

	Gephebase Gene	GepheID
resistance to dieldrin (https://www.gephebase.org/search-criteria?/and+Gene+Gephebase=%5Cresistance+to+dieldrin%5C#gephebase-summary-title)	GP00000972	Main curator
Published	Entry Status: Martin	

Trait Category		Trait	
Physiology (#https://www.gephebase.org/search-criteria?/and+TraitCategory=~Physiology)			
Xenobiotic resistance (insecticide) (#https://www.gephebase.org/search-criteria?/and+Trait=~Xenobiotic resistance (insecticide))			
	Trait State in Taxon A		
Blatella germanica			
	Trait State in Taxon B		
Blatella germanica - resistant			
	Ancestral State		
Taxon A			
	Taxonomic Status		
Intraspecific (#https://www.gephebase.org/search-criteria?/and+TaxonomicStatus=~Intraspecific)			
Taxon A		Taxon B	
	Latin Name		Latin Name
Blattella germanica (#https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms=~Blattella germanica)		Blattella germanica (#https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms=~Blattella germanica)	
	Common Name		Common Name
German cockroach		German cockroach	
	Synonyms		Synonyms
German cockroach; Blattella germanica (Linnaeus, 1767); Blatella germanica		German cockroach; Blattella germanica (Linnaeus, 1767); Blatella germanica	
	Rank		Rank
species		species	
	Lineage		Lineage
cellular organisms; Eukaryota; Opisthokonta; Metazoa; Eumetazoa; Bilateria; Protostomia; Ecdysozoa; Panarthropoda; Arthropoda; Mandibulata; Pancrustacea; Hexapoda; Insecta; Dicondylia; Pterygota; Neoptera; Polyneoptera; Dictyoptera; Blattodea; Blaberoidea; Ectobiidae; Blattellinae; Blattella		cellular organisms; Eukaryota; Opisthokonta; Metazoa; Eumetazoa; Bilateria; Protostomia; Ecdysozoa; Panarthropoda; Arthropoda; Mandibulata; Pancrustacea; Hexapoda; Insecta; Dicondylia; Pterygota; Neoptera; Polyneoptera; Dictyoptera; Blattodea; Blaberoidea; Ectobiidae; Blattellinae; Blattella	
	Parent		Parent
Blattella () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=6972)		Blattella () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=6972)	
	NCBI Taxonomy ID		NCBI Taxonomy ID
6973 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=6973)		6973 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=6973)	
	is Taxon A an Intraspecies?		is Taxon B an Intraspecies?
No		No	

UniProtKB Drosophila melanogaster	Generic Gene Name	UniProtKB
P25123 (http://www.uniprot.org/uniprot/P25123)	Rdl	
GenebankID or UniProtKB	Synonyms	
AAB33736 (https://www.ncbi.nlm.nih.gov/nuccore/AAB33736)	CG10537; CT29555; Dmel\CG10537; DmRdl; DmRDL; gaba; GABA; GABA-R; GABAr; GABA[[A]]; GABA[[A]] receptor; GABA[[A]]-R; GABA[[A]]R; LCCH1; Rdl1; rdl; RDL	
	String	
	7227.FBpp0305970 (http://string-db.org/newstring.cgi/show_network_section.pl?identifier=7227.FBpp0305970)	
	Sequence Similarities	
	Belongs to the ligand-gated ion channel (TC 1.A.9) family. Gamma-aminobutyric acid receptor (TC 1.A.9.5) subfamily.	
	GO - Molecular Function	
	GO:0004890 : GABA-A receptor activity (https://www.ebi.ac.uk/QuickGO/term/GO:0004890)	
	GO:0022851 : GABA-gated chloride ion channel activity (https://www.ebi.ac.uk/QuickGO/term/GO:0022851)	
	GO:0030594 : neurotransmitter receptor activity	

(<https://www.ebi.ac.uk/QuickGO/term/GO:0030594>)

