GEPHE SUMMARY

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

GepheID
GP00000752

Entry Status
Published

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 mauritiana

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 mauritiana (https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms=^Drosophila mauritiana^#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
7226 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 7226)

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
OdsH

Synonyms
CG6352; Dmel\CG6352; odsh; odsH; Odsh; OdsH[mel]; Dmel_CG6352

String
7227.FBpp0074235 (http://string-db.org/newstring_cgi/show_network_section.pl?identifier= 7227.FBpp0074235)

Sequence Similarities
-

GO - Molecular Function
GO:0043565 : sequence-specific DNA binding (https://www.ebi.ac.uk/QuickGO/term/GO:0043565)

GO - Biological Process
GO:0006355 : regulation of transcription, DNA-templated (https://www.ebi.ac.uk/QuickGO/term/GO:0006355)

UniProtKB Drosophila melanogaster
Q9VX20 (http://www.uniprot.org/uniprot/Q9VX20)

GenebankID or UniProtKB
()

GO:0032504 : multicellular organism reproduction (https://www.ebi.ac.uk/QuickGO/term/GO:0032504)

GO - Cellular Component

GO:0005634 : nucleus (https://www.ebi.ac.uk/QuickGO/term/GO:0005634)

GO:0005615 : extracellular space (https://www.ebi.ac.uk/QuickGO/term/GO:0005615)

Presumptive Null

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

Molecular Type

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

Aberration Type

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

Molecular Details of the Mutation

Rapid coding divergence

Experimental Evidence

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

Main Reference

Altered heterochromatin binding by a hybrid sterility protein in Drosophila sibling species. (2009) (https://pubmed.ncbi.nlm.nih.gov/19933102)

Authors

Bayes JJ; Malik HS

Abstract

Hybrid sterility of the heterogametic sex is one of the first postzygotic reproductive barriers to evolve during speciation, yet the molecular basis of hybrid sterility is poorly understood. We show that the hybrid male sterility gene Odysseus-site homeobox (OdsH) encodes a protein that localizes to evolutionarily dynamic loci within heterochromatin and leads to their decondensation. In Drosophila mauritiana x Drosophila simulans male hybrids, OdsH from D. mauritiana (OdsHmau) acts as a sterilizing factor by associating with the heterochromatic Y chromosome of D. simulans, whereas D. simulans OdsH (OdsHsim) does not. Characterization of sterile hybrid testes revealed that OdsH abundance and localization in the premeiotic phases of spermatogenesis differ between species. These results reveal that rapid heterochromatin evolution affects the onset of hybrid sterility.

Additional References

RELATED GEPHE

Related Genes

No matches found.

Related Haplotypes

No matches found.

EXTERNAL LINKS

COMMENTS

http://flybase.org/reports/FBal0033612 - http://flybase.org/reports/FBal0033623