

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	GP00002470	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		
Phlebotomus argentipes susceptible	Trait State in Taxon A		
Phlebotomus argentipes 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
Phlebotomus argentipes (<a +phlebotomus+argentipes+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=">https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms="+Phlebotomus+argentipes+"#gephebase-summary-title)	Latin Name	Phlebotomus argentipes (<a +phlebotomus+argentipes+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=">https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms="+Phlebotomus+argentipes+"#gephebase-summary-title)	Latin Name
-	Common Name	-	Common Name
	Synonyms		Synonyms
Phlebotomus (Euphlebotomus) argentipes; Phlebotomus argentipes Annandale & Brunetti, 1908		Phlebotomus (Euphlebotomus) argentipes; Phlebotomus argentipes Annandale & Brunetti, 1908	
species	Rank	species	Rank
cellular organisms; Eukaryota; Opisthokonta; Metazoa; Eumetazoa; Bilateria; Protostomia; Ecdysozoa; Panarthropoda; Arthropoda; Mandibulata; Pancrustacea; Hexapoda; Insecta; Dicondylia; Pterygota; Neoptera; Endopterygota; Diptera; Nematocera; Psychodomorpha; Psychodoidea; Psychodidae; Phlebotominae; Phlebotomus; Euphlebotomus	Lineage	cellular organisms; Eukaryota; Opisthokonta; Metazoa; Eumetazoa; Bilateria; Protostomia; Ecdysozoa; Panarthropoda; Arthropoda; Mandibulata; Pancrustacea; Hexapoda; Insecta; Dicondylia; Pterygota; Neoptera; Endopterygota; Diptera; Nematocera; Psychodomorpha; Psychodoidea; Psychodidae; Phlebotominae; Phlebotomus; Euphlebotomus	Lineage
Euphlebotomus () - (Rank: subgenus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=94468)	Parent	Euphlebotomus () - (Rank: subgenus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=94468)	Parent
94469 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=94469)	NCBI Taxonomy ID	94469 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=94469)	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)ESHS48; lincRNA.S9469; Nav1; Ocd; olfD; par; sbl; sbl-1; Shu; Shudderer	Synonyms	()	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:0005509 : calcium ion binding (https://www.ebi.ac.uk/QuickGO/term/GO:0005509)	GO - Molecular Function		
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

-

Molecular Details of the Mutation

L1014F

Experimental Evidence

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

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

Main Reference

Chemical control and insecticide resistance status of sand fly vectors worldwide. (2021) (<https://pubmed.ncbi.nlm.nih.gov/34383751>)

Authors

Balaska S; Fotakis EA; Chaskopoulou A; Vontas J

Abstract

Phlebotomine sand flies are prominent vectors of Leishmania parasites that cause leishmaniasis, which comes second to malaria in terms of parasitic causative fatalities globally. In the absence of human vaccines, sand fly chemical-based vector control is a key component of leishmaniasis control efforts.

We performed a literature review on the current interventions, primarily, insecticide-based used for sand fly control, as well as the global insecticide resistance (IR) status of the main sand fly vector species. Indoor insecticidal interventions, such as residual spraying and treated bed nets are the most widely deployed, while several alternative control strategies are also used in certain settings and/or are under evaluation. IR has been sporadically detected in sand flies in India and other regions, using non-standardized diagnostic bioassays. Molecular studies are limited to monitoring of known pyrethroid resistance mutations (kdr), which are present at high frequencies in certain regions.

As the leishmaniasis burden remains a major problem at a global scale, evidence-based rational use of insecticidal interventions is required to meet public health demands. Standardized bioassays and molecular markers are a prerequisite for this task, albeit are lagging behind. Experiences from other disease vectors underscore the need for the implementation of appropriate IR management (IRM) programs, in the framework of integrated vector management (IVM). The implementation of alternative strategies seems context- and case-specific, with key eco-epidemiological parameters yet to be investigated. New biotechnology-based control approaches might also come into play in the near future to further reinforce sand fly/leishmaniasis control efforts.

Additional References

RELATED GEPHE

Related Genes

No matches found.

Related Haplotypes

1 ([https://www.gephebase.org/search-criteria?/or+Gene Gephebase=~para \(kdr\)^/and+Taxon ID=~94469^/or+Gene Gephebase=~para \(kdr\)^/and+Taxon ID=~94469^#gephebase-summary-title](https://www.gephebase.org/search-criteria?/or+Gene Gephebase=~para (kdr)^/and+Taxon ID=~94469^/or+Gene Gephebase=~para (kdr)^/and+Taxon ID=~94469^#gephebase-summary-title))

EXTERNAL LINKS

