

Gephebase Gene		GepheID
Brix9-2-5/LIN5 invertase (https://www.gephebase.org/search-criteria?/and+Gene)	GP00000159	
Gephebase= [^] Brix9-2-5/LIN5 invertase [^] #gephebase-summary-title)		Main curator
Published	Entry Status	Martin

Trait Category		Trait		Trait State in Taxon A		Trait State in Taxon B		Ancestral State		Taxonomic Status	
Physiology (https://www.gephebase.org/search-criteria?/and+Trait+Category=~Physiology^#gephebase-summary-title)		Fruit sugar content (https://www.gephebase.org/search-criteria?/and+Trait=~Fruit+sugar+content^#gephebase-summary-title)		Lycopersicum pennellii wild		Solanum lycopersicum domesticated		Taxon A		Domesticated (https://www.gephebase.org/search-criteria?/and+Taxonomic+Status=~Domesticated^#gephebase-summary-title)	
Taxon A		Taxon B		Taxon A		Taxon B		Taxon A		Taxon B	
Solanum pennellii		Solanum lycopersicum		Solanum pennellii		Solanum lycopersicum		Solanum pennellii		Solanum lycopersicum	
(https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=~Solanum+pennellii^#gephebase-summary-title)		(https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=~Solanum+lycopersicum^#gephebase-summary-title)		(https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=~Solanum+pennellii^#gephebase-summary-title)		(https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=~Solanum+lycopersicum^#gephebase-summary-title)		(https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=~Solanum+pennellii^#gephebase-summary-title)		(https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=~Solanum+lycopersicum^#gephebase-summary-title)	
-		tomato		-		tomato		-		tomato	
Lycopersicon pennellii; Lycopersicon pennellii; Lycopesion pennellii; Solanum pennelli; Lycopersicon pennellii (Correll) D'Arcy; Solanum pennellii Correll		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 pennellii; Lycopersicon pennellii; Lycopesion pennellii; Solanum pennelli; Lycopersicon pennellii (Correll) D'Arcy; Solanum pennellii Correll		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 pennellii; Lycopersicon pennellii; Lycopesion pennellii; Solanum pennelli; Lycopersicon pennellii (Correll) D'Arcy; Solanum pennellii Correll		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		species		species		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		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		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)		Lycopersicon () - (Rank: subgenus)		Lycopersicon () - (Rank: subgenus)		Lycopersicon () - (Rank: subgenus)		Lycopersicon () - (Rank: subgenus)		Lycopersicon () - (Rank: subgenus)	
(https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=49274)		(https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=49274)		(https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=49274)		(https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=49274)		(https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=49274)		(https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=49274)	
NCBI Taxonomy ID		NCBI Taxonomy ID		NCBI Taxonomy ID		NCBI Taxonomy ID		NCBI Taxonomy ID		NCBI Taxonomy ID	
28526		4081		28526		4081		28526		4081	
(https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=28526)		(https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=4081)		(https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=28526)		(https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=4081)		(https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=28526)		(https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=4081)	
is Taxon A an Intraspecies?		is Taxon B an Intraspecies?		is Taxon A an Intraspecies?		is Taxon B an Intraspecies?		is Taxon A an Intraspecies?		is Taxon B an Intraspecies?	
Yes		Yes		Yes		Yes		Yes		Yes	
Taxon A Description		Taxon B Description		Taxon A Description		Taxon B Description		Taxon A Description		Taxon B Description	
Lycopersicum pennellii wild		Solanum lycopersicum domesticated		Lycopersicum pennellii wild		Solanum lycopersicum domesticated		Lycopersicum pennellii wild		Solanum lycopersicum domesticated	

Accession	Gene Name	Accession	Gene Name
LIN5	Generic Gene Name	P93199 (http://www.uniprot.org/uniprot/P93199)	UniProtKB Solanum lycopersicum
-	Synonyms	X91389 (https://www.ncbi.nlm.nih.gov/nucore/X91389)	GenebankID or UniProtKB
-	String		
-	Sequence Similarities		
-	GO - Molecular Function		
GO:0004564 : beta-fructofuranosidase activity (https://www.ebi.ac.uk/QuickGO/term/GO:0004564)			
GO:0005975 : carbohydrate metabolic process	GO - Biological Process		

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Unknown ([https://www.gephebase.org/search-criteria?/and+Presumptive Null="+Unknown+"#gephebase-summary-title](https://www.gephebase.org/search-criteria?/and+Presumptive+Null=))

Presumptive Null

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

Molecular Type

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

Aberration Type

Not identified

Molecular Details of the Mutation

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=))

Experimental Evidence

Zooming in on a quantitative trait for tomato yield using interspecific introgressions. (2004) (<https://pubmed.ncbi.nlm.nih.gov/15375271>)

Main Reference

Fridman E; Carrari F; Liu YS; Fernie AR; Zamir D

Authors

To explore natural biodiversity we developed and examined introgression lines (ILs) containing chromosome segments of wild species (*Solanum pennellii*) in the background of the cultivated tomato (*S. lycopersicum*). We identified Brix9-2-5, which is a *S. pennellii* quantitative trait locus (QTL) that increases sugar yield of tomatoes and was mapped within a flower- and fruit-specific invertase (LIN5). QTL analysis representing five different tomato species delimited the functional polymorphism of Brix9-2-5 to an amino acid near the catalytic site of the invertase crystal, affecting enzyme kinetics and fruit sink strength. These results underline the power of diverse ILs for high-resolution perspectives on complex phenotypes.

Abstract

Additional References

RELATED GEPHE

No matches found.

Related Genes

No matches found.

Related Haplotypes

EXTERNAL LINKS

COMMENTS