GEPHE SUMMARY

Gephebase Gene
Drosomycin-like 5 (https://www.gephebase.org/search-criteria?/and+Gene Gephebase=^Drosomycin-like 5^#gephebase-summary-title)

GepheID
GP00002111

Entry Status
Published

Main curator
Courtier

PHENOTYPIC CHANGE

Trait Category
Physiology (https://www.gephebase.org/search-criteria?/and+Trait Category=^Physiology^#gephebase-summary-title)

Trait
Pathogen resistance (fungi) (https://www.gephebase.org/search-criteria?/and+Trait=^Pathogen resistance (fungi)^#gephebase-summary-title)

Trait State in Taxon A
Drosophila melanogaster

Trait State in Taxon B
Drosophila melanogaster

Ancestral State
Taxon A

Taxonomic Status
Intraspecific (https://www.gephebase.org/search-criteria?/and+Taxonomic Status=^Intraspecific^#gephebase-summary-title)

Taxon A

Latin Name
Drosophila melanogaster (https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms=^Drosophila melanogaster^#gephebase-summary-title)

Common Name
fruit fly

Synonyms
Sophophora melanogaster; fruit fly; Drosophila melanogaster Meigen, 1830; Sophophora melanogaster (Meigen, 1830); Drosophila melangaster

Rank
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; Ephydroidea; Drosophilidae; Drosophilinae; Drosophilini; Drosophila; Sophophora; melanogaster group; melanogaster subgroup

Parent
melanogaster subgroup () - (Rank: species subgroup) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 32351)

NCBI Taxonomy ID
7227 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 7227)

is Taxon A an Infraspecies?
No

Taxon B

Latin Name
Drosophila melanogaster (https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms=^Drosophila melanogaster^#gephebase-summary-title)

Common Name
fruit fly

Synonyms
Sophophora melanogaster; fruit fly; Drosophila melanogaster Meigen, 1830; Sophophora melanogaster (Meigen, 1830); Drosophila melangaster

Rank
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; Ephydroidea; Drosophilidae; Drosophilinae; Drosophilini; Drosophila; Sophophora; melanogaster group; melanogaster subgroup

Parent
melanogaster subgroup () - (Rank: species subgroup) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 32351)

NCBI Taxonomy ID
7227 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 7227)

is Taxon B an Infraspecies?
Yes

Taxon B Description
line A3 - Bloomington 3844

GENOTYPIC CHANGE

Generic Gene Name
Drsl5

Synonyms
BcDNA:GH09576; CG10812; Dmel\CG10812; dmy5; Dro-G; dro5; Dro5; Drs-lG; Dmel_CG10812

String
7227.FBpp0072926 (http://string-db.org/newstring_cgi/show_network_section.pl?identifier= 7227.FBpp0072926)

Sequence Similarities
-

GO - Molecular Function
-

UniProtKB Drosophila melanogaster
Q9VZR2 (http://www.uniprot.org/uniprot/Q9VZR2)

GenebankID or UniProtKB
()

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, Diptericin, 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.