

GEPHE SUMMARY

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)	Gephebase Gene	GP00002539	GepheID
Published	Entry Status	Courtier	Main curator

PHENOTYPIC CHANGE

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 Category		
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		
Culex pipiens	Trait State in Taxon A		
Culex pipiens - resistant	Trait State in Taxon B		
Taxon A	Ancestral State		
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)	Taxonomic Status		
	Taxon A		Taxon B
Culex pipiens (<a +culex+pipiens+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=">https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms="+Culex+pipiens+"#gephebase-summary-title)	Latin Name	Culex pipiens (<a +culex+pipiens+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=">https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms="+Culex+pipiens+"#gephebase-summary-title)	Latin Name
northern house mosquito	Common Name	northern house mosquito	Common Name
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	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	Synonyms
species	Rank	species	Rank
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	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	Lineage
Culex pipiens complex () - (Rank: no rank) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=518105)	Parent	Culex pipiens complex () - (Rank: no rank) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=518105)	Parent
7175 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=7175)	NCBI Taxonomy ID	7175 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=7175)	NCBI Taxonomy ID
No	is Taxon A an Intraspecies?	No	is Taxon B an Intraspecies?

GENOTYPIC CHANGE

para	Generic Gene Name	P35500 (http://www.uniprot.org/uniprot/P35500)	UniProtKB Drosophila melanogaster
bas; bss; CG9907; Dmel\CG9907; DmNav; DmNav1; DmNa[[v]]; DmNa[[V]]; DmNa[[v]]1; l(1)14Da; l(1)ESH548; lincRNA.S9469; Nav1; Ocd; olfD; par; sbl; sbl-1; Shu; Shudderer	Synonyms	AAS89995 (https://www.ncbi.nlm.nih.gov/nuccore/AAS89995)	GenebankID or UniProtKB
7227.FBpp0303597 (http://string-db.org/newstring.cgi/show_network_section.pl?identifier=7227.FBpp0303597)	String		
Belongs to the sodium channel (TC 1.A.1.10) family. Para subfamily.	Sequence Similarities		

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>)

- 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
- L1014C 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	-	-	-

Detection and widespread distribution of sodium channel alleles characteristic of insecticide resistance in *Culex pipiens* complex mosquitoes in China. (2012) Main Reference
<https://pubmed.ncbi.nlm.nih.gov/22070231>

Wang ZM; Li CX; Xing D; Yu YH; Liu N; Xue RD; Dong YD; Zhao TY Authors

Culex pipiens complex mosquitoes are widely distributed throughout China and are known to be important disease vectors. Two pyrethroid resistance associated mutations have been identified in *Cx. pipiens* complex (Diptera: Culicidae), but there is little information on the diversity and distribution of *kdr* alleles in pyrethroid resistance in *Cx. pipiens* complex mosquitoes in China. In the present study, we report on a modified three tube allele-specific (AS)-PCR method for detecting the 1014F and 1014S alleles. The new technique was applied to identify the distribution of the two alleles in natural *Cx. pipiens* complex populations in China. The results confirmed that the new method is both sensitive and specific. The 1014F allele was found in all 14 of the field populations tested (frequency ranged from 6.8 to 76.2%) and the 1014S allele was found in almost two-thirds (frequency from 2.4 to 28.6%), indicating that the genotypes known to be associated with pyrethroid resistance are widespread in China. The resistance-associated alleles were more common in southern Chinese sampling sites than in northern sites. The coexistence of the two resistant mutations in individual mosquitoes was also observed in five of the field populations. Two alternative mutations within the L1014 codon were identified in *Culex pipiens molestus* Forskal, 1775, including a non-synonymous mutation resulting in a 1014C substitution. Abstract

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Molecular biology of insect sodium channels and pyrethroid resistance. (2014) (<https://pubmed.ncbi.nlm.nih.gov/24704279>)

RELATED GEPHE

5 (Acetylcholinesterase (Ace-1), Cpm1, esterase A8 and B8, esterase B4, esterase B5) (<https://www.gephebase.org/search-criteria?/or+Taxon ID=^7175^/and+Trait=Xenobiotic resistance/and+groupHaplotypes=true#gephebase-summary-title>) Related Genes

2 ([https://www.gephebase.org/search-criteria?/or+Gene Gephebase=^para \(kdr\)^/and+Taxon ID=^7175^/or+Gene Gephebase=^para \(kdr\)^/and+Taxon ID=^7175^#gephebase-summary-title](https://www.gephebase.org/search-criteria?/or+Gene Gephebase=^para (kdr)^/and+Taxon ID=^7175^/or+Gene Gephebase=^para (kdr)^/and+Taxon ID=^7175^#gephebase-summary-title)) Related Haplotypes

EXTERNAL LINKS

COMMENTS