

GEPHE SUMMARY

	Gephebase Gene	GephelD
metallothionein (Mtn) (https://www.gephebase.org/search-criteria?/and+Gene Gephebase=^metallothionein (Mtn)^#gephebase-summary-title)	GP00000653	Main curator
Published	Entry Status	Martin

PHENOTYPIC CHANGE

	Trait Category		
Physiology (https://www.gephebase.org/search-criteria?/and+Trait Category=^Physiology^#gephebase-summary-title)	Trait		
Metal tolerance (https://www.gephebase.org/search-criteria?/and+Trait=^Metal tolerance^#gephebase-summary-title)	Trait State in Taxon A		
Drosophila melanogaster	Trait State in Taxon B		
Drosophila melanogaster - resistant	Ancestral State		
Data not curated	Taxonomic Status		
Intraspecific (https://www.gephebase.org/search-criteria?/and+Taxonomic Status=^Intraspecific^#gephebase-summary-title)			
Taxon A		Taxon B	
Drosophila melanogaster (https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=^Drosophila+melanogaster^#gephebase-summary-title)	Latin Name	Drosophila melanogaster (https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=^Drosophila+melanogaster^#gephebase-summary-title)	Latin Name
fruit fly	Common Name	fruit fly	Common Name
Sophophora melanogaster; fruit fly; Drosophila melanogaster Meigen, 1830; Sophophora melanogaster (Meigen, 1830); Drosophila melangaster	Synonyms	Sophophora melanogaster; fruit fly; Drosophila melanogaster Meigen, 1830; Sophophora melanogaster (Meigen, 1830); Drosophila melangaster	Synonyms
species	Rank	species	Rank
cellular organisms; Eukaryota; Opisthokonta; Metazoa; Eumetazoa; Bilateria; Protostomia; Ecdysozoa; Panarthropoda; Arthropoda; Mandibulata; Pancrustacea; Hexapoda; Insecta; Dicondylia; Pterygota; Neoptera; Holometabola; Diptera; Brachycera; Muscomorpha; Eremoneura; Cyclorrhapha; Schizophora; Acalyptratae; Ephydriodea; Drosophilidae; Drosophilinae; Drosophilini; Drosophila; Sophophora; melanogaster group; melanogaster subgroup	Lineage	cellular organisms; Eukaryota; Opisthokonta; Metazoa; Eumetazoa; Bilateria; Protostomia; Ecdysozoa; Panarthropoda; Arthropoda; Mandibulata; Pancrustacea; Hexapoda; Insecta; Dicondylia; Pterygota; Neoptera; Holometabola; Diptera; Brachycera; Muscomorpha; Eremoneura; Cyclorrhapha; Schizophora; Acalyptratae; Ephydriodea; Drosophilidae; Drosophilinae; Drosophilini; Drosophila; Sophophora; melanogaster group; melanogaster subgroup	Lineage
melanogaster subgroup () - (Rank: species subgroup) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 32351)	Parent	melanogaster subgroup () - (Rank: species subgroup) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 32351)	Parent
7227 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 7227)	NCBI Taxonomy ID	7227 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 7227)	NCBI Taxonomy ID
No	is Taxon A an Infraspecies?	No	is Taxon B an Infraspecies?

GENOTYPIC CHANGE

MtnA	Generic Gene Name	UniProtKB Drosophila melanogaster
	Synonyms	GenebankID or UniProtKB
anon-WO0153538.42; anon-WO0153538.44; anon-WO0153538.49; BcDNA:GH18460; CG9470; Dmel\CG9470; DrosMtn; Mtn; MTN; mtnA		EU744339 (https://www.ncbi.nlm.nih.gov/nuccore/EU744339)
7227.FBpp0081636 (http://string-db.org/newstring_cgi/show_network_section.pl?identifier= 7227.FBpp0081636)	String	
Belongs to the metallothionein superfamily. Type 5 family.	Sequence Similarities	
	GO - Molecular Function	
GO:0046872 : metal ion binding (https://www.ebi.ac.uk/QuickGO/term/GO:0046872)		
	GO - Biological Process	
GO:0010038 : response to metal ion (https://www.ebi.ac.uk/QuickGO/term/GO:0010038)		

No (https://www.gephebase.org/search-criteria?/and+Presumptive+Null=%No%#gephebase-summary-title)	Presumptive Null
Gene Amplification (https://www.gephebase.org/search-criteria?/and+Molecular+Type=%Gene+Amplification%#gephebase-summary-title)	Molecular Type
Complex Change (https://www.gephebase.org/search-criteria?/and+Aberration+Type=%Complex+Change%#gephebase-summary-title)	Aberration Type
Gene duplication	Molecular Details of the Mutation
Candidate Gene (https://www.gephebase.org/search-criteria?/and+Experimental+Evidence=%Candidate+Gene%#gephebase-summary-title)	Experimental Evidence
Structure and expression of a tandem duplication of the Drosophila metallothionein gene. (1986) (https://pubmed.ncbi.nlm.nih.gov/3016735)	Main Reference
Otto E; Young JE; Maroni G	Authors
A strain of cadmium-resistant Drosophila containing a chromosomal duplication of the metallothionein gene was isolated. This duplication is stably inherited in the absence of selective pressure, and larvae homozygous for it can produce approximately twice as much metallothionein RNA as wild-type larvae. The entire duplication was cloned within a 5.7-kilobase fragment; this fragment contained a direct, tandem repeat of 2.2 kilobases of DNA: 228 bases of 5' flanking DNA, the entire transcription unit, and 1.4 kilobases of 3' flanking sequences. The 3' region of the first repeated unit is joined to the 5' region of the second unit by a 6-base-pair segment we define as the novel joint. This joint forms part of a 10-base-pair inverted repeat of a segment within the 3' region of the first unit. Comparison of the sequences of the 5' and 3' boundaries revealed no extensive regions of similarity at a position corresponding to the novel joint, thus suggesting that a mechanism other than homologous recombination was involved in the origin of this duplication.	Abstract
	Additional References
Metallothionein gene duplications and metal tolerance in natural populations of <i>Drosophila melanogaster</i> . (1987) (https://pubmed.ncbi.nlm.nih.gov/2828157)	

RELATED GEPHE

No matches found.	Related Genes
No matches found.	Related Haplotypes

EXTERNAL LINKS

COMMENTS