

GEPHE SUMMARY

	Gephebase Gene	GephelD
fibrinogen-related protein 30 (FBN30) (https://www.gephebase.org/search-criteria?/and+Gene Gephebase=fibrinogen-related protein 30 (FBN30)^#gephebase-summary-title)	GP00001464	Main curator
	Prigent	
	Entry Status	
Published		

PHENOTYPIC CHANGE

	Trait Category	
Physiology (https://www.gephebase.org/search-criteria?/and+Trait Category=Physiology^#gephebase-summary-title)	Trait	
Pathogen resistance (parasite) (https://www.gephebase.org/search-criteria?/and+Trait=Pathogen resistance (parasite)^#gephebase-summary-title)	Trait State in Taxon A	
Anopheles gambiae susceptible to Plasmodium falciparum infection	Trait State in Taxon B	
Anopheles gambiae resistant to Plasmodium falciparum infection	Ancestral State	
Taxon A	Taxonomic Status	
Intraspecific (https://www.gephebase.org/search-criteria?/and+Taxonomic Status=Intraspecific^#gephebase-summary-title)		
Taxon A	Latin Name	Taxon B
Anopheles gambiae (https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms=Anopheles gambiae^#gephebase-summary-title)		Anopheles gambiae (https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms=Anopheles gambiae^#gephebase-summary-title)
African malaria mosquito	Common Name	
Anopheles gambiae S; African malaria mosquito; Anopheles gambiae Giles, 1902; Anopheles gambia	Synonyms	
	Rank	
species	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		
	Parent	
gambiae species complex () - (Rank: no rank) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=44542)		
	NCBI Taxonomy ID	NCBI Taxonomy ID
7165 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=7165)		
	is Taxon A an Infraspecies?	is Taxon B an Infraspecies?
No		

GENOTYPIC CHANGE

1270165	Generic Gene Name	UniProtKB Anopheles gambiae
AgaP_AGAP006914	Synonyms	Q7QIK0 (http://www.uniprot.org/uniprot/Q7QIK0)
7165.AGAP006914-PA (http://string-db.org/newstring_cgi/show_network_section.pl?identifier=7165.AGAP006914-PA)	String	GenebankID or UniProtKB XM_308841 (https://www.ncbi.nlm.nih.gov/nuccore/XM_308841)
	Sequence Similarities	
-	GO - Molecular Function	
-	GO - Biological Process	
-	GO - Cellular Component	

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
c.T28C p.F10L	Molecular Details of the Mutation
Association Mapping (https://www.gephebase.org/search-criteria?/and+Experimental+Evidence=%Association+Mapping%#gephebase-summary-title)	Experimental Evidence

	Taxon A	Taxon B	Position
Codon	-	-	-
Amino-acid	-	-	-

Main Reference
 Genome-block expression-assisted association studies discover malaria resistance genes in *Anopheles gambiae*. (2013) (<https://pubmed.ncbi.nlm.nih.gov/24297936>)
 Authors
 Li J; Wang X; Zhang G; Githure JI; Yan G; James AA

Abstract
 The malaria parasite-resistance island (PRI) of the African mosquito vector, *Anopheles gambiae*, was mapped to five genomic regions containing 80 genes, using coexpression patterns of genomic blocks. High-throughput sequencing identified 347 nonsynonymous single-nucleotide polymorphisms within these genes in mosquitoes from malaria-endemic areas in Kenya. Direct association studies between nonsynonymous single-nucleotide polymorphisms and *Plasmodium falciparum* infection identified three naturally occurring genetic variations in each of three genes (*An. gambiae* adenosine deaminase, fibrinogen-related protein 30, and fibrinogen-related protein 1) that were associated significantly with parasite infection. A role for these genes in the resistance phenotype was confirmed by RNA interference knockdown assays. Silencing fibrinogen-related protein 30 increased parasite infection significantly, whereas ablation of fibrinogen-related protein 1 transcripts resulted in mosquitoes nearly free of parasites. The discovered genes and single-nucleotide polymorphisms are anticipated to be useful in the development of tools for malaria control in endemic areas in Africa.

Additional References

RELATED GEPHE

Related Genes
 4 (adenosine deaminase (AgADA), APL1 cluster, fibrinogen-related protein 1 (FREP1), thioester-containing protein 1) (<https://www.gephebase.org/search-criteria?/or+TaxonID=%7165%/and+Trait=Pathogen+resistance/and+groupHaplotypes=true#gephebase-summary-title>)
 Related Haplotypes
 No matches found.

EXTERNAL LINKS

COMMENTS

the role of the gene is confirmed by RNA interference knockdown assays. Silencing of the gene increased parasite infection by *P. berghei*