

GEPHE SUMMARY

ore (<a +ore+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Gene+Gephebase=">https://www.gephebase.org/search-criteria?/and+Gene Gephebase=" ore [^] #gephebase-summary-title)	Gephebase Gene	GP00001390	GepheID
Published	Entry Status	Prigent	Main curator

PHENOTYPIC CHANGE

Morphology, Physiology (<a #gephebase-summary-title"="" +morphology+"="" and+trait+category="+Physiology+" href="https://www.gephebase.org/search-criteria?/and+Trait+Category=">https://www.gephebase.org/search-criteria?/and+Trait Category=" Morphology [^] /and+Trait Category="Physiology [^] #gephebase-summary-title)	Trait Category		
Taste (fruit) (<a +taste+(fruit)+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Trait=">https://www.gephebase.org/search-criteria?/and+Trait=" Taste (fruit) [^] #gephebase-summary-title)	Trait		
wild cucumber	Trait State in Taxon A		
cultivated cucumber	Trait State in Taxon B		
Taxon A	Ancestral State	Taxon B	
Intraspecific (<a #gephebase-summary-title"="" +intraspecific+"="" href="https://www.gephebase.org/search-criteria?/and+Taxonomic+Status=">https://www.gephebase.org/search-criteria?/and+Taxonomic Status=" Intraspecific [^] #gephebase-summary-title)	Taxonomic Status		
	Taxon A		Taxon B
Cucumis sativus (<a #gephebase-summary-title"="" +cucumis+sativus+"="" href="https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=">https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms=" Cucumis sativus [^] #gephebase-summary-title)	Latin Name	Cucumis sativus (<a #gephebase-summary-title"="" +cucumis+sativus+"="" href="https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=">https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms=" Cucumis sativus [^] #gephebase-summary-title)	Latin Name
cucumber	Common Name	cucumber	Common Name
cucumber; cucumbers; Cucumis sativus L.; Cucumis sativu	Synonyms	cucumber; cucumbers; Cucumis sativus L.; Cucumis sativu	Synonyms
species	Rank	species	Rank
cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; eudicotyledons; Gunneridae; Pentapetalae; rosids; fabids; Cucurbitales; Cucurbitaceae; Benincaseae; Cucumis	Lineage	cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; eudicotyledons; Gunneridae; Pentapetalae; rosids; fabids; Cucurbitales; Cucurbitaceae; Benincaseae; Cucumis	Lineage
Cucumis () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=3655)	Parent	Cucumis () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=3655)	Parent
3659 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=3659)	NCBI Taxonomy ID	3659 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=3659)	NCBI Taxonomy ID
No	is Taxon A an Intraspecies?	Yes	is Taxon B an Intraspecies?
		Cultivated cucumber	Taxon B Description

GENOTYPIC CHANGE

BCH1	Generic Gene Name	E9JE14 (http://www.uniprot.org/uniprot/E9JE14)	UniProtKB Zea mays
BCH1; Zmcr1RB3; GRMZM2G164318; 732775; crtRB3; ZEAMMB73_Zm00001d002589	Synonyms	()	GenebankID or UniProtKB
4577.GRMZM2G164318_P01 (http://string-db.org/newstring.cgi/show_network_section.pl?identifier=4577.GRMZM2G164318_P01)	String		
Belongs to the sterol desaturase family.	Sequence Similarities		
GO:0016491 : oxidoreductase activity (https://www.ebi.ac.uk/QuickGO/term/GO:0016491)	GO - Molecular Function		
GO:0005506 : iron ion binding (https://www.ebi.ac.uk/QuickGO/term/GO:0005506)	GO - Biological Process		
GO:0008610 : lipid biosynthetic process (https://www.ebi.ac.uk/QuickGO/term/GO:0008610)			

GO:0016021 : integral component of membrane
 (https://www.ebi.ac.uk/QuickGO/term/GO:0016021)

No (https://www.gephebase.org/search-criteria?/and+Presumptive Null=^No^#gephebase-summary-title)

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

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

Nonsynonymous

p.Ala257Asp

Candidate Gene (https://www.gephebase.org/search-criteria?/and+Experimental Evidence=^Candidate Gene^#gephebase-summary-title)

Presumptive Null

Molecular Type

Aberration Type

SNP Coding Change

Molecular Details of the Mutation

Experimental Evidence

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

Main Reference

A genomic variation map provides insights into the genetic basis of cucumber domestication and diversity. (2013) (https://pubmed.ncbi.nlm.nih.gov/24141363)

Authors

Qi J; Liu X; Shen D; Miao H; Xie B; Li X; Zeng P; Wang S; Shang Y; Gu X; Du Y; Li Y; Lin T; Yuan J; Yang X; Chen J; Chen H; Xiong X; Huang K; Fei Z; Mao L; Tian L; Ståhl T; Renner SS; Kamoun S; Lucas WJ; Zhang Z; Huang S

Abstract

Most fruits in our daily diet are the products of domestication and breeding. Here we report a map of genome variation for a major fruit that encompasses ~3.6 million variants, generated by deep resequencing of 115 cucumber lines sampled from 3,342 accessions worldwide. Comparative analysis suggests that fruit crops underwent narrower bottlenecks during domestication than grain crops. We identified 112 putative domestication sweeps; 1 of these regions contains a gene involved in the loss of bitterness in fruits, an essential domestication trait of cucumber. We also investigated the genomic basis of divergence among the cultivated populations and discovered a natural genetic variant in a β -carotene hydroxylase gene that could be used to breed cucumbers with enhanced nutritional value. The genomic history of cucumber evolution uncovered here provides the basis for future genomics-enabled breeding.

Additional References

RELATED GEPHE

No matches found.

Related Genes

No matches found.

Related Haplotypes

EXTERNAL LINKS

COMMENTS

the paper also treats of fruit length - leaf size and fruit bitterness but only at the level of QTL and large candidate regions