

GEPHE SUMMARY

	Gephebase Gene		GephelD
tan (<a +tan+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Gene+Gephebase=">https://www.gephebase.org/search-criteria?/and+Gene Gephebase=^tan^#gephebase-summary-title)	GP00001097		Main curator
Published	Entry Status	Courtier	

PHENOTYPIC CHANGE

	Trait Category		
Morphology (<a +morphology+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Trait+Category=">https://www.gephebase.org/search-criteria?/and+Trait Category=^Morphology^#gephebase-summary-title)	Trait		
Coloration (abdomen; female) (<a +coloration+(abdomen;+female)+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Trait=">https://www.gephebase.org/search-criteria?/and+Trait=^Coloration (abdomen; female)^#gephebase-summary-title)	Trait State in Taxon A		
Drosophila erecta - light abdomen females ; Drosophila orena	Trait State in Taxon B		
Drosophila erecta - dark abdomen females	Ancestral State		
Taxon A	Taxonomic Status		
Intraspecific (<a +intraspecific+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Taxonomic+Status=">https://www.gephebase.org/search-criteria?/and+Taxonomic Status=^Intraspecific^#gephebase-summary-title)			
Taxon A		Taxon B	
	Latin Name		Latin Name
Drosophila erecta (<a +drosophila+erecta+"#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 erecta^#gephebase-summary-title)		Drosophila erecta (<a +drosophila+erecta+"#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 erecta^#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; 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; Acalyptratae; 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
7220 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=7220)		7220 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=7220)	
	is Taxon A an Infrappecies?		is Taxon B an Infrappecies?
No		No	

GENOTYPIC CHANGE

	Generic Gene Name		UniProtKB Drosophila melanogaster
t		Q9W369 (http://www.uniprot.org/uniprot/Q9W369)	
	Synonyms		GenebankID or UniProtKB
CG12120; Dmel\CG12120; Tan; tan; Dmel_CG12120		ACA49238 (https://www.ncbi.nlm.nih.gov/nuccore/ACA49238)	
-	String		
-	Sequence Similarities		
	GO - Molecular Function		
GO:0016787 : hydrolase activity (https://www.ebi.ac.uk/QuickGO/term/GO:0016787)			
GO:0003832 : beta-alanyl-dopamine hydrolase activity (https://www.ebi.ac.uk/QuickGO/term/GO:0003832)			
GO:0031964 : beta-alanyl-histamine hydrolase activity (https://www.ebi.ac.uk/QuickGO/term/GO:0031964)			
	GO - Biological Process		
GO:0048085 : adult chitin-containing cuticle pigmentation			

(<https://www.ebi.ac.uk/QuickGO/term/GO:0048085>)
GO:0048067 : cuticle pigmentation (<https://www.ebi.ac.uk/QuickGO/term/GO:0048067>)
GO:0001692 : histamine metabolic process
(<https://www.ebi.ac.uk/QuickGO/term/GO:0001692>)
GO:0007601 : visual perception (<https://www.ebi.ac.uk/QuickGO/term/GO:0007601>)
GO:0042416 : dopamine biosynthetic process
(<https://www.ebi.ac.uk/QuickGO/term/GO:0042416>)
GO:0001694 : histamine biosynthetic process
(<https://www.ebi.ac.uk/QuickGO/term/GO:0001694>)

GO - Cellular Component	
GO:0005829 : cytosol (https://www.ebi.ac.uk/QuickGO/term/GO:0005829)	Presumptive Null
No (https://www.gephebase.org/search-criteria?/and+Presumptive Null=^No^#gephebase-summary-title)	Molecular Type
Cis-regulatory (https://www.gephebase.org/search-criteria?/and+Molecular Type=^Cis-regulatory^#gephebase-summary-title)	Aberration Type
Unknown (https://www.gephebase.org/search-criteria?/and+Aberration Type=^Unknown^#gephebase-summary-title)	Molecular Details of the Mutation
exact causing mutation(s) unknown - the t_MSE enhancer from the dark allele drives higher levels of GFP expression in D. melanogaster than from the light allele	Experimental Evidence
Linkage Mapping (https://www.gephebase.org/search-criteria?/and+Experimental Evidence=^Linkage Mapping^#gephebase-summary-title)	Main Reference
Ancient balancing selection at tan underlies female colour dimorphism in Drosophila erecta. (2016) (https://pubmed.ncbi.nlm.nih.gov/26778363)	Authors
Yassin A; Bastide H; Chung H; Veuille M; David JR; Pool JE	Abstract
Dimorphic traits are ubiquitous in nature, but the evolutionary factors leading to dimorphism are largely unclear. We investigate a potential case of sexual mimicry in Drosophila erecta, in which females show contrasting resemblance to males. We map the genetic basis of this sex-limited colour dimorphism to a region containing the gene tan. We find a striking signal of ancient balancing selection at the ‘male-specific enhancer’ of tan, with exceptionally high sequence divergence between light and dark alleles, suggesting that this dimorphism has been adaptively maintained for millions of years. Using transgenic reporter assays, we confirm that these enhancer alleles encode expression differences that are predicted to generate this pigmentation dimorphism. These results are compatible with the theoretical prediction that divergent phenotypes maintained by selection can evolve simple genetic architectures.	
Additional References	

RELATED GEPHE

No matches found.	Related Genes
No matches found.	Related Haplotypes

EXTERNAL LINKS

COMMENTS

@BalancingSelection @SexualTrait