

GEPHE SUMMARY

	Gephebase Gene		GepheID
Cryptochrome 2 (CRY2) (https://www.gephebase.org/search-criteria?/and+Gene+Gephebase+^Cryptochrome+2+(CRY2)^#gephebase-summary-title)		GP00002408	
Published	Entry Status	Courtier	Main curator

PHENOTYPIC CHANGE

	Trait Category		
Physiology (https://www.gephebase.org/search-criteria?/and+Trait+Category+^Physiology^#gephebase-summary-title)			
	Trait		
Circadian rhythm (https://www.gephebase.org/search-criteria?/and+Trait+^Circadian+rhythm^#gephebase-summary-title)			
	Trait State in Taxon A		
Bombyx mori - local strains			
	Trait State in Taxon B		
Bombyx mori - domesticated strains			
	Ancestral State		
Taxon A			
	Taxonomic Status		
Domesticated (https://www.gephebase.org/search-criteria?/and+Taxonomic+Status+^Domesticated^#gephebase-summary-title)			

	Taxon A		Taxon B
	Latin Name		Latin Name
Bombyx mori (https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms+^Bombyx+mori^#gephebase-summary-title)		Bombyx mori (https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms+^Bombyx+mori^#gephebase-summary-title)	
	Common Name		Common Name
domestic silkworm		domestic silkworm	
	Synonyms		Synonyms
domestic silkworm; silk moth; silkworm; Bombyx mori Linnaeus, 1758		domestic silkworm; silk moth; silkworm; Bombyx mori Linnaeus, 1758	
	Rank		Rank
species		species	
	Lineage		Lineage
cellular organisms; Eukaryota; Opisthokonta; Metazoa; Eumetazoa; Bilateria; Protostomia; Ecdysozoa; Panarthropoda; Arthropoda; Mandibulata; Pancrustacea; Hexapoda; Insecta; Dicondylia; Pterygota; Neoptera; Holometabola; Amphiesmenoptera; Lepidoptera; Glossata; Neolepidoptera; Heteroneura; Dityrsia; Obtectomera; Bombycoidea; Bombycidae; Bombycinae; Bombyx		cellular organisms; Eukaryota; Opisthokonta; Metazoa; Eumetazoa; Bilateria; Protostomia; Ecdysozoa; Panarthropoda; Arthropoda; Mandibulata; Pancrustacea; Hexapoda; Insecta; Dicondylia; Pterygota; Neoptera; Holometabola; Amphiesmenoptera; Lepidoptera; Glossata; Neolepidoptera; Heteroneura; Dityrsia; Obtectomera; Bombycoidea; Bombycidae; Bombycinae; Bombyx	
	Parent		Parent
Bombyx () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=7090)		Bombyx () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=7090)	
	NCBI Taxonomy ID		NCBI Taxonomy ID
7091 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=7091)		7091 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=7091)	
	is Taxon A an Intraspecies?		is Taxon B an Intraspecies?
No		No	

GENOTYPIC CHANGE

	Generic Gene Name		UniProtKB Drosophila melanogaster
cry		O77059 (http://www.uniprot.org/uniprot/O77059)	
	Synonyms		GenebankID or UniProtKB
anon-WO0140519.17; anon-WO0140519.19; anon-WO0140519.20; anon-WO0172774.15; CG3772; Cry; CRY; cryb; dcry; dCry; dCRY; DCry; Dm-CRY1; Dmcr1; DmCry; DmCRY; DmCry1; DmCRY1; Dmel\CG3772		()	
	String		
7227.FBpp0083150 (http://string-db.org/newstring.cgi/show_network_section.pl?identifier=7227.FBpp0083150)			
	Sequence Similarities		
Belongs to the DNA photolyase class-1 family.			
	GO - Molecular Function		
GO:0003677 : DNA binding (https://www.ebi.ac.uk/QuickGO/term/GO:0003677)			
GO:0009882 : blue light photoreceptor activity (https://www.ebi.ac.uk/QuickGO/term/GO:0009882)			
GO:0071949 : FAD binding (https://www.ebi.ac.uk/QuickGO/term/GO:0071949)			