GO - Biological Process

GO:0007165 : signal transduction (<https://www.ebi.ac.uk/QuickGO/term/GO:0007165>)
GO:0007268 : chemical synaptic transmission
(<https://www.ebi.ac.uk/QuickGO/term/GO:0007268>)
GO:0034220 : ion transmembrane transport
(<https://www.ebi.ac.uk/QuickGO/term/GO:0034220>)
GO:0042493 : response to drug (<https://www.ebi.ac.uk/QuickGO/term/GO:0042493>)
GO:0050877 : nervous system process
(<https://www.ebi.ac.uk/QuickGO/term/GO:0050877>)
GO:0042391 : regulation of membrane potential
(<https://www.ebi.ac.uk/QuickGO/term/GO:0042391>)
GO:0006811 : ion transport (<https://www.ebi.ac.uk/QuickGO/term/GO:0006811>)
GO:0042048 : olfactory behavior (<https://www.ebi.ac.uk/QuickGO/term/GO:0042048>)
GO:0030431 : sleep (<https://www.ebi.ac.uk/QuickGO/term/GO:0030431>)
GO:0009612 : response to mechanical stimulus
(<https://www.ebi.ac.uk/QuickGO/term/GO:0009612>)
GO:0002121 : inter-male aggressive behavior
(<https://www.ebi.ac.uk/QuickGO/term/GO:0002121>)
GO:0050805 : negative regulation of synaptic transmission
(<https://www.ebi.ac.uk/QuickGO/term/GO:0050805>)
GO:0042749 : regulation of circadian sleep/wake cycle
(<https://www.ebi.ac.uk/QuickGO/term/GO:0042749>)
GO:0090328 : regulation of olfactory learning
(<https://www.ebi.ac.uk/QuickGO/term/GO:0090328>)

GO - Cellular Component

GO:0016021 : integral component of membrane
(<https://www.ebi.ac.uk/QuickGO/term/GO:0016021>)
GO:0005886 : plasma membrane (<https://www.ebi.ac.uk/QuickGO/term/GO:0005886>)
GO:0005887 : integral component of plasma membrane
(<https://www.ebi.ac.uk/QuickGO/term/GO:0005887>)
GO:0030054 : cell junction (<https://www.ebi.ac.uk/QuickGO/term/GO:0030054>)
GO:0030425 : dendrite (<https://www.ebi.ac.uk/QuickGO/term/GO:0030425>)
GO:0043005 : neuron projection (<https://www.ebi.ac.uk/QuickGO/term/GO:0043005>)
GO:0030424 : axon (<https://www.ebi.ac.uk/QuickGO/term/GO:0030424>)
GO:0045211 : postsynaptic membrane
(<https://www.ebi.ac.uk/QuickGO/term/GO:0045211>)
GO:0045202 : synapse (<https://www.ebi.ac.uk/QuickGO/term/GO:0045202>)
GO:0034707 : chloride channel complex
(<https://www.ebi.ac.uk/QuickGO/term/GO:0034707>)
GO:0032589 : neuron projection membrane
(<https://www.ebi.ac.uk/QuickGO/term/GO:0032589>)
GO:0032809 : neuronal cell body membrane
(<https://www.ebi.ac.uk/QuickGO/term/GO:0032809>)

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

Nonsynonymous

Molecular Details of the Mutation

Ala302Ser

Experimental Evidence

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

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

Main Reference

Identification of the site of mutation within the M2 region of the GABA receptor of the cyclodiene-resistant German cockroach. (1994) (<https://pubmed.ncbi.nlm.nih.gov/7881806>)

Authors

Kaku K; Matsumura F

Abstract

The DNA and amino acid sequences of the membrane-spanning region of the GABA receptors of the German cockroach have been identified along with information on the nature and the specific site of mutation in the cyclodiene-resistant strains. In this resistant strain, the mutation has occurred at the most conserved, lower M2 cylinder region involving a G to T conversion, resulting in an amino acid change of alanine (GCC) residue to serine (TCC). The site, furthermore, coincides with the most conserved region of all GABA receptor subunits and the expected Cl⁻ transporting segment constituting the innermost surface of the channel opening. The deduced sequence of the German cockroach GABA receptor differs from that of *Drosophila* mainly in the connecting region between M3 and M4.

Additional References

RELATED GEPHE

1 (para (kdr)) (https://www.gephebase.org/search-criteria?/or+Taxon ID=^6973~/and+Trait=Xenobiotic resistance/and+groupHaplotypes=true#gephebase-summary-title)

Related Genes

No matches found.

Related Haplotypes

EXTERNAL LINKS

COMMENTS