

GEPHE SUMMARY

OVATE (https://www.gephebase.org/search-criteria?/and+GeneGephebase=^OVATE^#gephebase-summary-title)		Gephebase Gene	GP00000815	GepheID
Published		Entry Status	Martin	Main curator

PHENOTYPIC CHANGE

Morphology (https://www.gephebase.org/search-criteria?/and+TraitCategory=^Morphology^#gephebase-summary-title)		Trait Category	
Fruit shape (https://www.gephebase.org/search-criteria?/and+Trait=^Fruitshape^#gephebase-summary-title)		Trait	
Lycopersicon esculentum - round		Trait State in Taxon A	
Lycopersicon esculentum - TA503 (L. esculentum cv. Yellow Pear); LA791 (L. esculentum cv. Longjohn); and LA0025		Trait State in Taxon B	
Data not curated		Ancestral State	
Domesticated (https://www.gephebase.org/search-criteria?/and+TaxonomicStatus=^Domesticated^#gephebase-summary-title)		Taxonomic Status	
Taxon A		Taxon B	
Solanium lycopersicum (https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms=^Solanium lycopersicum^#gephebase-summary-title)		Solanium lycopersicum (https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms=^Solanium lycopersicum^#gephebase-summary-title)	
Common Name		Common Name	
tomato		tomato	
Synonyms		Synonyms	
Lycopersicon esculentum var. esculentum; Solanium esculentum; Solanium lycopersicum var. humboldtii; tomato; Lycopersicon esculentum Mill.; Solanium esculentum Dunal; Solanium lycopersicum L.; Lycopersicon lycopersicum; Lycopersicum esculentum; Solanium lycopersicon		Lycopersicon esculentum var. esculentum; Solanium esculentum; Solanium lycopersicum var. humboldtii; tomato; Lycopersicon esculentum Mill.; Solanium esculentum Dunal; Solanium lycopersicum L.; Lycopersicon lycopersicum; Lycopersicum esculentum; Solanium lycopersicon	
Rank		Rank	
species		species	
Lineage		Lineage	
cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; eudicotyledons; Gunneridae; Pentapetalae; asterids; lamiids; Solanales; Solanaceae; Solanoideae; Solaneae; Solanium; Lycopersicon		cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; eudicotyledons; Gunneridae; Pentapetalae; asterids; lamiids; Solanales; Solanaceae; Solanoideae; Solaneae; Solanium; Lycopersicon	
Parent		Parent	
Lycopersicon () - (Rank: subgenus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 49274)		Lycopersicon () - (Rank: subgenus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 49274)	
NCBI Taxonomy ID		NCBI Taxonomy ID	
4081 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 4081)		4081 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 4081)	
is Taxon A an Intraspecies?		is Taxon B an Intraspecies?	
No		Yes	
		Taxon B Description	
		Lycopersicon esculentum - TA503 (L. esculentum cv. Yellow Pear); LA791 (L. esculentum cv. Longjohn); and LA0025	

GENOTYPIC CHANGE

Generic Gene Name		UniProtKB Solanium lycopersicum	
-		Q8GSM4 (http://www.uniprot.org/uniprot/Q8GSM4)	
Synonyms		GenebankID or UniProtKB	
PR		AY140893 (https://www.ncbi.nlm.nih.gov/nuccore/AY140893)	
String			
-			
Sequence Similarities			
-			
GO - Molecular Function			
-			
GO - Biological Process			

GO:0045892 : negative regulation of transcription, DNA-templated
(<https://www.ebi.ac.uk/QuickGO/term/GO:0045892>)

GO - Cellular Component

-

Presumptive Null

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

Molecular Type

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

Aberration Type

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

SNP Coding Change

Nonsense

Molecular Details of the Mutation

V164* caused by G>T; which leads to a 75-aa truncation in the C terminus of the predicted protein

Experimental Evidence

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

	Taxon A	Taxon B	Position
Codon	-	-	-
Amino-acid	-	-	-

Main Reference

A new class of regulatory genes underlying the cause of pear-shaped tomato fruit. (2002) (<https://pubmed.ncbi.nlm.nih.gov/12242331>)

Authors

Liu J; Van Eck J; Cong B; Tanksley SD

Abstract

A common, recurring theme in domesticated plants is the occurrence of pear-shaped fruit. A major quantitative trait locus (termed ovate) controlling the transition from round to pear-shaped fruit has been cloned from tomato. OVATE is expressed early in flower and fruit development and encodes a previously uncharacterized, hydrophilic protein with a putative bipartite nuclear localization signal, Von Willebrand factor type C domains, and an approximately equal 70-aa C-terminal domain conserved in tomato, Arabidopsis, and rice. A single mutation, leading to a premature stop codon, causes the transition of tomato fruit from round- to pear-shaped. Moreover, ectopic, transgenic expression of OVATE unevenly reduces the size of floral organs and leaflets, suggesting that OVATE represents a previously uncharacterized class of negative regulatory proteins important in plant development.

Additional References

RELATED GEPHE

Related Genes

1 (SUN) (<https://www.gephebase.org/search-criteria?/or+Taxon ID=~4081^/and+Trait=Fruit shape/and+groupHaplotypes=true#gephebase-summary-title>)

Related Haplotypes

No matches found.

EXTERNAL LINKS

COMMENTS