GO:0050660 : flavin adenine dinucleotide binding
 (https://www.ebi.ac.uk/QuickGO/term/GO:0050660)
 GO:0008020 : G protein-coupled photoreceptor activity
 (https://www.ebi.ac.uk/QuickGO/term/GO:0008020)
 GO:0009881 : photoreceptor activity (https://www.ebi.ac.uk/QuickGO/term/GO:0009881)
 GO - Biological Process
 GO:0009637 : response to blue light (https://www.ebi.ac.uk/QuickGO/term/GO:0009637)
 GO:0009416 : response to light stimulus
 (https://www.ebi.ac.uk/QuickGO/term/GO:0009416)
 GO:0045892 : negative regulation of transcription, DNA-templated
 (https://www.ebi.ac.uk/QuickGO/term/GO:0045892)
 GO:0032922 : circadian regulation of gene expression
 (https://www.ebi.ac.uk/QuickGO/term/GO:0032922)
 GO:0007623 : circadian rhythm (https://www.ebi.ac.uk/QuickGO/term/GO:0007623)
 GO:0009785 : blue light signaling pathway
 (https://www.ebi.ac.uk/QuickGO/term/GO:0009785)
 GO:0042752 : regulation of circadian rhythm
 (https://www.ebi.ac.uk/QuickGO/term/GO:0042752)
 GO:0045187 : regulation of circadian sleep/wake cycle, sleep
 (https://www.ebi.ac.uk/QuickGO/term/GO:0045187)
 GO:0045475 : locomotor rhythm (https://www.ebi.ac.uk/QuickGO/term/GO:0045475)
 GO:0071482 : cellular response to light stimulus
 (https://www.ebi.ac.uk/QuickGO/term/GO:0071482)
 GO:0007602 : phototransduction (https://www.ebi.ac.uk/QuickGO/term/GO:0007602)
 GO:0048512 : circadian behavior (https://www.ebi.ac.uk/QuickGO/term/GO:0048512)
 GO:0009649 : entrainment of circadian clock
 (https://www.ebi.ac.uk/QuickGO/term/GO:0009649)
 GO:0043153 : entrainment of circadian clock by photoperiod
 (https://www.ebi.ac.uk/QuickGO/term/GO:0043153)
 GO:0050980 : detection of light stimulus involved in magnetoreception
 (https://www.ebi.ac.uk/QuickGO/term/GO:0050980)
 GO:0042332 : gravitaxis (https://www.ebi.ac.uk/QuickGO/term/GO:0042332)
 GO:0050958 : magnetoreception (https://www.ebi.ac.uk/QuickGO/term/GO:0050958)
 GO:0071000 : response to magnetism
 (https://www.ebi.ac.uk/QuickGO/term/GO:0071000)
 GO:0009588 : UV-A, blue light phototransduction
 (https://www.ebi.ac.uk/QuickGO/term/GO:0009588)

GO - Cellular Component

GO:0005737 : cytoplasm (https://www.ebi.ac.uk/QuickGO/term/GO:0005737)
 GO:0005829 : cytosol (https://www.ebi.ac.uk/QuickGO/term/GO:0005829)
 GO:0005654 : nucleoplasm (https://www.ebi.ac.uk/QuickGO/term/GO:0005654)
 GO:0005634 : nucleus (https://www.ebi.ac.uk/QuickGO/term/GO:0005634)
 GO:0048471 : perinuclear region of cytoplasm
 (https://www.ebi.ac.uk/QuickGO/term/GO:0048471)

No (https://www.gephebase.org/search-criteria?/and+Presumptive Null=^No^#gephebase-summary-title)	Presumptive Null
Unknown (https://www.gephebase.org/search-criteria?/and+Molecular Type=^Unknown^#gephebase-summary-title)	Molecular Type
Unknown (https://www.gephebase.org/search-criteria?/and+Aberration Type=^Unknown^#gephebase-summary-title)	Aberration Type
-	Molecular Details of the Mutation
Association Mapping (https://www.gephebase.org/search-criteria?/and+Experimental Evidence=^Association Mapping^#gephebase-summary-title)	Experimental Evidence
The evolutionary road from wild moth to domestic silkworm. (2018) (https://pubmed.ncbi.nlm.nih.gov/29967484)	Main Reference
Xiang H; Liu X; Li M; Zhu Y; Wang L; Cui Y; Liu L; Fang G; Qian H; Xu A; Wang W; Zhan S	Authors
The Silk Road, which derives its name from the trade of silk produced by the domestic silkworm <i>Bombyx mori</i> , was an important episode in the development and interaction of human civilizations. However, the detailed history behind silkworm domestication remains ambiguous, and little is known about the underlying genetics with respect to important aspects of its domestication. Here, we reconstruct the domestication processes and identify selective sweeps by sequencing 137 representative silkworm strains. The results present an evolutionary scenario in which silkworms may have been initially domesticated in China as trimoulting lines, then subjected to independent spreads along the Silk Road that gave rise to the development of most local strains, and further improved for modern silk production in Japan and China, having descended from diverse ancestral sources. We find that genes with key roles in nitrogen and amino acid metabolism may have contributed to the promotion of silk production, and that circadian-related genes are generally selected for their adaptation. We additionally identify associations between several candidate genes and important breeding traits, thereby advancing the applicable value of our resources.	Abstract
High-resolution silkworm pan-genome provides genetic insights into artificial selection and ecological adaptation. (2022) (https://pubmed.ncbi.nlm.nih.gov/36153338)	Additional References

RELATED GEPHE

1 (Clock) (https://www.gephebase.org/search-criteria?/or+Taxon ID=^7091^/and+Trait=Circadian rhythm/and+groupHaplotypes=true#gephebase-summary-title) Related Genes
 No matches found. Related Haplotypes

EXTERNAL LINKS

COMMENTS