GEPHE SUMMARY

Gephebase Gene
Drosomycin-like 5

GephelD
GP00002111

Entry Status
Published

Main curator
Courtier

PHENOTYPIC CHANGE

Trait Category
Physiology

Trait
Pathogen resistance (fungi)

Trait State in Taxon A
Drosophila melanogaster

Trait State in Taxon B
Drosophila melanogaster

Ancestral State
Taxon A

Taxonomic Status
Intraspecific

Taxon A

Latin Name
Drosophila melanogaster

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)

NCBI Taxonomy ID
7227

is Taxon A an Infraspecies?
No

Taxon B

Latin Name
Drosophila melanogaster

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)

NCBI Taxonomy 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

Sequence Similarities
-

GO - Molecular Function
-

GO - Biological Process
GO:0050832 : defense response to fungus

UniProtKB Drosophila melanogaster
Q9VZR2

GenebankID or UniProtKB

GO - Cellular Component
GO:0005576 : extracellular region

Presumptive Null
No

Molecular Type
Gene Amplification

Aberration Type
Insertion

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

Main Reference
Structural variants exhibit widespread allelic heterogeneity and shape variation in complex traits. (2019)

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
14 (18-wheeler, CG8492, Diptericin, Ge-1, GNBP1, GNBP2, Immune deficiency, pastrel, PGRP-LC, ref(2)P, SR-CII, Tehao, Ubiquitin conjugating enzyme E2H (Ubc-E2H), CHKov1)
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.