GEPHE SUMMARY

Gephebase Gene

ABCC2 (https://www.gephebase.org/search-criteria?/and+Gene Gephebase=^ABCC2^#gephebase-summary-title)

GepheID

GP00000014

Entry Status

Published

Main curator

Martin

PHENOTYPIC CHANGE

Trait Category

Physiology (https://www.gephebase.org/search-criteria?/and+Trait Category=^Physiology^#gephebase-summary-title)

Trait

Xenobiotic resistance (insecticide; Bt Cry1Ac) (https://www.gephebase.org/search-criteria?/and+Trait=^Xenobiotic resistance (insecticide; Bt Cry1Ac)^#gephebase-summary-title)

Trait State in Taxon A

Trichoplusia ni -Bt susceptible

Trait State in Taxon B

Trichoplusia ni -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

Trichoplusia ni (https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms=^Trichoplusia ni^#gephebase-summary-title)

Common Name

cabbage looper

Synonyms

cabbage looper; Trichoplusia ni (Hubner, 1803); Trichopluisa ni; Trichopulsia ni

Rank

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; Obtectomera; Noctuoidea; Noctuidae; Plusiinae; Trichoplusia

Parent

Trichoplusia () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 7110)

NCBI Taxonomy ID

7111 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 7111)

is Taxon A an Infraspecies?

No

Taxon B

Latin Name

Trichoplusia ni (https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms=^Trichoplusia ni^#gephebase-summary-title)

Common Name

cabbage looper

Synonyms

cabbage looper; Trichoplusia ni (Hubner, 1803); Trichopluisa ni; Trichopulsia ni

Rank

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; Obtectomera; Noctuoidea; Noctuidae; Plusiinae; Trichoplusia

Parent

Trichoplusia () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 7110)

NCBI Taxonomy ID

7111 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 7111)

is Taxon B an Infraspecies?

No

GENOTYPIC CHANGE

Generic Gene Name

ABCC2

Synonyms

-

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

UniProtKB Plutella xylostella

A0A0E3ZDK3 (http://www.uniprot.org/uniprot/A0A0E3ZDK3)

GenebankID or UniProtKB

AEI27595 (https://www.ncbi.nlm.nih.gov/nuccore/AEI27595)

(https://www.ebi.ac.uk/QuickGO/term/GO:0016021)

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

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

Authors

Baxter SW; Badenes-PÃ©rez 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

1 (ABCA2) (https://www.gephebase.org/search-criteria?/or+Taxon ID=^7111^/and+Trait=Xenobiotic resistance/and+groupHaplotypes=true#gephebase-summary-title)

Related Haplotypes

No matches found.

EXTERNAL LINKS

COMMENTS