

GEPHE SUMMARY

	Gephebase Gene	GepheID
para (kdr) (<a +para+(kdr)^#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Gene+Gephebase=">https://www.gephebase.org/search-criteria?/and+Gene+Gephebase="+para+(kdr)^#gephebase-summary-title)	GP00002496	Main curator
	Entry Status	Courtier
Published		

PHENOTYPIC CHANGE

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

Taxon A	Latin Name	Taxon B	Latin Name
Thrips tabaci (<a +thrips+tabaci^#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=">https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms="+Thrips+tabaci^#gephebase-summary-title)		Thrips tabaci (<a +thrips+tabaci^#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=">https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms="+Thrips+tabaci^#gephebase-summary-title)	
-	Common Name	-	Common Name
	Synonyms		Synonyms
Thrips tabaci Lindeman, 1889		Thrips tabaci Lindeman, 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; Thysanoptera; Terebrantia; Thripodea; Thripidae; Thripinae; Thrips		cellular organisms; Eukaryota; Opisthokonta; Metazoa; Eumetazoa; Bilateria; Protostomia; Ecdysozoa; Panarthropoda; Arthropoda; Mandibulata; Pancrustacea; Hexapoda; Insecta; Dicondylia; Pterygota; Neoptera; Paraneoptera; Thysanoptera; Terebrantia; Thripodea; Thripidae; Thripinae; Thrips	
	Parent		Parent
Thrips () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=45057)		Thrips () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=45057)	
	NCBI Taxonomy ID		NCBI Taxonomy ID
161014 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=161014)		161014 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=161014)	
	is Taxon A an Intraspecies?		is Taxon B an Intraspecies?
No		No	

GENOTYPIC CHANGE

	Generic Gene Name	UniProtKB Drosophila melanogaster
para	P35500 (http://www.uniprot.org/uniprot/P35500)	GenebankID or UniProtKB
	Synonyms	
bas; bss; CG9907; Dmel\CG9907; DmNav; DmNav1; DmNa[[v]]; DmNa[[V]]; DmNa[[v]]1; l(1)14Da; l(1)ESH548; lincRNA.S9469; Nav1; Occl; olfD; par; sbl; sbl-1; Shu; Shudderer	()	
	String	
7227.FBpp0303597 (http://string-db.org/newstring.cgi/show_network_section.pl?identifier=7227.FBpp0303597)		
	Sequence Similarities	
Belongs to the sodium channel (TC 1.A.1.10) family. Para subfamily.		
	GO - Molecular Function	
GO:0005509 : calcium ion binding (https://www.ebi.ac.uk/QuickGO/term/GO:0005509)		
GO:0005244 : voltage-gated ion channel activity (https://www.ebi.ac.uk/QuickGO/term/GO:0005244)		
GO:0005248 : voltage-gated sodium channel activity (https://www.ebi.ac.uk/QuickGO/term/GO:0005248)		
GO:0005272 : sodium channel activity		

(<https://www.ebi.ac.uk/QuickGO/term/GO:0005272>)

GO - Biological Process

GO:0045433 : male courtship behavior, veined wing generated song production

(<https://www.ebi.ac.uk/QuickGO/term/GO:0045433>)

GO:0001666 : response to hypoxia (<https://www.ebi.ac.uk/QuickGO/term/GO:0001666>)

GO:0009612 : response to mechanical stimulus

(<https://www.ebi.ac.uk/QuickGO/term/GO:0009612>)

GO:0034765 : regulation of ion transmembrane transport

(<https://www.ebi.ac.uk/QuickGO/term/GO:0034765>)

GO:0035725 : sodium ion transmembrane transport

(<https://www.ebi.ac.uk/QuickGO/term/GO:0035725>)

GO:0007638 : mechanosensory behavior

(<https://www.ebi.ac.uk/QuickGO/term/GO:0007638>)

GO:0060078 : regulation of postsynaptic membrane potential

(<https://www.ebi.ac.uk/QuickGO/term/GO:0060078>)

GO - Cellular Component

GO:0005887 : integral component of plasma membrane

(<https://www.ebi.ac.uk/QuickGO/term/GO:0005887>)

GO:0001518 : voltage-gated sodium channel complex

(<https://www.ebi.ac.uk/QuickGO/term/GO:0001518>)

Mutation #1

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

Presumptive Null

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

Molecular Type

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

Aberration Type

Nonsynonymous

SNP Coding Change

M918T+L1014F

Molecular Details of the Mutation

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

Experimental Evidence

	Taxon A	Taxon B	Position
Codon	-	-	-
Amino-acid	Met	Thr	918

Identification of three point mutations on the sodium channel gene in pyrethroid-resistant *Thrips tabaci* (Thysanoptera: Thripidae). (2009)

(<https://pubmed.ncbi.nlm.nih.gov/20069860>)

Main Reference

Toda S; Morishita M

Authors

In the onion thrips, *Thrips tabaci* Lindeman (Thysanoptera: Thripidae), the development of resistance to pyrethroid insecticides has become a problem worldwide. To identify this species' resistance mechanism, we analyzed partial nucleotides and deduced the amino acid sequences of the para-orthologous sodium channel gene by using 10 Japanese strains of *T. tabaci* that have a variety of susceptibility levels to pyrethroids. Six nucleotide substitutions were found in their cDNA sequences. Three of these create amino acid substitutions, M918T, T929I, and L1014F, which are well known to be associated with knockdown resistance in some pest insects. In the five highly resistant strains, two mutations, M918T and L1014F, were always detected with wild-type sequences, suggesting that these strains have both mutations heterozygously. A moderately resistant strain was homozygous for the T929I mutation. This is the first report to identify these three major mutations within the same species.

Abstract

Additional References

Mutation #2

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

Presumptive Null

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

Molecular Type

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

Aberration Type

Nonsynonymous

SNP Coding Change

M918T+L1014F

Molecular Details of the Mutation

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

Experimental Evidence

	Taxon A	Taxon B	Position
Codon	-	-	-
Amino-acid	Leu	Phe	1014

Main Reference

Identification of three point mutations on the sodium channel gene in pyrethroid-resistant *Thrips tabaci* (Thysanoptera: Thripidae). (2009)
<https://pubmed.ncbi.nlm.nih.gov/20069860>

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Toda S; Morishita M

Abstract

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Additional References

RELATED GEPHE

Related Genes

No matches found.

Related Haplotypes

2 ([https://www.gephebase.org/search-criteria?/or+Gene+Gephebase="+para+\(kdr\)^/and+Taxon+ID="+161014^/or+Gene+Gephebase="+para+\(kdr\)^/and+Taxon+ID="+161014^#gephebase-summary-title](https://www.gephebase.org/search-criteria?/or+Gene+Gephebase=))

EXTERNAL LINKS

COMMENTS