

GEPHE SUMMARY

	Gephebase Gene		GepheID
Not much yang (Nmy) (https://www.gephebase.org/search-criteria?/and+Gene)		GP00001970	
Gephebase="Not much yang (Nmy)"#gephebase-summary-title)			Main curator
	Entry Status	Courtier	
Published			

PHENOTYPIC CHANGE

	Trait Category	
Physiology (https://www.gephebase.org/search-criteria?/and+Trait)		
Category="Physiology"#gephebase-summary-title)		
	Trait	
Sex determination (sex ratio distortion) (https://www.gephebase.org/search-criteria?/and+Trait="Sex+determination+(sex+ratio+distortion)"#gephebase-summary-title)		
	Trait State in Taxon A	
Drosophila simulans		
	Trait State in Taxon B	
Drosophila simulans		
	Ancestral State	
Taxon A		
	Taxonomic Status	
Intraspecific (https://www.gephebase.org/search-criteria?/and+Taxonomic)		
Status="Intraspecific"#gephebase-summary-title)		

Taxon A	Latin Name	Taxon B	Latin Name
Drosophila simulans (<a drosophila+simulans"#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+simulans"#gephebase-summary-title)		Drosophila simulans (<a drosophila+simulans"#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+simulans"#gephebase-summary-title)	
-	Common Name	-	Common Name
-	Synonyms	-	Synonyms
-	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; Diptera; Brachycera; Muscomorpha; Eremoneura; Cyclorrhapha; Schizophora; Acalyptera; Ephydroidea; Drosophilidae; Drosophilinae; Drosophilini; Drosophila; Sophophora; melanogaster group; melanogaster subgroup		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 subgroup () - (Rank: species subgroup) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=32351)		melanogaster subgroup () - (Rank: species subgroup) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=32351)	
	NCBI Taxonomy ID		NCBI Taxonomy ID
7240 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=7240)		7240 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=7240)	
	is Taxon A an Intraspecies?		is Taxon B an Intraspecies?
No		No	

GENOTYPIC CHANGE

	Generic Gene Name		UniProtKB
-		0	
	Synonyms		GenebankID or UniProtKB
-		GU477253 (https://www.ncbi.nlm.nih.gov/nucleotide/GU477253)	
	String		
-			
	Sequence Similarities		
-			
	GO - Molecular Function		
-			
	GO - Biological Process		
-			
	GO - Cellular Component		
-			
			Presumptive Null
Unknown (https://www.gephebase.org/search-criteria?/and+Presumptive+Null="Unknown"#gephebase-summary-title)			

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

Molecular Type

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

Aberration Type

Deletion Size

-

Molecular Details of the Mutation

Loss of one of the inverted repeats that is present in the wild-type Dsim\Nmy locus and loss of most of the sequence located between the inverted repeats (except for a 93bp element in reverse orientation).

Experimental Evidence

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

Main Reference

A sex-ratio meiotic drive system in *Drosophila simulans*. I: an autosomal suppressor. (2007) (<https://pubmed.ncbi.nlm.nih.gov/17988172>)

Authors

Tao Y; Masly JP; Araripe L; Ke Y; Hartl DL

Abstract

Sex ratio distortion (sex-ratio for short) has been reported in numerous species such as *Drosophila*, where distortion can readily be detected in experimental crosses, but the molecular mechanisms remain elusive. Here we characterize an autosomal sex-ratio suppressor from *D. simulans* that we designate as not much yang (nmy, polytene chromosome position 87F3). Nmy suppresses an X-linked sex-ratio distorter, contains a pair of near-perfect inverted repeats of 345 bp, and evidently originated through retrotransposition from the distorter itself. The suppression is likely mediated by sequence homology between the suppressor and distorter. The strength of sex-ratio is greatly enhanced by lower temperature. This temperature sensitivity was used to assign the sex-ratio etiology to the maturation process of the Y-bearing sperm, a hypothesis corroborated by both light microscope observations and ultrastructural studies. It has long been suggested that an X-linked sex-ratio distorter can evolve by exploiting loopholes in the meiotic machinery for its own transmission advantage, which may be offset by other changes in the genome that control the selfish distorter. Data obtained in this study help to understand this evolutionary mechanism in molecular detail and provide insight regarding its evolutionary impact on genomic architecture and speciation.

Additional References

A sex-ratio meiotic drive system in *Drosophila simulans*. II: an X-linked distorter. (2007) (<https://pubmed.ncbi.nlm.nih.gov/17988173>)

RELATED GEPHE

Related Genes

2 (Distorter on the X (Dox), HP1D2) (<https://www.gephebase.org/search-criteria?/or+Taxon+ID=^7240^/and+Trait=Sex+determination/and+groupHaplotypes=true#gephebase-summary-title>)

Related Haplotypes

No matches found.

EXTERNAL LINKS

COMMENTS

Nmy suppresses an X-linked sex-ratio distorter named Dox. Nmy contains a pair of near-perfect inverted repeats of 345 bp and originated through retrotransposition from the distorter Dox itself. @Epistasis - No UniProtKD_ID - <http://flybase.org/reports/FBal0240568.html>