

GEPHE SUMMARY

Overdrive (https://www.gephebase.org/search-criteria?/and+Gene+Gephebase=^Overdrive^#gephebase-summary-title)	Gephebase Gene	GP00000816	GepheID
Published	Entry Status	Courtier	Main curator

PHENOTYPIC CHANGE

Physiology (https://www.gephebase.org/search-criteria?/and+Trait+Category=^Physiology^#gephebase-summary-title)	Trait Category		
Hybrid incompatibility (male F1 sterility) (https://www.gephebase.org/search-criteria?/and+Trait=^Hybrid incompatibility (male F1 sterility)^#gephebase-summary-title)	Trait		
Drosophila pseudoobscura-Bogota	Trait State in Taxon A		
Drosophila pseudoobscura-USA	Trait State in Taxon B		
Data not curated	Ancestral State		
Intraspecific (https://www.gephebase.org/search-criteria?/and+Taxonomic+Status=^Intraspecific^#gephebase-summary-title)	Taxonomic Status		
	Taxon A	Taxon B	
	Latin Name	Latin Name	
Drosophila pseudoobscura (https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=^Drosophila+pseudoobscura^#gephebase-summary-title)	Drosophila pseudoobscura (https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=^Drosophila+pseudoobscura^#gephebase-summary-title)	Drosophila pseudoobscura	
-	Common Name	Common Name	
-	Synonyms	Synonyms	
Drosophila pseudoobscura Frolova & Astaurov, 1929	Drosophila pseudoobscura Frolova & Astaurov, 1929	Drosophila pseudoobscura Frolova & Astaurov, 1929	
species	Rank	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; Acalypratae; Ephydroidea; Drosophilidae; Drosophilinae; Drosophilini; Drosophila; Sophophora; obscura group; pseudoobscura subgroup	Lineage	Lineage	
pseudoobscura subgroup () - (Rank: species subgroup) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=32358)	Parent	Parent	
7237 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=7237)	NCBI Taxonomy ID	NCBI Taxonomy ID	
is Taxon A an Intraspecies?			
Yes	Taxon A Description	Taxon B Description	
Drosophila pseudoobscura - Bogota (Drosophila pseudoobscura bogotana)	Drosophila pseudoobscura - Bogota (Drosophila pseudoobscura bogotana)	Drosophila pseudoobscura - USA	

GENOTYPIC CHANGE

Ovd	Generic Gene Name	UniProtKB Drosophila pseudoobscura pseudoobscura Q2LZF7 (http://www.uniprot.org/uniprot/Q2LZF7)	
Dpse\GA19777; dpse_GLEANR_12264; GA19777; GA19777[USA]; Ovd; Dpse\Ovd; Dpse_GA19777	Synonyms	EAL29551 (https://www.ncbi.nlm.nih.gov/nucleotide/EAL29551)	GenebankID or UniProtKB
-	String		
-	Sequence Similarities		
GO:0003677 : DNA binding (https://www.ebi.ac.uk/QuickGO/term/GO:0003677)	GO - Molecular Function		
GO:0006355 : regulation of transcription, DNA-templated (https://www.ebi.ac.uk/QuickGO/term/GO:0006355)	GO - Biological Process		

GO:0006351 : transcription, DNA-templated
(<https://www.ebi.ac.uk/QuickGO/term/GO:0006351>)

GO - Cellular Component

GO:0005634 : nucleus (<https://www.ebi.ac.uk/QuickGO/term/GO:0005634>)

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

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

Aberration Type

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

SNP Coding Change

Nonsynonymous

Molecular Details of the Mutation

6 candidate non-synonymous changes - the effect of single amino acid changes has not been tested

Experimental Evidence

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

	Taxon A	Taxon B	Position
Codon	-	-	-
Amino-acid	-	-	-

Main Reference

A single gene causes both male sterility and segregation distortion in *Drosophila* hybrids. (2009) (<https://pubmed.ncbi.nlm.nih.gov/19074311>)

Authors

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Abstract

A central goal of evolutionary biology is to identify the genes and evolutionary forces that cause speciation, the emergence of reproductive isolation between populations. Despite the identification of several genes that cause hybrid sterility or inviability-many of which have evolved rapidly under positive Darwinian selection-little is known about the ecological or genomic forces that drive the evolution of postzygotic isolation. Here, we show that the same gene, *Overdrive*, causes both male sterility and segregation distortion in F1 hybrids between the Bogota and U.S. subspecies of *Drosophila pseudoobscura*. This segregation distorter gene is essential for hybrid sterility, a strong reproductive barrier between these young taxa. Our results suggest that genetic conflict may be an important evolutionary force in speciation.

Additional References

RELATED GEPHE

No matches found.

Related Genes

No matches found.

Related Haplotypes

EXTERNAL LINKS

COMMENTS