

GEPHE SUMMARY

	Gephebase Gene		GepheID
Xmrk (https://www.gephebase.org/search-criteria?/and+Gene+Gephebase=Xmrk^#gephebase-summary-title)		GP00001219	
	Entry Status	Martin	Main curator
Published			

PHENOTYPIC CHANGE

	Trait Category	
Physiology (https://www.gephebase.org/search-criteria?/and+Trait+Category=Physiology^#gephebase-summary-title)		
	Trait	
Hybrid incompatibility (melanoma) (https://www.gephebase.org/search-criteria?/and+Trait=Hybrid incompatibility (melanoma)^#gephebase-summary-title)		
	Trait State in Taxon A	
Xiphophorus maculatus		
	Trait State in Taxon B	
Xiphophorus helleri		
	Ancestral State	
Data not curated		
	Taxonomic Status	
Interspecific (https://www.gephebase.org/search-criteria?/and+Taxonomic+Status=Interspecific^#gephebase-summary-title)		

Taxon A		Taxon B	
	Latin Name		Latin Name
Xiphophorus maculatus (https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms=Xiphophorus maculatus^#gephebase-summary-title)		Xiphophorus hellerii (https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms=Xiphophorus hellerii^#gephebase-summary-title)	
	Common Name		Common Name
southern platyfish		green swordtail	
	Synonyms		Synonyms
Platypoecilus maculatus; southern platyfish; Platypoecilus maculatus Guenther, 1866; Xiphophorus maculatus (Guenther, 1866)		Xiphophorus helleri; green swordtail; Xiphophorus hellerii Heckel, 1848	
	Rank		Rank
species		species	
	Lineage		Lineage
cellular organisms; Eukaryota; Opisthokonta; Metazoa; Eumetazoa; Bilateria; Deuterostomia; Chordata; Craniata; Vertebrata; Gnathostomata; Teleostomi; Euteleostomi; Actinopterygii; Actinopteri; Neopterygii; Teleostei; Osteoglossocephalai; Clupeocephala; Euteleosteomorpha; Neoteleostei; Eurypterygia; Ctenosquamata; Acanthomorphata; Euacanthomorphacea; Percomorphaceae; Ovalentaria; Atherinomorphae; Cyprinodontiformes; Cyprinodontoidei; Poeciliidae; Poeciliinae; Xiphophorus		cellular organisms; Eukaryota; Opisthokonta; Metazoa; Eumetazoa; Bilateria; Deuterostomia; Chordata; Craniata; Vertebrata; Gnathostomata; Teleostomi; Euteleostomi; Actinopterygii; Actinopteri; Neopterygii; Teleostei; Osteoglossocephalai; Clupeocephala; Euteleosteomorpha; Neoteleostei; Eurypterygia; Ctenosquamata; Acanthomorphata; Euacanthomorphacea; Percomorphaceae; Ovalentaria; Atherinomorphae; Cyprinodontiformes; Cyprinodontoidei; Poeciliidae; Poeciliinae; Xiphophorus	
	Parent		Parent
Xiphophorus () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 8082)		Xiphophorus () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 8082)	
	NCBI Taxonomy ID		NCBI Taxonomy ID
8083 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 8083)		8084 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 8084)	
	is Taxon A an Intraspecies?		is Taxon B an Intraspecies?
No		No	

GENOTYPIC CHANGE

	Generic Gene Name		UniProtKB Xiphophorus maculatus
xmrk		P13388 (http://www.uniprot.org/uniprot/P13388)	
	Synonyms		GenebankID or UniProtKB
tu		AAB31972 (https://www.ncbi.nlm.nih.gov/nuccore/AAB31972)	
-			
	String		
	Sequence Similarities		
Belongs to the protein kinase superfamily. Tyr protein kinase family. EGF receptor subfamily.			
	GO - Molecular Function		
GO:0005524 : ATP binding (https://www.ebi.ac.uk/QuickGO/term/GO:0005524)			
GO:0004714 : transmembrane receptor protein tyrosine kinase activity (https://www.ebi.ac.uk/QuickGO/term/GO:0004714)			
	GO - Biological Process		
GO:0007169 : transmembrane receptor protein tyrosine kinase signaling pathway (https://www.ebi.ac.uk/QuickGO/term/GO:0007169)			

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

Unknown (<https://www.gephebase.org/search-criteria?/and+Presumptive Null=^Unknown^#gephebase-summary-title>)

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

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

Various

Linkage Mapping (<https://www.gephebase.org/search-criteria?/and+Experimental Evidence=^Linkage Mapping^#gephebase-summary-title>)

Tumor suppression in Xiphophorus by an accidentally acquired promoter. (1993) (<https://pubmed.ncbi.nlm.nih.gov/8430335>)

Adam D; Dimitrijevic N; Scharl M

Melanoma formation in the teleost Xiphophorus is caused by a dominant genetic locus, Tu. This locus includes the Xmrk oncogene, which encodes a receptor tyrosine kinase. Tumor induction is suppressed in wild-type fish by a tumor suppressor locus, R. Molecular genetic analyses revealed that the Tu locus emerged by nonhomologous recombination of the Xmrk proto-oncogene with a previously uncharacterized sequence, D. This event generated an additional copy of Xmrk with a new promoter. Suppression of the new Xmrk promoter by R in parental fish and its deregulation in hybrids explain the genetics of melanoma formation in Xiphophorus.

Evolution of Xmrk: an oncogene, but also a speciation gene?. (2008) (<https://pubmed.ncbi.nlm.nih.gov/18693261>)

RELATED GEPHE

No matches found.

No matches found.

EXTERNAL LINKS

COMMENTS