

GEPHE SUMMARY

Overdrive (https://www.gephebase.org/search-criteria?and+GeneGephebase="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	
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)	Latin Name
-	-	Common Name
Drosophila pseudoobscura Frolova & Astaurov, 1929	Drosophila pseudoobscura Frolova & Astaurov, 1929	Synonyms
species	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; Ephydroidea; Drosophilidae; Drosophilinae; Drosophilini; Drosophila; Sophophora; obscura group; pseudoobscura 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; Acalyptratae; Ephydroidea; Drosophilidae; Drosophilinae; Drosophilini; Drosophila; Sophophora; obscura group; pseudoobscura subgroup	Lineage
pseudoobscura subgroup () - (Rank: species subgroup) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 32358)	pseudoobscura subgroup () - (Rank: species subgroup) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 32358)	Parent
7237 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 7237)	7237 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 7237)	NCBI Taxonomy ID
Yes	Yes	is Taxon A an Intraspecies?
Taxon A Description	Taxon B Description	
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)
	Synonyms	GenebankID or UniProtKB
Dpse\GA19777; dpse_GLEANR_12264; GA19777; GA19777[USA]; Ovd; Dpse\Ovd; Dpse_GA19777		EAL29551 (https://www.ncbi.nlm.nih.gov/nuccore/EAL29551)
	String	
-		
	Sequence Similarities	
-		
	GO - Molecular Function	
GO:0003677 : DNA binding (https://www.ebi.ac.uk/QuickGO/term/GO:0003677)		
	GO - Biological Process	
GO:0006355 : regulation of transcription, DNA-templated (https://www.ebi.ac.uk/QuickGO/term/GO:0006355)		

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>)

Molecular Type

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

Aberration Type

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

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>)

	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

Phadnis N; Orr HA

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

Related Genes

No matches found.

Related Haplotypes

No matches found.

EXTERNAL LINKS

COMMENTS