

GEPHE SUMMARY

PG (<a +pg+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Gene+Gephebase=">https://www.gephebase.org/search-criteria?/and+Gene Gephebase="PG"#gephebase-summary-title)	Gephebase Gene	GepheID
	GP00001448	
	Entry Status	Main curator
Published	Prigent	

PHENOTYPIC CHANGE

		Trait Category	
Physiology (<a +physiology+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Trait+Category=">https://www.gephebase.org/search-criteria?/and+Trait Category="Physiology"#gephebase-summary-title)		Trait	
Fruit ripening (<a +fruit+ripening+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Trait=">https://www.gephebase.org/search-criteria?/and+Trait="Fruit ripening"#gephebase-summary-title)		Trait State in Taxon A	
Tomato fruit softening		Trait State in Taxon B	
hot pepper fruit not softening		Ancestral State	
Taxon A		Taxonomic Status	
Domesticated (<a +domesticated+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Taxonomic+Status=">https://www.gephebase.org/search-criteria?/and+Taxonomic Status="Domesticated"#gephebase-summary-title)			
Taxon A		Taxon B	
Latin Name		Latin Name	
Solanum lycopersicum (<a +solanum+lycopersicum+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=">https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms="Solanum lycopersicum"#gephebase-summary-title)		Capsicum annuum (<a +capsicum+annuum+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=">https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms="Capsicum annuum"#gephebase-summary-title)	
Common Name		Common Name	
tomato		-	
Synonyms		Synonyms	
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		Capsicum annuum L.; Capsicum annum; Capsicum capsicum	
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; Solanum; Lycopersicon		cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; eudicotyledons; Gunneridae; Pentapetalae; asterids; lamiids; Solanales; Solanaceae; Solanoideae; Capsiceae; Capsicum	
Parent		Parent	
Lycopersicon () - (Rank: subgenus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=49274)		Capsicum (peppers) - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=4071)	
NCBI Taxonomy ID		NCBI Taxonomy ID	
4081 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=4081)		4072 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=4072)	
is Taxon A an Infrappecies?		is Taxon B an Infrappecies?	
No		No	

GENOTYPIC CHANGE

PG	Generic Gene Name	UniProtKB Capsicum annuum
	Synonyms	GenebankID or UniProtKB
	String	
-		
-		
Sequence Similarities		
Belongs to the glycosyl hydrolase 28 family.		
GO - Molecular Function		
GO:0004650 : polygalacturonase activity (https://www.ebi.ac.uk/QuickGO/term/GO:0004650)		
GO - Biological Process		
GO:0005975 : carbohydrate metabolic process (https://www.ebi.ac.uk/QuickGO/term/GO:0005975)		
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
Deletion (https://www.gephebase.org/search-criteria?/and+Aberration Type=^Deletion^#gephebase-summary-title)	
	Deletion Size
100-999 bp	
	Molecular Details of the Mutation
a partial deletion of about 90aa in the C-terminal region	
	Experimental Evidence
Candidate Gene (https://www.gephebase.org/search-criteria?/and+Experimental Evidence=^Candidate Gene^#gephebase-summary-title)	
	Main Reference
Genome sequence of the hot pepper provides insights into the evolution of pungency in Capsicum species. (2014) (https://pubmed.ncbi.nlm.nih.gov/24441736)	
	Authors
Kim S; Park M; Yeom SI; Kim YM; Lee JM; Lee HA; Seo E; Choi J; Cheong K; Kim KT; Jung K; Lee GW; Oh SK; Bae C; Kim SB; Lee HY; Kim SY; Kim MS; Kang BC; Jo YD; Yang HB; Jeong HJ; Kang WH; Kwon JK; Shin C; Lim JY; Park JH; Huh JH; Kim JS; Kim BD; Cohen O; Paran I; Suh MC; Lee SB; Kim YK; Shin Y; Noh SJ; Park J; Seo YS; Kwon SY; Kim HA; Park JM; Kim HJ; Choi SB; Bosland PW; Reeves G; Jo SH; Lee BW; Cho HT; Choi HS; Lee MS; Yu Y; Do Choi Y; Park BS; van Deynze A; Ashrafi H; Hill T; Kim WT; Pai HS; Ahn HK; Yeam I; Giovannoni JJ; Rose JK; SÃ¸rensen I; Lee SJ; Kim RW; Choi IY; Choi BS; Lim JS; Lee YH; Choi D	
	Abstract
Hot pepper (<i>Capsicum annuum</i>), one of the oldest domesticated crops in the Americas, is the most widely grown spice crop in the world. We report whole-genome sequencing and assembly of the hot pepper (Mexican landrace of <i>Capsicum annuum</i> cv. CM334) at 186.6Å— coverage. We also report resequencing of two cultivated peppers and de novo sequencing of the wild species <i>Capsicum chinense</i> . The genome size of the hot pepper was approximately fourfold larger than that of its close relative tomato, and the genome showed an accumulation of Gypsy and Caulimoviridae family elements. Integrative genomic and transcriptomic analyses suggested that change in gene expression and neofunctionalization of capsaicin synthase have shaped capsaicinoid biosynthesis. We found differential molecular patterns of ripening regulators and ethylene synthesis in hot pepper and tomato. The reference genome will serve as a platform for improving the nutritional and medicinal values of <i>Capsicum</i> species.	
	Additional References

RELATED GEPHE

	Related Genes
2 (LeSPL-CNR, ripening inhibitor (rin) = LeMADS-RIN and LeMADS-MC) (https://www.gephebase.org/search-criteria?/or+Taxon ID=^4081^/and+Trait=Fruit ripening/or+Taxon ID=^4072^/and+Trait=Fruit ripening/and+groupHaplotypes=true#gephebase-summary-title)	
	Related Haplotypes
1 (https://www.gephebase.org/search-criteria?/or+Gene Gephebase=^PG^/and+Taxon ID=^4081^/or+Gene Gephebase=^PG^/and+Taxon ID=^4072^#gephebase-summary-title)	

EXTERNAL LINKS

COMMENTS