

GEPHE SUMMARY

	Gephebase Gene		GepheID
Sdic gene cluster (<a +sdic+gene+cluster+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Gene+Gephebase=">https://www.gephebase.org/search-criteria?/and+Gene+Gephebase="+Sdic+gene+cluster+"#gephebase-summary-title)		GP00001032	
	Entry Status	Martin	Main curator
Published			

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		
Fertility (sperm competition; sperm competence) (<a +fertility+(sperm+competition;+sperm+competence)+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Trait=">https://www.gephebase.org/search-criteria?/and+Trait="+Fertility+(sperm+competition;+sperm+competence)+"#gephebase-summary-title)			
	Trait State in Taxon A		
Drosophila simulans; D. mauritiana			
	Trait State in Taxon B		
Drosophila melanogaster			
	Ancestral State		
Data not curated			
	Taxonomic Status		
Interspecific (<a +interspecific+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Taxonomic+Status=">https://www.gephebase.org/search-criteria?/and+Taxonomic+Status="+Interspecific+"#gephebase-summary-title)			
	Taxon A	Taxon B	
	Latin Name		Latin Name
melanogaster subgroup (<a +melanogaster+subgroup+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=">https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms="+melanogaster+subgroup+"#gephebase-summary-title)		Drosophila melanogaster (<a +drosophila+melanogaster+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=">https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms="+Drosophila+melanogaster+"#gephebase-summary-title)	
	Common Name		Common Name
-		fruit fly	
	Synonyms		Synonyms
-		Sophophora melanogaster; fruit fly; Drosophila melanogaster Meigen, 1830; Sophophora melanogaster (Meigen, 1830); Drosophila melangaster	
	Rank		Rank
species subgroup		species	
	Lineage		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; Acalyptera; Ephydroidea; Drosophilidae; Drosophilinae; Drosophilini; Drosophila; Sophophora; melanogaster group		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; Acalyptera; Ephydroidea; Drosophilidae; Drosophilinae; Drosophilini; Drosophila; Sophophora; melanogaster group; melanogaster subgroup	
	Parent		Parent
melanogaster group () - (Rank: species group) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=32346)		melanogaster subgroup () - (Rank: species subgroup) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=32351)	
	NCBI Taxonomy ID		NCBI Taxonomy ID
32351 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=32351)		7227 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=7227)	
	is Taxon A an Intraspecies?		is Taxon B an Intraspecies?
No		No	

GENOTYPIC CHANGE

	Generic Gene Name		UniProtKB Drosophila melanogaster
Sdic1		Q9W5W4 (http://www.uniprot.org/uniprot/Q9W5W4)	
	Synonyms		GenebankID or UniProtKB
CG9580; Dmel\CG9580; Sdic:CG9580; Sdic; Dmel_CG9580		AE014298 (https://www.ncbi.nlm.nih.gov/nucleotide/CG9580)	
	String		
7227.FBpp0088559 (http://string-db.org/newstring.cgi/show_network_section.pl?identifier=7227.FBpp0088559)			
	Sequence Similarities		
-			
	GO - Molecular Function		
GO:0008574 : ATP-dependent microtubule motor activity, plus-end-directed (https://www.ebi.ac.uk/QuickGO/term/GO:0008574)			
GO:0045504 : dynein heavy chain binding			

(<https://www.ebi.ac.uk/QuickGO/term/GO:0045504>)

GO:0045503 : dynein light chain binding

(<https://www.ebi.ac.uk/QuickGO/term/GO:0045503>)

GO - Biological Process

GO:0007018 : microtubule-based movement

(<https://www.ebi.ac.uk/QuickGO/term/GO:0007018>)

GO - Cellular Component

GO:0036126 : sperm flagellum (<https://www.ebi.ac.uk/QuickGO/term/GO:0036126>)

GO:0005868 : cytoplasmic dynein complex

(<https://www.ebi.ac.uk/QuickGO/term/GO:0005868>)

GO:0030286 : dynein complex (<https://www.ebi.ac.uk/QuickGO/term/GO:0030286>)

Presumptive Null

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

Molecular Type

Gene Amplification ([https://www.gephebase.org/search-criteria?/and+Molecular Type="+Gene Amplification+"#gephebase-summary-title](https://www.gephebase.org/search-criteria?/and+Molecular+Type=))

Aberration Type

Complex Change ([https://www.gephebase.org/search-criteria?/and+Aberration Type="+Complex Change+"#gephebase-summary-title](https://www.gephebase.org/search-criteria?/and+Aberration+Type=))

Molecular Details of the Mutation

Gene duplication

Experimental Evidence

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

Main Reference

Selective sweep of a newly evolved sperm-specific gene in *Drosophila*. (1998) (<https://pubmed.ncbi.nlm.nih.gov/9859991>)

Authors

Nurminsky DI; Nurminskaya MV; De Aguiar D; Hartl DL

Abstract

The pattern of genetic variation across the genome of *Drosophila melanogaster* is consistent with the occurrence of frequent 'selective sweeps', in which new favourable mutations become incorporated into the species so quickly that linked alleles can 'hitchhike' and also become fixed. Because of the hitchhiking of linked genes, it is generally difficult to identify the target of any putative selective sweep. Here, however, we identify a new gene in *D. melanogaster* that codes for a sperm-specific axonemal dynein subunit. The gene has a new testes-specific promoter derived from a protein-coding region in a gene encoding the cell-adhesion protein annexin X (AnnX), and it contains a new protein-coding exon derived from an intron in a gene encoding a cytoplasmic dynein intermediate chain (Cdic). The new transcription unit, designated Sdic (for sperm-specific dynein intermediate chain), has been duplicated about tenfold in a tandem array. Consistent with the selective sweep of this gene, the level of genetic polymorphism near Sdic is unusually low. The discovery of this gene supports other results that point to the rapid molecular evolution of male reproductive functions.

Additional References

Selective sweep of a newly evolved sperm-specific gene in *Drosophila*. (1998) (<https://pubmed.ncbi.nlm.nih.gov/9859991>)

RELATED GEPHE

Related Genes

7 (bab2, Drip, PPAR-gamma, InR, cytochrome c oxidase (COX7A), PHGPx, RnrS) ([https://www.gephebase.org/search-criteria?/or+Taxon ID="+7227^/and+Trait=Fertility/or+Taxon ID="+7227^/and+Trait=Fertility/and+groupHaplotypes=true#gephebase-summary-title](https://www.gephebase.org/search-criteria?/or+Taxon+ID=))

Related Haplotypes

No matches found.

EXTERNAL LINKS

COMMENTS