

GEPHE SUMMARY

	Gephebase Gene	GephelD
yellow (https://www.gephebase.org/search-criteria/?and+GeneGephebase=%22yellow%22#gephebase-summary-title)	GP00001550	
	Entry Status	Main curator
Published	Prigent	

PHENOTYPIC CHANGE

	Trait Category
Morphology (https://www.gephebase.org/search-criteria/?and+TraitCategory=%22Morphology%22#gephebase-summary-title)	Trait
Coloration (male-specific) (https://www.gephebase.org/search-criteria/?and+Trait=%22Coloration+(male-specific)%22#gephebase-summary-title)	Trait State in Taxon A
D. ercepeae with darker male abdominal pigmentation	Trait State in Taxon B
D. merina with light colored male abdominal pigmentation	Ancestral State
Unknown	Taxonomic Status
Interspecific (https://www.gephebase.org/search-criteria/?and+TaxonomicStatus=%22Interspecific%22#gephebase-summary-title)	

Taxon A	Latin Name	Taxon B	Latin Name
Drosophila ercepeae (https://www.gephebase.org/search-criteria/?and+Taxon+and+Synonyms=%22Drosophila+ercepeae%22#gephebase-summary-title)		Drosophila merina (https://www.gephebase.org/search-criteria/?and+Taxon+and+Synonyms=%22Drosophila+merina%22#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; Acalyptratae; Ephydriodea; Drosophilidae; Drosophilinae; Drosophilini; Drosophila; Sophophora; melanogaster group; ananassae subgroup; ercepeae species complex		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; ananassae subgroup; ercepeae species complex	
	Parent		Parent
ercepeae species complex () - (Rank: no rank) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=300358)		ercepeae species complex () - (Rank: no rank) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=300358)	
	NCBI Taxonomy ID		NCBI Taxonomy ID
42063 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=42063)	300357 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=300357)		
	is Taxon A an Infraspecies?		is Taxon B an Infraspecies?
No	No		

GENOTYPIC CHANGE

	Generic Gene Name	UniProtKB Drosophila melanogaster
y	P09957 (http://www.uniprot.org/uniprot/P09957)	
	Synonyms	GenebankID or UniProtKB
CG3757; Dmel\CG3757; EG:125H10.2; T6; Y	0	
	String	
7227.FBpp0070070 (http://string-db.org/newstring_cgi/show_network_section.pl?identifier=7227.FBpp0070070)		
	Sequence Similarities	
Belongs to the major royal jelly protein family.		
	GO - Molecular Function	
-		
	GO - Biological Process	
GO:0042438 : melanin biosynthetic process (https://www.ebi.ac.uk/QuickGO/term/GO:0042438)		
GO:0048082 : regulation of adult chitin-containing cuticle pigmentation		

(https://www.ebi.ac.uk/QuickGO/term/GO:0048082)	
GO:0048066 : developmental pigmentation	
(https://www.ebi.ac.uk/QuickGO/term/GO:0048066)	
GO:0048067 : cuticle pigmentation (https://www.ebi.ac.uk/QuickGO/term/GO:0048067)	
GO:0006583 : melanin biosynthetic process from tyrosine	
(https://www.ebi.ac.uk/QuickGO/term/GO:0006583)	
GO:0048065 : male courtship behavior, veined wing extension	
(https://www.ebi.ac.uk/QuickGO/term/GO:0048065)	
GO:0060179 : male mating behavior (https://www.ebi.ac.uk/QuickGO/term/GO:0060179)	
GO - Cellular Component	
GO:0005737 : cytoplasm (https://www.ebi.ac.uk/QuickGO/term/GO:0005737)	Presumptive Null
GO:0005576 : extracellular region (https://www.ebi.ac.uk/QuickGO/term/GO:0005576)	
GO:0070451 : cell hair (https://www.ebi.ac.uk/QuickGO/term/GO:0070451)	
No (https://www.gephebase.org/search-criteria?/and+Presumptive Null=^No^#gephebase-summary-title)	Molecular Type
Unknown (https://www.gephebase.org/search-criteria?/and+Molecular Type=^Unknown^#gephebase-summary-title)	Aberration Type
Unknown (https://www.gephebase.org/search-criteria?/and+Aberration Type=^Unknown^#gephebase-summary-title)	Molecular Details of the Mutation
unknown	Experimental Evidence
Linkage Mapping (https://www.gephebase.org/search-criteria?/and+Experimental Evidence=^Linkage Mapping^#gephebase-summary-title)	Main Reference
Genetic Convergence in the Evolution of Male-Specific Color Patterns in Drosophila. (2016) (https://pubmed.ncbi.nlm.nih.gov/27546578)	Authors
Signor SA; Liu Y; Rebeiz M; Kopp A	Abstract
Convergent evolution provides a type of natural replication that can be exploited to understand the roles of contingency and constraint in the evolution of phenotypes and the gene networks that control their development. For sex-specific traits, convergence offers the additional opportunity for testing whether the same gene networks follow different evolutionary trends in males versus females. Here, we use an unbiased, systematic mapping approach to compare the genetic basis of evolutionary changes in male-limited pigmentation in several pairs of Drosophila species that represent independent evolutionary transitions. We find strong evidence for repeated recruitment of the same genes to specify similar pigmentation in different species. At one of these genes, ebony, we observe convergent evolution of sexually dimorphic and monomorphic expression through cis-regulatory changes. However, this functional convergence has a different molecular basis in different species, reflecting both parallel fixation of ancestral alleles and independent origin of distinct mutations with similar functional consequences. Our results show that a strong evolutionary constraint at the gene level is compatible with a dominant role of chance at the molecular level.	
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RELATED GEPHE

2 (Abdominal-B, ebony) (https://www.gephebase.org/search-criteria?/or+Taxon ID=^42063^/and+Trait=Coloration/or+Taxon ID=^300357^/and+Trait=Coloration/and+groupHaplotypes=true#gephebase-summary-title)	Related Genes
No matches found.	Related Haplotypes

EXTERNAL LINKS

COMMENTS

@SexualTrait - X-linked QTLs including yellow