

	Gephebase Gene	GepheID
self-pruning (sp) (https://www.gephebase.org/search-criteria?/and+Gene+Gephebase=%5Cself-pruning+sp%5D#gephebase-summary-title)	GP00001035	
	Entry Status	Martin
Published		Main curator

Morphology (https://www.gephebase.org/search-criteria?/and+Trait+Category=~Morphology~#gephebase-summary-title)		Trait Category	
Vegetative/Reproductive state switch (https://www.gephebase.org/search-criteria?/and+Trait=~Vegetative/Reproductive+state+switch~#gephebase-summary-title)		Trait	
Solanum lycopersicum domesticated - Sp/Sp		Trait State in Taxon A	
Solanum lycopersicum domesticated - M82 line - sp/sp		Trait State in Taxon B	
Taxon A		Ancestral State	
Domesticated (https://www.gephebase.org/search-criteria?/and+Taxonomic+Status=~Domesticated~#gephebase-summary-title)		Taxonomic Status	
Taxon A		Taxon B	
Solanum lycopersicum (https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=~Solanum+lycopersicum~#gephebase-summary-title)		Solanum lycopersicum (https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=~Solanum+lycopersicum~#gephebase-summary-title)	
tomato		tomato	
Lycopersicon esculentum var. esculentum; Solanum esculentum; Solanum lycopersicum var. humboldtii; tomato; Lycopersicon esculentum Mill.; Solanum esculentum Dunal; Solanum lycopersicum L.; Lycopersicon lycopersicum; Lycopersicum esculentum; Solanum lycopersicon		Lycopersicon esculentum var. esculentum; Solanum esculentum; Solanum lycopersicum var. humboldtii; tomato; Lycopersicon esculentum Mill.; Solanum esculentum Dunal; Solanum lycopersicum L.; Lycopersicon lycopersicum; Lycopersicum esculentum; Solanum lycopersicon	
species		species	
cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; eudicotyledons; Gunneridae; Pentapetalae; asterids; lamiids; Solanales; Solanaceae; Solanoideae; Solaneae; Solanum; Lycopersicon		cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; eudicotyledons; Gunneridae; Pentapetalae; asterids; lamiids; Solanales; Solanaceae; Solanoideae; Solaneae; Solanum; Lycopersicon	
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 4081 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 4081)		NCBI Taxonomy ID 4081 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 4081)	
is Taxon A an Intraspecies?		is Taxon B an Intraspecies?	
Yes		Yes	
Taxon A Description		Taxon B Description	
Solanum lycopersicum domesticated - Sp/Sp		Solanum lycopersicum domesticated - M82 line - sp/sp	

SP	Generic Gene Name	UniProtKB Solanum lycopersicum
	Synonyms	O82088 (http://www.uniprot.org/uniprot/O82088)
-	String	U84140 (https://www.ncbi.nlm.nih.gov/nuccore/U84140)
4081.Solyc06g074350.2.1 (http://string-db.org/newstring.cgi/show_network_section.pl?identifier=4081.Solyc06g074350.2.1)	Sequence Similarities	GenebankID or UniProtKB
Belongs to the phosphatidylethanolamine-binding protein family.	GO - Molecular Function	
-	GO - Biological Process	

GO:0010228 : vegetative to reproductive phase transition of meristem
(<https://www.ebi.ac.uk/QuickGO/term/GO:0010228>)
GO:0009910 : negative regulation of flower development
(<https://www.ebi.ac.uk/QuickGO/term/GO:0009910>)

GO - Cellular Component

GO:0005737 : cytoplasm (<https://www.ebi.ac.uk/QuickGO/term/GO:0005737>)
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](https://www.gephebase.org/search-criteria?/and+Presumptive+Null=))

Molecular Type

Coding ([https://www.gephebase.org/search-criteria?/and+Molecular Type="+Coding`#gephebase-summary-title](https://www.gephebase.org/search-criteria?/and+Molecular+Type=))

Aberration Type

SNP ([https://www.gephebase.org/search-criteria?/and+Aberration Type="+SNP`#gephebase-summary-title](https://www.gephebase.org/search-criteria?/and+Aberration+Type=))

SNP Coding Change

Nonsynonymous

Molecular Details of the Mutation

P76L due to CCT->CTT

Experimental Evidence

Linkage Mapping ([https://www.gephebase.org/search-criteria?/and+Experimental Evidence="+Linkage Mapping`#gephebase-summary-title](https://www.gephebase.org/search-criteria?/and+Experimental+Evidence=))

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

Main Reference

The SELF-PRUNING gene of tomato regulates vegetative to reproductive switching of sympodial meristems and is the ortholog of CEN and TFL1. (1998)
(<https://pubmed.ncbi.nlm.nih.gov/9570763>)

Authors

Pnueli L; Carmel-Goren L; Hareven D; Gutfinger T; Alvarez J; Ganai M; Zamir D; Lifschitz E

Abstract

Vegetative and reproductive phases alternate regularly during sympodial growth in tomato. In wild-type ‘indeterminate’ plants, inflorescences are separated by three vegetative nodes. In ‘determinate’ plants homozygous for the recessive allele of the SELF-PRUNING (SP) gene, sympodial segments develop progressively fewer nodes until the shoot is terminated by two consecutive inflorescences. We show here that the SP gene is the tomato ortholog of CENTRORADIALIS and TERMINAL FLOWER1, genes which maintain the indeterminate state of inflorescence meristems in Antirrhinum and Arabidopsis respectively. The sp mutation results in a single amino acid change (P76L), and the mutant phenotype is mimicked by overexpressing the SP antisense RNA. Ectopic and overexpression of the SP and CEN transgenes in tomato rescues the ‘indeterminate’ phenotype, conditions the replacement of flowers by leaves in the inflorescence and suppresses the transition of the vegetative apex to a reproductive shoot. The SELF-PRUNING gene is expressed in shoot apices and leaves from very early stages, and later in inflorescence and floral primordia as well. This expression pattern is similar to that displayed by the tomato ortholog LEAFY and FLORICAULA. Comparison of the sympodial, day-neutral shoot system of tomato and the monopodial, photoperiod-sensitive systems of Arabidopsis and Antirrhinum suggests that flowering genes that are required for the processing of floral induction signals in Arabidopsis and Antirrhinum are required in tomato to regulate the alternation between vegetative and reproductive cycles in sympodial meristems.

Additional References

RELATED GEPHE

Related Genes

No matches found.

Related Haplotypes

No matches found.

EXTERNAL LINKS

COMMENTS