GEPHE SUMMARY

Gephebase Gene
esterase FE4 (https://www.gephebase.org/search-criteria?/and+Gene Gephebase=^esterase FE4^#gephebase-summary-title)

GepheID
GP00002642

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
Myzus persicae - sensitive

Trait State in Taxon B
Myzus persicae - resistant from Greece

Ancestral State
Taxon A

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

Taxon A

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

Common Name
green peach aphid

Synonyms
Myzus (Nectarosiphon) persicae; green peach aphid; peach-potato aphid; Myzus persicae (Sulzer, 1776); Myzus persiceae

Rank
species

Lineage
cellular organisms; Eukaryota; Opisthokonta; Metazoa; Eumetazoa; Bilateria; Protostomia; Ecdysozoa; Panarthropoda; Arthropoda; Mandibulata; Pancrustacea; Hexapoda; Insecta; Dicondylia; Pterygota; Neoptera; Paraneoptera; Hemiptera; Sternorrhyncha; Aphidomorpha; Aphidoidea; Aphididae; Aphidinae; Macrosiphini; Myzus

Parent
Myzus () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 13163)

NCBI Taxonomy ID
13164 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 13164)

is Taxon A an Infraspecies?
No

Taxon B

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

Common Name
green peach aphid

Synonyms
Myzus (Nectarosiphon) persicae; green peach aphid; peach-potato aphid; Myzus persicae (Sulzer, 1776); Myzus persiceae

Rank
species

Lineage
cellular organisms; Eukaryota; Opisthokonta; Metazoa; Eumetazoa; Bilateria; Protostomia; Ecdysozoa; Panarthropoda; Arthropoda; Mandibulata; Pancrustacea; Hexapoda; Insecta; Dicondylia; Pterygota; Neoptera; Paraneoptera; Hemiptera; Sternorrhyncha; Aphidomorpha; Aphidoidea; Aphididae; Aphidinae; Macrosiphini; Myzus

Parent
Myzus () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 13163)

NCBI Taxonomy ID
13164 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 13164)

is Taxon B an Infraspecies?
No

GENOTYPIC CHANGE

Generic Gene Name
-

Synonyms
-

String
-

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

GO - Molecular Function
GO:0080030 : methyl indole-3-acetate esterase activity (https://www.ebi.ac.uk/QuickGO/term/GO:0080030)

GO - Biological Process
-

GO - Cellular Component
-

UniProtKB Myzus persicae
P35502 (http://www.uniprot.org/uniprot/P35502)

GenebankID or UniProtKB
()

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

unknown

Molecular Details of the Mutation

Gene amplification

Experimental Evidence

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

Main Reference

Variation in the chromosomal distribution of amplified esterase (FE4) genes in Greek field populations of Myzus persicae (Sulzer) . (1999) (https://pubmed.ncbi.nlm.nih.gov/00000000.000048)

Authors

Blackman RL; Spence JM; Field LM; Devonshire AL

Abstract

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Additional References

Relationship between amount of esterase and gene copy number in insecticide-resistant Myzus persicae (Sulzer). (1999) (https://pubmed.ncbi.nlm.nih.gov/10215614)
The evolution of insecticide resistance in the peach potato aphid, Myzus persicae. (2014) (https://pubmed.ncbi.nlm.nih.gov/24855024)

RELATED GEPHE

Related Genes

8 (acetyl-CoA carboxylase (ACC), Acetylcholinesterase (Ace-1), CYP6CY3, CYP6CY3-CYP6CY4, esterase E4, nAChR, para (kdr), resistance to dieldrin) (https://www.gephebase.org/search-criteria?/or+Taxon ID=^13164^/and+Trait=Xenobiotic resistance/and+groupHaplotypes=true#gephebase-summary-title)

Related Haplotypes

No matches found.

EXTERNAL LINKS

COMMENTS

The esterase FE4 gene can be found in different copy numbers and at different sites around the genome. Amplified FE4 genes are not associated with any visible chromosomal rearrangement and are present at multiple loci in the genome.