

GEPHE SUMMARY

Drosomycin-like 5 (https://www.gephebase.org/search-criteria?/and+Gene)	Gephebase Gene	GP00002111	GepheID
Gephebase="Drosomycin-like 5" #gephebase-summary-title)			Main curator
Published	Entry Status	Courtier	

PHENOTYPIC CHANGE

Physiology (https://www.gephebase.org/search-criteria?/and+Trait)	Trait Category		
Category="Physiology" #gephebase-summary-title)			
Pathogen resistance (fungi) (<a #gephebase-summary-title"="" (fungi)"="" href="https://www.gephebase.org/search-criteria?/and+Trait=" pathogen="" resistance="">https://www.gephebase.org/search-criteria?/and+Trait="Pathogen resistance (fungi)" #gephebase-summary-title)	Trait		
	Trait State in Taxon A		
Drosophila melanogaster			
	Trait State in Taxon B		
Drosophila melanogaster			
Taxon A	Ancestral State		
Intraspecific (https://www.gephebase.org/search-criteria?/and+Taxonomic)	Taxonomic Status		
Status="Intraspecific" #gephebase-summary-title)			
	Taxon A	Taxon B	
Drosophila melanogaster	Latin Name	Drosophila melanogaster	Latin Name
(<a #gephebase-summary-title"="" drosophila="" href="https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms=" melanogaster"="">https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms="Drosophila melanogaster" #gephebase-summary-title)		(<a #gephebase-summary-title"="" drosophila="" href="https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms=" melanogaster"="">https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms="Drosophila melanogaster" #gephebase-summary-title)	
fruit fly	Common Name	fruit fly	Common Name
Sophophora melanogaster; fruit fly; Drosophila melanogaster Meigen, 1830; Sophophora melanogaster (Meigen, 1830); Drosophila melangaster	Synonyms	Sophophora melanogaster; fruit fly; Drosophila melanogaster Meigen, 1830; Sophophora melanogaster (Meigen, 1830); Drosophila melangaster	Synonyms
species	Rank	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; melanogaster group; melanogaster subgroup	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	Lineage
melanogaster subgroup () - (Rank: species subgroup)	Parent	melanogaster subgroup () - (Rank: species subgroup)	Parent
(https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=32351)	NCBI Taxonomy ID	(https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=32351)	NCBI Taxonomy ID
7227		7227	
(https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=7227)		(https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=7227)	
No	is Taxon A an Intraspecies?	Yes	is Taxon B an Intraspecies?
			Taxon B Description
		line A3 - Bloomington 3844	

GENOTYPIC CHANGE

Drsl5	Generic Gene Name	Q9VZR2 (http://www.uniprot.org/uniprot/Q9VZR2)	UniProtKB Drosophila melanogaster
BcDNA:GH09576; CG10812; Dmel\CG10812; dmy5; Dro-G; dro5; Dro5; Drs-IG; Dmel_CG10812	Synonyms	()	GenebankID or UniProtKB
7227.FBpp0072926	String		
(http://string-db.org/newstring.cgi/show_network_section.pl?identifier=7227.FBpp0072926)			
-	Sequence Similarities		
-	GO - Molecular Function		

GO - Biological Process

GO:0050832 : defense response to fungus
(<https://www.ebi.ac.uk/QuickGO/term/GO:0050832>)

GO - Cellular Component

GO:0005576 : extracellular region (<https://www.ebi.ac.uk/QuickGO/term/GO:0005576>)

Presumptive Null

No (<https://www.gephebase.org/search-criteria?/and+Presumptive Null=^No^#gephebase-summary-title>)

Molecular Type

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

Aberration Type

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

Insertion Size

1-10 kb

Molecular Details of the Mutation

Duplication of the gene and insertion of a 4993-bp region (which comes from part of a neighboring gene). Associated with a >1000-fold expression increase of the gene.

Experimental Evidence

Candidate Gene (<https://www.gephebase.org/search-criteria?/and+Experimental Evidence=^Candidate Gene^#gephebase-summary-title>)

Main Reference

Structural variants exhibit widespread allelic heterogeneity and shape variation in complex traits. (2019) (<https://pubmed.ncbi.nlm.nih.gov/31653862>)

Authors

Chakraborty M; Emerson JJ; Macdonald SJ; Long AD

Abstract

It has been hypothesized that individually-rare hidden structural variants (SVs) could account for a significant fraction of variation in complex traits. Here we identified more than 20,000 euchromatic SVs from 14 *Drosophila melanogaster* genome assemblies, of which ~40% are invisible to high specificity short-read genotyping approaches. SVs are common, with 31.5% of diploid individuals harboring a SV in genes larger than 5kb, and 24% harboring multiple SVs in genes larger than 10kb. SV minor allele frequencies are rarer than amino acid polymorphisms, suggesting that SVs are more deleterious. We show that a number of functionally important genes harbor previously hidden structural variants likely to affect complex phenotypes. Furthermore, SVs are overrepresented in candidate genes associated with quantitative trait loci mapped using the *Drosophila* Synthetic Population Resource. We conclude that SVs are ubiquitous, frequently constitute a heterogeneous allelic series, and can act as rare alleles of large effect.

Additional References

RELATED GEPHE

Related Genes

15 (18-wheeler, CG8492, Dipteracin, Ge-1, GNBP1, GNBP2, Immune deficiency, Lectin-24A, pastrel, PGRP-LC, ref(2)P, SR-CII, Tehao, Ubiquitin conjugating enzyme E2H (Ubc-E2H), CHKov1) (<https://www.gephebase.org/search-criteria?/or+Taxon ID=^7227^/and+Trait=Pathogen resistance/and+groupHaplotypes=true#gephebase-summary-title>)

Related Haplotypes

No matches found.

EXTERNAL LINKS

COMMENTS

No phenotypic effect described besides the increase of expression of the gene. Corresponding protein known to have antifungal activity. Insertion of a Tirant TE is also found in another *D. melanogaster* line at the *Dsl5* locus; but its effect on gene expression and other phenotypes has not been reported.