

GEPHE SUMMARY

SUN (https://www.gephebase.org/search-criteria?/and+GeneGephebase=^SUN^#gephebase-summary-title)	Gephebase Gene	GP00001084	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		
Solanum pimpinellifolium	Trait State in Taxon A		
Solanum lycopersicum "Sun1642"	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
Solanum pimpinellifolium (https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=~Solanumpimpinellifolium^#gephebase-summary-title)	Latin Name	Solanum lycopersicum (https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=~Solanumlycopersicum^#gephebase-summary-title)	Latin Name
-	Common Name	tomato	Common Name
Lycopersicon pimpinellifolium; Solanum pimpinellifolium var. racemigerum; currant tomato; Lycopersicon pimpinellifolium (L.) Mill.; Solanum pimpinellifolium L.	Synonyms	Lycopersicon esculentum var. esculentum; Solanum esculentum; Solanum lycopersicum var. humboldtii; tomato; Lycopersicon esculentum Mill.; Solanum esculentum Dunal; Solanum lycopersicum L.; Lycopersicon lycopersicum; Lycopersicon esculentum; Solanum lycopersicon	Synonyms
species	Rank	species	Rank
cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; eudicotyledons; Gunneridae; Pentapetalae; asterids; lamiids; Solanales; Solanaceae; Solanoideae; Solanaeae; Solanum; Lycopersicon	Lineage	cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; eudicotyledons; Gunneridae; Pentapetalae; asterids; lamiids; Solanales; Solanaceae; Solanoideae; Solanaeae; Solanum; Lycopersicon	Lineage
Lycopersicon () - (Rank: subgenus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=49274)	Parent	Lycopersicon () - (Rank: subgenus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=49274)	Parent
4084 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=4084)	NCBI Taxonomy ID	4081 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=4081)	NCBI Taxonomy ID
No	is Taxon A an Intraspecies?	Yes	is Taxon B an Intraspecies?
		Solanum lycopersicum "Sun1642"	Taxon B Description

GENOTYPIC CHANGE

100147716	Generic Gene Name	B1N669 (http://www.uniprot.org/uniprot/B1N669)	UniProtKB Solanum lycopersicum
SUN; LYC_68t000013; SUNLYC_67t000009	Synonyms	EF094939 (https://www.ncbi.nlm.nih.gov/nucleotide/EF094939)	GenebankID or UniProtKB
4081.Solyc10g079240.1.1 (http://string-db.org/newstring.cgi/show_network_section.pl?identifier=4081.Solyc10g079240.1.1)	String		
-	Sequence Similarities		
-	GO - Molecular Function		
-	GO - Biological Process		

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No (#https://www.gephebase.org/search-criteria?/and+Presumptive Null=^No^#gephebase-summary-title)		Presumptive Null
Gene Amplification (#https://www.gephebase.org/search-criteria?/and+Molecular Type=^Gene Amplification^#gephebase-summary-title)		Molecular Type
Complex Change (#https://www.gephebase.org/search-criteria?/and+Aberration Type=^Complex Change^#gephebase-summary-title)		Aberration Type
Gene duplication		Molecular Details of the Mutation
Linkage Mapping (#https://www.gephebase.org/search-criteria?/and+Experimental Evidence=^Linkage Mapping^#gephebase-summary-title)		Experimental Evidence
A retrotransposon-mediated gene duplication underlies morphological variation of tomato fruit. (2008) (https://pubmed.ncbi.nlm.nih.gov/18339939)		Main Reference
Xiao H; Jiang N; Schaffner E; Stockinger EJ; van der Knaap E		Authors
Edible fruits, such as that of the tomato plant and other vegetable crops, are markedly diverse in shape and size. SUN, one of the major genes controlling the elongated fruit shape of tomato, was positionally cloned and found to encode a member of the IQ67 domain-containing family. We show that the locus arose as a result of an unusual 24.7-kilobase gene duplication event mediated by the long terminal repeat retrotransposon Rider. This event resulted in a new genomic context that increased SUN expression relative to that of the ancestral copy, culminating in an elongated fruit shape. Our discovery demonstrates that retrotransposons may be a major driving force in genome evolution and gene duplication, resulting in phenotypic change in plants.		Abstract
		Additional References

RELATED GEPHE

No matches found.

Related Genes

No matches found.

Related Haplotypes

EXTERNAL LINKS

COMMENTS

@TE TE-mediated gene duplication