GEPHE SUMMARY

Gephebase Gene
Nup160 (https://www.gephebase.org/search-criteria?/and+Gene Gephebase=^Nup160^#gephebase-summary-title)

Entry Status
Published

GepheID
GP00000742

Main curator
Martin

PHENOTYPIC CHANGE

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

Trait
Hybrid incompatibility (F1 male sterility) (https://www.gephebase.org/search-criteria?/and+Trait=^Hybrid incompatibility (F1 male sterility)^#gephebase-summary-title)

Trait State in Taxon A
Drosophila melanogaster

Trait State in Taxon B
Drosophila simulans

Ancestral State
Data not curated

Taxonomic Status
Interspecific (https://www.gephebase.org/search-criteria?/and+Taxonomic Status=^Interspecific^#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 simulans (https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms=^Drosophila simulans^#gephebase-summary-title)

Common Name
-

Synonyms
-

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
7240 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 7240)

is Taxon B an Infraspecies?
No

GENOTYPIC CHANGE

Generic Gene Name
Nup160

Synonyms
CG4738; Dmel\CG4738; l(2)SH2 2055; l(2)SH2055; Nup; nup160; Nup160[mel]

String
7227.FBpp0079788 (http://string-db.org/newstring_cgi/show_network_section.pl?identifier= 7227.FBpp0079788)

Sequence Similarities
-

GO - Molecular Function
GO:0017056 : structural constituent of nuclear pore (https://www.ebi.ac.uk/QuickGO/term/GO:0017056)

GO - Biological Process
GO:0000724 : double-strand break repair via homologous recombination

UniProtKB Drosophila melanogaster
Q9VKJ3 (http://www.uniprot.org/uniprot/Q9VKJ3)

GenebankID or UniProtKB
KMY89705 (https://www.ncbi.nlm.nih.gov/nuccore/KMY89705)

(https://www.ebi.ac.uk/QuickGO/term/GO:0000724)
GO:0006406 : mRNA export from nucleus
(https://www.ebi.ac.uk/QuickGO/term/GO:0006406)
GO:0006606 : protein import into nucleus
(https://www.ebi.ac.uk/QuickGO/term/GO:0006606)

GO - Cellular Component

GO:0005643 : nuclear pore (https://www.ebi.ac.uk/QuickGO/term/GO:0005643)
GO:0031080 : nuclear pore outer ring
(https://www.ebi.ac.uk/QuickGO/term/GO:0031080)

Presumptive Null

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

Molecular Type

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

Aberration Type

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

Molecular Details of the Mutation

Coding divergence

Experimental Evidence

Linkage Mapping (https://www.gephebase.org/search-criteria?/and+Experimental Evidence=^Linkage Mapping^#gephebase-summary-title)

Main Reference

Evolution of the Drosophila nuclear pore complex results in multiple hybrid incompatibilities. (2009) (https://pubmed.ncbi.nlm.nih.gov/19197064)

Authors

Tang S; Presgraves DC

Abstract

Speciation often involves the evolution of incompatible gene interactions that cause sterility or lethality in hybrids between populations. These so-called hybrid incompatibilities occur between two or more functionally divergent loci. We show that the nucleoporin 160kDa (Nup160) gene of the fruitfly Drosophila simulans is incompatible with one or more factors on the D. melanogaster X chromosome, causing hybrid lethality. Nup160 encodes a nuclear pore complex protein and shows evidence of adaptive evolution. Furthermore, the protein encoded by Nup160 directly interacts with that of another hybrid lethality gene, Nup96, indicating that at least two lethal hybrid incompatibility genes have evolved as byproducts of divergent coevolution among interacting components of the Drosophila nuclear pore complex.

Additional References

RELATED GEPHE

Related Genes

6 (gfzf, Hybrid male rescue, JYalpha, Lethal Hybrid rescue, Nup96, tyrosyl-tRNA synthetase (mt-TyrRS)) (https://www.gephebase.org/search-criteria?/or+Taxon ID=^7227^/and+Trait=Hybrid incompatibility/or+Taxon ID=^7240^/and+Trait=Hybrid incompatibility/and+groupHaplotypes=true#gephebase-summary-title)

Related Haplotypes

No matches found.

EXTERNAL LINKS

COMMENTS