cold dependency reflects the induction of the retroelement by stress. A blood orange of Chinese origin results from an independent insertion of a similar retrotransposon, and color formation in its fruit is also cold dependent. Our results suggest that transposition and recombination of retroelements are likely important sources of variation in <i>Citrus</i> .	
	Additional References

RELATED GEPHE

No matches found.	Related Genes
2 (https://www.gephebase.org/search-criteria?/or+Gene Gephebase=~Ruby~/and+Taxon ID=~2706~/or+Gene Gephebase=~Ruby~/and+Taxon ID=~2711~#gephebase-summary-title)	Related Haplotypes

EXTERNAL LINKS

COMMENTS

@TE	
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