

GEPHE SUMMARY

	Gephebase Gene	GephelD
yellow (https://www.gephebase.org/search-criteria?/and+GeneGephebase=%22yellow%22#gephebase-summary-title)	GP00001221	
	Entry Status	Main curator
Published	Martin	

PHENOTYPIC CHANGE

	Trait Category
Morphology (https://www.gephebase.org/search-criteria?/and+TraitCategory=%22Morphology%22#gephebase-summary-title)	Trait
Coloration (wing spot) (https://www.gephebase.org/search-criteria?/and+Trait=%22Coloration(wing spot)%22#gephebase-summary-title)	Trait
Drosophila elegans	Trait State in Taxon A
Drosophila gunungcola	Trait State in Taxon B
Data not curated	Ancestral State
Interspecific (https://www.gephebase.org/search-criteria?/and+TaxonomicStatus=%22Interspecific%22#gephebase-summary-title)	Taxonomic Status

Taxon A	Latin Name	Taxon B	Latin Name
Drosophila elegans (https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms=%22Drosophila elegans%22#gephebase-summary-title)		Drosophila gunungcola (https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms=%22Drosophila gunungcola%22#gephebase-summary-title)	
	Common Name		Common Name
-	-	-	-
	Synonyms		Synonyms
Drosophila elegans Bock & Wheeler, 1972	-	-	-
species	Rank	species	Rank
	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; elegans 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; elegans subgroup		
	Parent		Parent
elegans subgroup () - (Rank: species subgroup) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 32348)	elegans subgroup () - (Rank: species subgroup) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 32348)		
	NCBI Taxonomy ID		NCBI Taxonomy ID
30023 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 30023)	103775 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 103775)		
	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)	
CG3757; Dmel\CG3757; EG:125H10.2; T6; Y	CAJ57653 (https://www.ncbi.nlm.nih.gov/nucleotide/CAJ57653)	GenebankID or UniProtKB
7227.FBpp0070070 (http://string-db.org/newstring_cgi/show_network_section.pl?identifier= 7227.FBpp0070070)		
	String	
	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	Presumptive Null
GO:0005737 : cytoplasm (https://www.ebi.ac.uk/QuickGO/term/GO:0005737)	
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
Cis-regulatory (https://www.gephebase.org/search-criteria?/and+Molecular Type=^Cis-regulatory^#gephebase-summary-title)	Aberration Type
SNP (https://www.gephebase.org/search-criteria?/and+Aberration Type=^SNP^#gephebase-summary-title)	Molecular Details of the Mutation
within a 740bp-element; at least two and no more than seven point mutations involved	Experimental Evidence
Candidate Gene (https://www.gephebase.org/search-criteria?/and+Experimental Evidence=^Candidate Gene^#gephebase-summary-title)	Main Reference
Repeated morphological evolution through cis-regulatory changes in a pleiotropic gene. (2006) (https://pubmed.ncbi.nlm.nih.gov/16625197)	Authors
Prud'homme B; Gompel N; Rokas A; Kassner VA; Williams TM; Yeh SD; True JR; Carroll SB	Abstract
The independent evolution of morphological similarities is widespread. For simple traits, such as overall body colour, repeated transitions by means of mutations in the same gene may be common. However, for more complex traits, the possible genetic paths may be more numerous; the molecular mechanisms underlying their independent origins and the extent to which they are constrained to follow certain genetic paths are largely unknown. Here we show that a male wing pigmentation pattern involved in courtship display has been gained and lost multiple times in a <i>Drosophila</i> clade. Each of the cases we have analysed (two gains and two losses) involved regulatory changes at the pleiotropic pigmentation gene <i>yellow</i> . Losses involved the parallel inactivation of the same cis-regulatory element (CRE), with changes at a few nucleotides sufficient to account for the functional divergence of one element between two sibling species. Surprisingly, two independent gains of wing spots resulted from the co-option of distinct ancestral CREs. These results demonstrate how the functional diversification of the modular CREs of pleiotropic genes contributes to evolutionary novelty and the independent evolution of morphological similarities.	Additional References
Genetics of divergence in male wing pigmentation and courtship behavior between <i>Drosophila elegans</i> and <i>D. gunungcola</i> . (2006) (https://pubmed.ncbi.nlm.nih.gov/16570069)	

RELATED GEPHE

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

EXTERNAL LINKS

COMMENTS