GEPHE SUMMARY

Gephebase Gene
esterase A8 and B8 (https://www.gephebase.org/search-criteria?/and+Gene Gephebase=^esterase A8 and B8^#gephebase-summary-title)

GepheID
GP00002641

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

Trait State in Taxon A
Culex pipiens - sensitive

Trait State in Taxon B
Culex pipiens - resistant from China

Ancestral State
Taxon A

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

Taxon A

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

Common Name
northern house mosquito

Synonyms
Culex agilis; Culex autogenicus; Culex azoriensis; Culex bicolor; Culex bifurcatus; Culex calcitrans; Culex calloti; Culex comitatus; Culex consobrinus; Culex dipseticus; Culex disjunctus; Culex doliorum; Culex domesticus; Culex erectus; Culex fasciatus; Culex haematophagus; Culex longefurcatus; Culex luteus; Culex marginalis; Culex melanorhinus; Culex meridionalis; Culex osakaensis; Culex pallipes; Culex phytophagus; Culex quasimodestus; Culex rufinus; Culex rufus; Culex sternopunctatus; Culex thoracicus; Culex torridus; Culex trifurcatus; Culex unistriatus; Culex varioannulatus; northern house mosquito; Culex pipiens Linnaeus, 1758

Rank
species

Lineage
cellular organisms; Eukaryota; Opisthokonta; Metazoa; Eumetazoa; Bilateria; Protostomia; Ecdysozoa; Panarthropoda; Arthropoda; Mandibulata; Pancrustacea; Hexapoda; Insecta; Dicondylia; Pterygota; Neoptera; Holometabola; Diptera; Nematocera; Culicomorpha; Culicoidea; Culicidae; Culicinae; Culicini; Culex; Culex; Culex pipiens complex

Parent
Culex pipiens complex () - (Rank: no rank) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 518105)

NCBI Taxonomy ID
7175 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 7175)

is Taxon A an Infraspecies?
No

Taxon B

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

Common Name
northern house mosquito

Synonyms
Culex agilis; Culex autogenicus; Culex azoriensis; Culex bicolor; Culex bifurcatus; Culex calcitrans; Culex calloti; Culex comitatus; Culex consobrinus; Culex dipseticus; Culex disjunctus; Culex doliorum; Culex domesticus; Culex erectus; Culex fasciatus; Culex haematophagus; Culex longefurcatus; Culex luteus; Culex marginalis; Culex melanorhinus; Culex meridionalis; Culex osakaensis; Culex pallipes; Culex phytophagus; Culex quasimodestus; Culex rufinus; Culex rufus; Culex sternopunctatus; Culex thoracicus; Culex torridus; Culex trifurcatus; Culex unistriatus; Culex varioannulatus; northern house mosquito; Culex pipiens Linnaeus, 1758

Rank
species

Lineage
cellular organisms; Eukaryota; Opisthokonta; Metazoa; Eumetazoa; Bilateria; Protostomia; Ecdysozoa; Panarthropoda; Arthropoda; Mandibulata; Pancrustacea; Hexapoda; Insecta; Dicondylia; Pterygota; Neoptera; Holometabola; Diptera; Nematocera; Culicomorpha; Culicoidea; Culicidae; Culicinae; Culicini; Culex; Culex; Culex pipiens complex

Parent
Culex pipiens complex () - (Rank: no rank) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 518105)

NCBI Taxonomy ID
7175 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 7175)

is Taxon B an Infraspecies?
No

GENOTYPIC CHANGE

Generic Gene Name
B1

Synonyms
-

String
-

Sequence Similarities
Belongs to the type-B carboxylesterase/lipase family.

GO - Molecular Function
GO:0052689 : carboxylic ester hydrolase activity (https://www.ebi.ac.uk/QuickGO/term/GO:0052689)

UniProtKB Culex pipiens
P16854 (http://www.uniprot.org/uniprot/P16854)

GenebankID or UniProtKB
()

GO - Biological Process

-

GO - Cellular Component

-

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

-

Molecular Details of the Mutation

coamplification of both esterase loci (Est-2 and Est-3)

Experimental Evidence

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

Main Reference

A new esterase gene amplification involved in OP resistance in Culex pipiens mosquitoes from China. (1998) (https://pubmed.ncbi.nlm.nih.gov/10230522)

Authors

Qiao CL; Marquine M; Pasteur N; Raymond M

Abstract

Two overproduced esterases (A8 and B8) not previously described were found in southern China. They provide a low resistance level to organophosphate (OP) insecticides, and correspond to a coamplification of both esterase loci (Est-2 and Est-3) classically involved in OP resistance for this mosquito species. This coamplification is distinct from all other similar events thus far reported. The peculiar situation in southern China, where numerous OP resistance alleles at these two loci were found, is discussed in comparison with the Mediterranean situation, the only one with a similar diversity of overproduced esterases.

Additional References

RELATED GEPHE

Related Genes

5 (Acetylcholinesterase (Ace-1), Cpm1, esterase B4, esterase B5, para (kdr)) (https://www.gephebase.org/search-criteria?/or+Taxon ID=^7175^/and+Trait=Xenobiotic resistance/and+groupHaplotypes=true#gephebase-summary-title)

Related Haplotypes

No matches found.

EXTERNAL LINKS

COMMENTS

@Parallelism