

GEPHE SUMMARY

	Gephebase Gene	GP00000013	GephelD
ABCC2 (https://www.gephebase.org/search-criteria?/and+Gene Gephebase=^ABCC2^#gephebase-summary-title)	Entry Status	Martin	Main curator
Published			

PHENOTYPIC CHANGE

Trait Category		Trait	
Physiology (https://www.gephebase.org/search-criteria?/and+Trait Category=^Physiology^#gephebase-summary-title)			
Xenobiotic resistance (insecticide) (https://www.gephebase.org/search-criteria?/and+Trait=^Xenobiotic+resistance+(insecticide)^#gephebase-summary-title)		Trait State in Taxon A	
Plutella xylostella -Bt susceptible		Trait State in Taxon B	
Plutella xylostella -Bt resistant		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	Latin Name
Plutella xylostella (https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=^Plutella+xylostella^#gephebase-summary-title)		Plutella xylostella (https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=^Plutella+xylostella^#gephebase-summary-title)	
diamondback moth	Common Name	diamondback moth	Common Name
diamondback moth; cabbage moth; Plutella xylostella (Linnaeus, 1758); Putella xylostella	Synonyms	diamondback moth; cabbage moth; Plutella xylostella (Linnaeus, 1758); Putella xylostella	Synonyms
Rank		Rank	
species	Lineage	species	Lineage
cellular organisms; Eukaryota; Opisthokonta; Metazoa; Eumetazoa; Bilateria; Protostomia; Ecdysozoa; Panarthropoda; Arthropoda; Mandibulata; Pancrustacea; Hexapoda; Insecta; Dicondylia; Pterygota; Neoptera; Holometabola; Amphiesmenoptera; Lepidoptera; Glossata; Neolepidoptera; Heteroneura; Ditrysia; Yponomeutoidea; Plutellidae; Plutella		cellular organisms; Eukaryota; Opisthokonta; Metazoa; Eumetazoa; Bilateria; Protostomia; Ecdysozoa; Panarthropoda; Arthropoda; Mandibulata; Pancrustacea; Hexapoda; Insecta; Dicondylia; Pterygota; Neoptera; Holometabola; Amphiesmenoptera; Lepidoptera; Glossata; Neolepidoptera; Heteroneura; Ditrysia; Yponomeutoidea; Plutellidae; Plutella	
Parent		Parent	
Plutella () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 51654)		Plutella () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 51654)	
NCBI Taxonomy ID		NCBI Taxonomy ID	
51655 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 51655)		51655 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 51655)	
is Taxon A an Infraspecies?		is Taxon B an Infraspecies?	
No		No	

GENOTYPIC CHANGE

ABCC2	Generic Gene Name	UniProtKB Plutella xylostella
-	Synonyms	GenebankID or UniProtKB
-	String	
-	Sequence Similarities	
-	GO - Molecular Function	
GO:0005524 : ATP binding (https://www.ebi.ac.uk/QuickGO/term/GO:0005524)		
GO:0042626 : ATPase activity, coupled to transmembrane movement of substances (https://www.ebi.ac.uk/QuickGO/term/GO:0042626)		
-	GO - Biological Process	
-	GO - Cellular Component	
GO:0016021 : integral component of membrane (https://www.ebi.ac.uk/QuickGO/term/GO:0016021)		Presumptive Null

Yes ([#gephebase-summary-title\)](https://www.gephebase.org/search-criteria?/and+Presumptive+Null=^Yes)

Molecular Type

Coding ([#gephebase-summary-title\)](https://www.gephebase.org/search-criteria?/and+Molecular+Type=^Coding)

Aberration Type

Deletion ([#gephebase-summary-title\)](https://www.gephebase.org/search-criteria?/and+Aberration+Type=^Deletion)

Deletion Size

10-99 bp

Molecular Details of the Mutation

30bp deletion

Experimental Evidence

Linkage Mapping ([#gephebase-summary-title\)](https://www.gephebase.org/search-criteria?/and+Experimental+Evidence=^Linkage+Mapping)

Main Reference

Parallel evolution of *Bacillus thuringiensis* toxin resistance in lepidoptera. (2011) (<https://pubmed.ncbi.nlm.nih.gov/21840855>)

Authors

Baxter SW; Badenes-Perez FR; Morrison A; Vogel H; Crickmore N; Kain W; Wang P; Heckel DG; Jiggins CD

Abstract

Despite the prominent and worldwide use of *Bacillus thuringiensis* (Bt) insecticidal toxins in agriculture, knowledge of the mechanism by which they kill pests remains incomplete. Here we report genetic mapping of a membrane transporter (ABCC2) to a locus controlling Bt Cry1Ac toxin resistance in two lepidopterans, implying that this protein plays a critical role in Bt function.

Additional References

RELATED GEPHE

Related Genes

10 (Acetylcholinesterase (Ace-1), Chitin synthase 1 (CHS1), CYP6BG1, FMO2, glutamate-gated chloride channel (GluCl), MAP4K4, nAChR, para (kdr), resistance to dieldrin, RYR) ([#gephebase-summary-title\)](https://www.gephebase.org/search-criteria?/or+Taxon+ID=^51655/and+Trait=Xenobiotic+resistance/and+groupHaplotypes=true)

Related Haplotypes

No matches found.

EXTERNAL LINKS

COMMENTS