

GEPHE SUMMARY

	Gephebase Gene		GepheID
thioester-containing protein 1 (https://www.gephebase.org/search-criteria?/and+Gene)		GP00001125	
Gephebase="thioester-containing protein 1" #gephebase-summary-title)			Main curator
	Entry Status	Courtier	
Published			

PHENOTYPIC CHANGE

	Trait Category		
Physiology (https://www.gephebase.org/search-criteria?/and+Trait)			
Category="Physiology" #gephebase-summary-title)	Trait		
Pathogen resistance (Plasmodium; malaria parasite) (https://www.gephebase.org/search-criteria?/and+Trait)			
criteria="Pathogen resistance (Plasmodium; malaria parasite)" #gephebase-summary-title)	Trait State in Taxon A		
synonym: Anopheles gambiae S form			
	Trait State in Taxon B		
Anopheles gambiae M form			
	Ancestral State		
Data not curated			
	Taxonomic Status		
Intraspecific (https://www.gephebase.org/search-criteria?/and+Taxonomic)			
Status="Intraspecific" #gephebase-summary-title)			
	Taxon A		Taxon B
	Latin Name		Latin Name
Anopheles gambiae		Anopheles coluzzii	
(https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms="Anopheles gambiae" #gephebase-summary-title)		(https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms="Anopheles coluzzii" #gephebase-summary-title)	
	Common Name		Common Name
African malaria mosquito		-	
	Synonyms		Synonyms
Anopheles gambiae S; African malaria mosquito; Anopheles gambiae Giles, 1902; Anopheles gambia		Anopheles gambiae M; Anopheles coluzzii Coetzee & Wilkerson, 2013	
	Rank		Rank
species		species	
	Lineage		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; Anophelinae; Anopheles; Cellia; Pyretophorus; gambiae species complex		cellular organisms; Eukaryota; Opisthokonta; Metazoa; Eumetazoa; Bilateria; Protostomia; Ecdysozoa; Panarthropoda; Arthropoda; Mandibulata; Pancrustacea; Hexapoda; Insecta; Dicondylia; Pterygota; Neoptera; Holometabola; Diptera; Nematocera; Culicomorpha; Culicoidea; Culicidae; Anophelinae; Anopheles; Cellia; Pyretophorus; gambiae species complex	
	Parent		Parent
gambiae species complex () - (Rank: no rank)		gambiae species complex () - (Rank: no rank)	
(https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=44542)		(https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=44542)	
	NCBI Taxonomy ID		NCBI Taxonomy ID
7165		1518534	
(https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=7165)		(https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=1518534)	
	is Taxon A an Intraspecies?		is Taxon B an Intraspecies?
Yes		Yes	
	Taxon A Description		Taxon B Description
synonym: Anopheles gambiae S form		Anopheles gambiae M form	

GENOTYPIC CHANGE

	Generic Gene Name		UniProtKB Anopheles gambiae
TEP-I		Q9GYW4 (http://www.uniprot.org/uniprot/Q9GYW4)	
	Synonyms		GenebankID or UniProtKB
-		CBA02654 (https://www.ncbi.nlm.nih.gov/nuccore/CBA02654)	
	String		
-			
	Sequence Similarities		
-			
	GO - Molecular Function		
GO:0004866 : endopeptidase inhibitor activity			
(https://www.ebi.ac.uk/QuickGO/term/GO:0004866)			
	GO - Biological Process		
-			

GO:0005615 : extracellular space (https://www.ebi.ac.uk/QuickGO/term/GO:0005615)	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
Unknown (https://www.gephebase.org/search-criteria?/and+Aberration Type=~Unknown~#gephebase-summary-title)	Molecular Details of the Mutation
coding change - exact causing mutation(s) unknown	Experimental Evidence
Linkage Mapping (https://www.gephebase.org/search-criteria?/and+Experimental Evidence=~Linkage Mapping~#gephebase-summary-title)	Main Reference
Dissecting the genetic basis of resistance to malaria parasites in <i>Anopheles gambiae</i> . (2009) (https://pubmed.ncbi.nlm.nih.gov/19797663)	Authors
Blandin SA; Wang-Sattler R; Lamacchia M; Gagneur J; Lycett G; Ning Y; Levashina EA; Steinmetz LM	Abstract
The ability of <i>Anopheles gambiae</i> mosquitoes to transmit <i>Plasmodium</i> parasites is highly variable between individuals. However, the genetic basis of this variability has remained unknown. We combined genome-wide mapping and reciprocal allele-specific RNA interference (rasRNAi) to identify the genomic locus that confers resistance to malaria parasites and demonstrated that polymorphisms in a single gene encoding the antiparasitic thioester-containing protein 1 (TEP1) explain a substantial part of the variability in parasite killing. The link between TEP1 alleles and resistance to malaria may offer new tools for controlling malaria transmission. The successful application of rasRNAi in <i>Anopheles</i> suggests that it could also be applied to other organisms where RNAi is feasible to dissect complex phenotypes to the level of individual quantitative trait alleles.	
Adaptive divergence between incipient species of <i>Anopheles gambiae</i> increases resistance to <i>Plasmodium</i> . (2011) (https://pubmed.ncbi.nlm.nih.gov/21173248)	Additional References

RELATED GEPHE

4 (adenosine deaminase (AgADA), APL1 cluster, fibrinogen-related protein 1 (FREP1), fibrinogen-related protein 30 (FBN30)) (https://www.gephebase.org/search-criteria?/or+Taxon ID=~7165~/and+Trait=Pathogen resistance/or+Taxon ID=~1518534~/and+Trait=Pathogen resistance/and+groupHaplotypes=true#gephebase-summary-title)	Related Genes
No matches found.	Related Haplotypes

EXTERNAL LINKS

COMMENTS

Other genes besides TEP1 must contribute to the resistance phenotype