

GEPHE SUMMARY

	Gephebase Gene	GepheID
APL1 cluster (#gephebase-summary-title)	GP00000098	Main curator
	Entry Status: Martin	
Published		

PHENOTYPIC CHANGE

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

GENOTYPIC CHANGE

APL1A	Generic Gene Name	L7RQU1 (http://www.uniprot.org/uniprot/L7RQU1)	UniProtKB Anopheles gambiae
AGAP007036	Synonyms	JX656351 (https://www.ncbi.nlm.nih.gov/nucore/JX656351)	GenebankID or UniProtKB
-	String		
-	Sequence Similarities		
-	GO - Molecular Function		
-	GO - Biological Process		
-	GO - Cellular Component		
-			Presumptive Null

Unknown (https://www.gephebase.org/search-criteria?/and+Presumptive Null=^Unknown^#gephebase-summary-title)	Molecular Type
Unknown (https://www.gephebase.org/search-criteria?/and+Molecular Type=^Unknown^#gephebase-summary-title)	Aberration Type
Unknown (https://www.gephebase.org/search-criteria?/and+Aberration Type=^Unknown^#gephebase-summary-title)	Molecular Details of the Mutation
Not identified	Experimental Evidence
Linkage Mapping (https://www.gephebase.org/search-criteria?/and+Experimental Evidence=^Linkage Mapping^#gephebase-summary-title)	Main Reference
Natural malaria infection in <i>Anopheles gambiae</i> is regulated by a single genomic control region. (2006) (https://pubmed.ncbi.nlm.nih.gov/16645095)	
Riehle MM; Markianos K; NiarÃ© O; Xu J; Li J; TourÃ© AM; Podiougou B; Oduol F; Diawara S; Diallo M; Coulibaly B; Ouatarâ A; Kruglyak L; TraorÃ© SF; Vernick KD	
We surveyed an <i>Anopheles gambiae</i> population in a West African malaria transmission zone for naturally occurring genetic loci that control mosquito infection with the human malaria parasite, <i>Plasmodium falciparum</i> . The strongest <i>Plasmodium</i> resistance loci cluster in a small region of chromosome 2L and each locus explains at least 89% of parasite-free mosquitoes in independent pedigrees. Together, the clustered loci form a genomic <i>Plasmodium</i> -resistance island that explains most of the genetic variation for malaria parasite infection of mosquitoes in nature. Among the candidate genes in this chromosome region, RNA interference knockdown assays confirm a role in <i>Plasmodium</i> resistance for <i>Anopheles Plasmodium</i> -responsive leucine-rich repeat 1 (APL1), encoding a leucine-rich repeat protein that is similar to molecules involved in natural pathogen resistance mechanisms in plants and mammals.	
Exceptional diversity, maintenance of polymorphism, and recent directional selection on the APL1 malaria resistance genes of <i>Anopheles gambiae</i> . (2011) (https://pubmed.ncbi.nlm.nih.gov/21408087)	
Additional References	

RELATED GEPHE

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

EXTERNAL LINKS

COMMENTS

Cluster of paralogous genes