

## GEPHE SUMMARY

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

## PHENOTYPIC CHANGE

	Trait Category
Morphology ( <a href="https://www.gephebase.org/search-criteria?/and+Trait Category=Morphology#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Trait Category=Morphology#gephebase-summary-title</a> )	Trait
Coloration (abdomen; female) ( <a href="https://www.gephebase.org/search-criteria?/and+Trait=Coloration (abdomen; female)#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Trait=Coloration (abdomen; female)#gephebase-summary-title</a> )	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 href="https://www.gephebase.org/search-criteria?/and+Taxonomic Status=Intraspecific#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Taxonomic Status=Intraspecific#gephebase-summary-title</a> )	

Taxon A	Latin Name	Taxon B	Latin Name
Drosophila erecta ( <a href="https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms=Drosophila erecta#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms=Drosophila erecta#gephebase-summary-title</a> )		Drosophila erecta ( <a href="https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms=Drosophila erecta#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms=Drosophila erecta#gephebase-summary-title</a> )	
-	Common Name	-	Common Name
-	Synonyms	-	Synonyms
-	Rank	-	Rank
species	Lineage	species	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; 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; Ephydriodea; Drosophilidae; Drosophilinae; Drosophilini; Drosophila; Sophophora; melanogaster group; melanogaster subgroup	
melanogaster subgroup () - (Rank: species subgroup) ( <a href="https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 32351">https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 32351</a> )	Parent	melanogaster subgroup () - (Rank: species subgroup) ( <a href="https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 32351">https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 32351</a> )	Parent
7220 ( <a href="https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 7220">https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 7220</a> )	NCBI Taxonomy ID	7220 ( <a href="https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 7220">https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 7220</a> )	NCBI Taxonomy ID
	is Taxon A an Infraspecies?		is Taxon B an Infraspecies?
No		No	

## GENOTYPIC CHANGE

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

( <a href="https://www.ebi.ac.uk/QuickGO/term/GO:0048085">https://www.ebi.ac.uk/QuickGO/term/GO:0048085</a> )	
GO:0048067 : cuticle pigmentation ( <a href="https://www.ebi.ac.uk/QuickGO/term/GO:0048067">https://www.ebi.ac.uk/QuickGO/term/GO:0048067</a> )	
GO:0001692 : histamine metabolic process	
( <a href="https://www.ebi.ac.uk/QuickGO/term/GO:0001692">https://www.ebi.ac.uk/QuickGO/term/GO:0001692</a> )	
GO:0007601 : visual perception ( <a href="https://www.ebi.ac.uk/QuickGO/term/GO:0007601">https://www.ebi.ac.uk/QuickGO/term/GO:0007601</a> )	
GO:0042416 : dopamine biosynthetic process	
( <a href="https://www.ebi.ac.uk/QuickGO/term/GO:0042416">https://www.ebi.ac.uk/QuickGO/term/GO:0042416</a> )	
GO:0001694 : histamine biosynthetic process	
( <a href="https://www.ebi.ac.uk/QuickGO/term/GO:0001694">https://www.ebi.ac.uk/QuickGO/term/GO:0001694</a> )	
GO - Cellular Component	
GO:0005829 : cytosol ( <a href="https://www.ebi.ac.uk/QuickGO/term/GO:0005829">https://www.ebi.ac.uk/QuickGO/term/GO:0005829</a> )	Presumptive Null
No ( <a href="https://www.gephebase.org/search-criteria?/and+Presumptive Null=^No^#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Presumptive Null=^No^#gephebase-summary-title</a> )	Molecular Type
Cis-regulatory ( <a href="https://www.gephebase.org/search-criteria?/and+Molecular Type=^Cis-regulatory^#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Molecular Type=^Cis-regulatory^#gephebase-summary-title</a> )	Aberration Type
Unknown ( <a href="https://www.gephebase.org/search-criteria?/and+Aberration Type=^Unknown^#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Aberration Type=^Unknown^#gephebase-summary-title</a> )	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 <i>D. melanogaster</i> than from the light allele	Experimental Evidence
Linkage Mapping ( <a href="https://www.gephebase.org/search-criteria?/and+Experimental Evidence=^Linkage Mapping^#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Experimental Evidence=^Linkage Mapping^#gephebase-summary-title</a> )	Main Reference
Ancient balancing selection at tan underlies female colour dimorphism in <i>Drosophila erecta</i> . (2016) ( <a href="https://pubmed.ncbi.nlm.nih.gov/26778363">https://pubmed.ncbi.nlm.nih.gov/26778363</a> )	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 <i>Drosophila erecta</i> , 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