

## GEPHE SUMMARY

	Gephebase Gene		GepheID
Acetylcholinesterase (Ace-2) ( <a href="https://www.gephebase.org/search-criteria?/and+Gene">https://www.gephebase.org/search-criteria?/and+Gene</a> )		GP00002565	
Gephebase="Acetylcholinesterase (Ace-2)"#gephebase-summary-title)			Main curator
Published	Entry Status	Courtier	

## PHENOTYPIC CHANGE

	Trait Category	
Physiology ( <a href="https://www.gephebase.org/search-criteria?/and+Trait">https://www.gephebase.org/search-criteria?/and+Trait</a> )		
Category="Physiology"#gephebase-summary-title)	Trait	
Xenobiotic resistance (insecticide) ( <a (insecticide)"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Trait=" resistance="" xenobiotic="">https://www.gephebase.org/search-criteria?/and+Trait="Xenobiotic resistance (insecticide)"#gephebase-summary-title</a> )		
	Trait State in Taxon A	
Bemisia tabaci - sensitive		
	Trait State in Taxon B	
Bemisia tabaci - resistant		
	Ancestral State	
Taxon A		
	Taxonomic Status	
Intraspecific ( <a href="https://www.gephebase.org/search-criteria?/and+Taxonomic">https://www.gephebase.org/search-criteria?/and+Taxonomic</a> )		
Status="Intraspecific"#gephebase-summary-title)		

Taxon A	Latin Name	Taxon B	Latin Name
Bemisia tabaci		Bemisia tabaci	
( <a bemisia="" href="https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms=" tabaci"#gephebase-summary-title"="">https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms="Bemisia tabaci"#gephebase-summary-title</a> )		( <a bemisia="" href="https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms=" tabaci"#gephebase-summary-title"="">https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms="Bemisia tabaci"#gephebase-summary-title</a> )	
	Common Name		Common Name
-		-	
	Synonyms		Synonyms
Aleyrodes tabaci; sweet potato whitefly; Bemisia tabaci (Gennadius, 1889)		Aleyrodes tabaci; sweet potato whitefly; Bemisia tabaci (Gennadius, 1889)	
	Rank		Rank
species		species	
	Lineage		Lineage
cellular organisms; Eukaryota; Opisthokonta; Metazoa; Eumetazoa; Bilateria; Protostomia; Ecdysozoa; Panarthropoda; Arthropoda; Mandibulata; Pancrustacea; Hexapoda; Insecta; Dicondylia; Pterygota; Neoptera; Paraneoptera; Hemiptera; Sternorrhyncha; Aleyrodoidea; Aleyrodidae; Aleyrodinae; Bemisia		cellular organisms; Eukaryota; Opisthokonta; Metazoa; Eumetazoa; Bilateria; Protostomia; Ecdysozoa; Panarthropoda; Arthropoda; Mandibulata; Pancrustacea; Hexapoda; Insecta; Dicondylia; Pterygota; Neoptera; Paraneoptera; Hemiptera; Sternorrhyncha; Aleyrodoidea; Aleyrodidae; Aleyrodinae; Bemisia	
	Parent		Parent
Bemisia () - (Rank: genus)		Bemisia () - (Rank: genus)	
( <a href="https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=7037">https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=7037</a> )		( <a href="https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=7037">https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=7037</a> )	
	NCBI Taxonomy ID		NCBI Taxonomy ID
7038		7038	
( <a href="https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=7038">https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=7038</a> )		( <a href="https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=7038">https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=7038</a> )	
	is Taxon A an Intraspecies?		is Taxon B an Intraspecies?
No		No	

