

	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)	GP00002532	
	Entry Status	Courtier
Published		Main curator

Trait Category	Trait	Trait State in Taxon A	Trait State in Taxon B	Ancestral State	Taxonomic Status
Physiology (https://www.gephebase.org/search-criteria?/and+Trait+Category=~Physiology^#gephebase-summary-title)					
Xenobiotic resistance (insecticide) (https://www.gephebase.org/search-criteria?/and+Trait=~Xenobiotic resistance (insecticide)^#gephebase-summary-title)					
Anopheles sacharovi - Sensitive					
Anopheles sacharovi- Resistant					
Data not curated					
Intraspecific (https://www.gephebase.org/search-criteria?/and+Taxonomic+Status=~Intraspecific^#gephebase-summary-title)					

Taxon A		Taxon B	
Latin Name	Latin Name	Latin Name	Latin Name
Anopheles sacharovi (https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms=~Anopheles sacharovi~#gephebase-summary-title)	Anopheles sacharovi (https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms=~Anopheles sacharovi~#gephebase-summary-title)	Anopheles sacharovi (https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms=~Anopheles sacharovi~#gephebase-summary-title)	Anopheles sacharovi (https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms=~Anopheles sacharovi~#gephebase-summary-title)
Common Name	Common Name	Common Name	Common Name
-	-	-	-
Synonyms	Synonyms	Synonyms	Synonyms
-	-	-	-
Rank	Rank	Rank	Rank
species	species	species	species
Lineage	Lineage	Lineage	Lineage
cellular organisms; Eukaryota; Opisthokonta; Metazoa; Eumetazoa; Bilateria; Protostomia; Ecdysozoa; Panarthropoda; Arthropoda; Mandibulata; Pancrustacea; Hexapoda; Insecta; Dicondylia; Pterygota; Neoptera; Endopterygota; Diptera; Nematocera; Culicomorpha; Culicoidea; Culicidae; Anophelinae; Anopheles; Anopheles; Angusticorn; Anopheles; maculipennis group; maculipennis species complex	cellular organisms; Eukaryota; Opisthokonta; Metazoa; Eumetazoa; Bilateria; Protostomia; Ecdysozoa; Panarthropoda; Arthropoda; Mandibulata; Pancrustacea; Hexapoda; Insecta; Dicondylia; Pterygota; Neoptera; Endopterygota; Diptera; Nematocera; Culicomorpha; Culicoidea; Culicidae; Anophelinae; Anopheles; Anopheles; Angusticorn; Anopheles; maculipennis group; maculipennis species complex	cellular organisms; Eukaryota; Opisthokonta; Metazoa; Eumetazoa; Bilateria; Protostomia; Ecdysozoa; Panarthropoda; Arthropoda; Mandibulata; Pancrustacea; Hexapoda; Insecta; Dicondylia; Pterygota; Neoptera; Endopterygota; Diptera; Nematocera; Culicomorpha; Culicoidea; Culicidae; Anophelinae; Anopheles; Anopheles; Angusticorn; Anopheles; maculipennis group; maculipennis species complex	cellular organisms; Eukaryota; Opisthokonta; Metazoa; Eumetazoa; Bilateria; Protostomia; Ecdysozoa; Panarthropoda; Arthropoda; Mandibulata; Pancrustacea; Hexapoda; Insecta; Dicondylia; Pterygota; Neoptera; Endopterygota; Diptera; Nematocera; Culicomorpha; Culicoidea; Culicidae; Anophelinae; Anopheles; Anopheles; Angusticorn; Anopheles; maculipennis group; maculipennis species complex
Parent	Parent	Parent	Parent
maculipennis species complex () - (Rank: no rank) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 44533)	maculipennis species complex () - (Rank: no rank) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 44533)	maculipennis species complex () - (Rank: no rank) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 44533)	maculipennis species complex () - (Rank: no rank) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 44533)
NCBI Taxonomy ID	NCBI Taxonomy ID	NCBI Taxonomy ID	NCBI Taxonomy ID
72408 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 72408)	72408 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 72408)	72408 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 72408)	72408 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 72408)
is Taxon A an Intraspecies?	is Taxon A an Intraspecies?	is Taxon B an Intraspecies?	is Taxon B an Intraspecies?
No	No	No	No

para	Generic Gene Name	UniProtKB Drosophila melanogaster
	Synonyms	GenebankID or UniProtKB
bas; bss; CG9907; Dmel\CG9907; DmNav; DmNav1; DmNa[[v]]; DmNa[[V]]; DmNa[[v]]1; l(1)14Da; l(1)ESHS48; lincRNA.S9469; Nav1; Ocd; olfD; par; sbl; sbl-1; Shu; Shudderer	0	
7227.FBpp0303597 (http://string-db.org/newstring.cgi/show_network_section.pl?identifier= 7227.FBpp0303597)	String	
	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>)

Presumptive Null

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

Molecular Type

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

Aberration Type

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

SNP Coding Change

Nonsynonymous

Molecular Details of the Mutation

L1014S

Experimental Evidence

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

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

Main Reference

Detection of knockdown resistance mutations in *Anopheles sacharovi* (Diptera: Culicidae) and genetic distance with *Anopheles gambiae* (Diptera: Culicidae) using cDNA sequencing of the voltage-gated sodium channel gene. (2002) (<https://pubmed.ncbi.nlm.nih.gov/12495185>)

Authors

LÃ¼leyap HU; Alptekin D; Kasap H; Kasap M

Abstract

The knockdown resistance (kdr) mutation in the voltage-gated sodium channel gene (VGSCG), an important resistance mechanism against pyrethroids, was studied in *Anopheles sacharovi* Favre. It was found that the specific primers Agd1 and Agd2 used for polymerase chain reaction (PCR) amplification of *Anopheles gambiae* Giles VGSCG also amplified this genomic region in *An. sacharovi*. Comparison of the IIs4-IIs6 domain segments of the gene indicated 70% nucleotides common to both species and a genetic distance of 0.255 between them. Four different samples of pyrethroid-resistant *An. sacharovi* produced three types of amino acid, serine (TCG),leucine (TTG),and phenylalanine (TTT) at the kdr mutation point, whereas only two kdr mutations, leucine to phenylalanine and leucine to serine, occur in *An. gambiae*.

Additional References

Molecular biology of insect sodium channels and pyrethroid resistance. (2014) (<https://pubmed.ncbi.nlm.nih.gov/24704279>)
The first implementation of allele-specific primers for detecting the knockdown and acetylcholinesterase target site mutations in malaria vector, *Anopheles sacharovi*. (2021) (<https://pubmed.ncbi.nlm.nih.gov/33357539>)

RELATED GEPHE

Related Genes

No matches found.

Related Haplotypes

1 ([https://www.gephebase.org/search-criteria?/or+Gene Gephebase=~para \(kdr\)~/and+Taxon ID=~72408~/or+Gene Gephebase=~para \(kdr\)~/and+Taxon ID=~72408~#gephebase-summary-title](https://www.gephebase.org/search-criteria?/or+Gene Gephebase=~para (kdr)~/and+Taxon ID=~72408~/or+Gene Gephebase=~para (kdr)~/and+Taxon ID=~72408~#gephebase-summary-title))

EXTERNAL LINKS

COMMENTS