## GENOTYPIC CHANGE

	Generic Gene Name		UniProtKB Drosophila melanogaster
Ace		P07140 ( <a href="http://www.uniprot.org/uniprot/P07140">http://www.uniprot.org/uniprot/P07140</a> )	
	Synonyms		GenebankID or UniProtKB
AcChE; ace; ACE; ace-2; ache; AchE; AchE; CG17907; CHE; dAcChE; dmAcChE; DmAcChE; Dmel\CG17907; Dm_ace; FBgn0000024; l(3)26; l(3)87Ed		()	
	String		
7227.FBpp0289713			
( <a href="http://string-db.org/newstring.cgi/show_network_section.pl?identifier=7227.FBpp0289713">http://string-db.org/newstring.cgi/show_network_section.pl?identifier=7227.FBpp0289713</a> )			
	Sequence Similarities		
Belongs to the type-B carboxylesterase/lipase family.			
	GO - Molecular Function		
GO:0042803 : protein homodimerization activity			
( <a href="https://www.ebi.ac.uk/QuickGO/term/GO:0042803">https://www.ebi.ac.uk/QuickGO/term/GO:0042803</a> )			
GO:0003990 : acetylcholinesterase activity			
( <a href="https://www.ebi.ac.uk/QuickGO/term/GO:0003990">https://www.ebi.ac.uk/QuickGO/term/GO:0003990</a> )			
GO:0004104 : cholinesterase activity ( <a href="https://www.ebi.ac.uk/QuickGO/term/GO:0004104">https://www.ebi.ac.uk/QuickGO/term/GO:0004104</a> )			
GO:0043199 : sulfate binding ( <a href="https://www.ebi.ac.uk/QuickGO/term/GO:0043199">https://www.ebi.ac.uk/QuickGO/term/GO:0043199</a> )			

GO - Biological Process

- GO:0006581 : acetylcholine catabolic process  
(<https://www.ebi.ac.uk/QuickGO/term/GO:0006581>)
- GO:0001507 : acetylcholine catabolic process in synaptic cleft  
(<https://www.ebi.ac.uk/QuickGO/term/GO:0001507>)
- GO:0007268 : chemical synaptic transmission  
(<https://www.ebi.ac.uk/QuickGO/term/GO:0007268>)
- GO:0042426 : choline catabolic process  
(<https://www.ebi.ac.uk/QuickGO/term/GO:0042426>)
- GO:0042331 : phototaxis (<https://www.ebi.ac.uk/QuickGO/term/GO:0042331>)

GO - Cellular Component

- GO:0005886 : plasma membrane (<https://www.ebi.ac.uk/QuickGO/term/GO:0005886>)
- GO:0005737 : cytoplasm (<https://www.ebi.ac.uk/QuickGO/term/GO:0005737>)
- GO:0031225 : anchored component of membrane  
(<https://www.ebi.ac.uk/QuickGO/term/GO:0031225>)
- GO:0030054 : cell junction (<https://www.ebi.ac.uk/QuickGO/term/GO:0030054>)
- GO:0043083 : synaptic cleft (<https://www.ebi.ac.uk/QuickGO/term/GO:0043083>)

Presumptive Null

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

Molecular Type

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

Aberration Type

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

SNP Coding Change

Nonsynonymous

Molecular Details of the Mutation

Phe392Trp mutation located in the acyl pocket of the active site gorge and recently shown to confer OP insensitivity in *Culex tritaeniorhynchus*

Experimental Evidence

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

	Taxon A	Taxon B	Position
Codon	-	-	-
Amino-acid	Phe	Trp	392

Main Reference

Molecular analysis of cyclodiene resistance-associated mutations among populations of the sweetpotato whitefly *Bemisia tabaci*. (1995) (<https://pubmed.ncbi.nlm.nih.gov/00000000.000036>)

Authors

Anthony NM; Brown JK; Markham PG; Ffrenchconstant RH

Abstract

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Additional References

Genotype to phenotype, the molecular and physiological dimensions of resistance in arthropods. (2015) (<https://pubmed.ncbi.nlm.nih.gov/26047113>)

RELATED GEPHE

Related Genes

5 (acetyl-CoA carboxylase (ACC), Acetylcholinesterase (Ace-1), CYP6CM1, para (kdr), resistance to dieldrin) ([https://www.gephebase.org/search-criteria?/or+Taxon ID="+7038^/and+Trait=Xenobiotic resistance/and+groupHaplotypes=true#gephebase-summary-title](https://www.gephebase.org/search-criteria?/or+Taxon+ID=))

Related Haplotypes

No matches found.

EXTERNAL LINKS

COMMENTS

