GEPHE SUMMARY

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

GepheID
GP00002043

Entry Status
Published

Main curator
Courtier

PHENOTYPIC CHANGE

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

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

Trait State in Taxon A
sensitive

Trait State in Taxon B
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
Chlamydomonas reinhardtii (https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms=^Chlamydomonas reinhardtii^#gephebase-summary-title)

Common Name
-

Synonyms
Chlamydomonas smithii; Chlamydomonas reinhardtii P.A.Dangeard; Chlamydomonas smithii R.W.Howshaw & H.Ettl; SAG 53.72; SAG 54.72; SAG:53.72; SAG:54.72; UTEX 90; UTEX:90; Chlamydomonas reihhardtii; Chlamydonas reinhardtii

Rank
species

Lineage
cellular organisms; Eukaryota; Viridiplantae; Chlorophyta; Chlorophyceae; Chlamydomonadales; Chlamydomonadaceae; Chlamydomonas

Parent
Chlamydomonas () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 3052)

NCBI Taxonomy ID
3055 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 3055)

is Taxon A an Infraspecies?
No

Taxon B

Latin Name
Chlamydomonas reinhardtii (https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms=^Chlamydomonas reinhardtii^#gephebase-summary-title)

Common Name
-

Synonyms
Chlamydomonas smithii; Chlamydomonas reinhardtii P.A.Dangeard; Chlamydomonas smithii R.W.Howshaw & H.Ettl; SAG 53.72; SAG 54.72; SAG:53.72; SAG:54.72; UTEX 90; UTEX:90; Chlamydomonas reihhardtii; Chlamydonas reinhardtii

Rank
species

Lineage
cellular organisms; Eukaryota; Viridiplantae; Chlorophyta; Chlorophyceae; Chlamydomonadales; Chlamydomonadaceae; Chlamydomonas

Parent
Chlamydomonas () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 3052)

NCBI Taxonomy ID
3055 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 3055)

is Taxon B an Infraspecies?
No

GENOTYPIC CHANGE

Generic Gene Name
UQCRFS1

Synonyms
RIP1; RIS1; RISP; UQCR5

String
9606.ENSP00000306397 (http://string-db.org/newstring_cgi/show_network_section.pl?identifier=9606.ENSP00000306397)

Sequence Similarities
-

GO - Molecular Function
GO:0046872 : metal ion binding (https://www.ebi.ac.uk/QuickGO/term/GO:0046872)
GO:0051537 : 2 iron, 2 sulfur cluster binding (https://www.ebi.ac.uk/QuickGO/term/GO:0051537)
GO:0008121 : ubiquinol-cytochrome-c reductase activity (https://www.ebi.ac.uk/QuickGO/term/GO:0008121)

GO - Biological Process

UniProtKB Homo sapiens
P47985 (http://www.uniprot.org/uniprot/P47985)

GenebankID or UniProtKB
()

GO:0006122 : mitochondrial electron transport, ubiquinol to cytochrome c
(https://www.ebi.ac.uk/QuickGO/term/GO:0006122)

GO - Cellular Component

GO:0016021 : integral component of membrane
(https://www.ebi.ac.uk/QuickGO/term/GO:0016021)
GO:0005739 : mitochondrion (https://www.ebi.ac.uk/QuickGO/term/GO:0005739)
GO:0005743 : mitochondrial inner membrane
(https://www.ebi.ac.uk/QuickGO/term/GO:0005743)
GO:0005751 : mitochondrial respiratory chain complex IV
(https://www.ebi.ac.uk/QuickGO/term/GO:0005751)
GO:0005750 : mitochondrial respiratory chain complex III
(https://www.ebi.ac.uk/QuickGO/term/GO:0005750)

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

F129L

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	Phe	Lys	129

Main Reference

Mitochondrial genetics of Chlamydomonas reinhardtii: resistance mutations marking the cytochrome b gene. (1991) (https://pubmed.ncbi.nlm.nih.gov/2004707)

Authors

Bennoun P; Delosme M; KÃ¼ck U

Abstract

We describe the genetic and molecular analysis of the first non-Mendelian mutants of Chlamydomonas reinhardtii resistant to myxothiazol, an inhibitor of the respiratory cytochrome bc1 complex. Using a set of seven oligonucleotide probes, restriction fragments containing the mitochondrial cytochrome b (cyt b) gene from C. reinhardtii were isolated from a mitochondrial DNA library. This gene is located adjacent to the gene for subunit 4 of the mitochondrial NADH-dehydrogenase (ND4), near one end of the 15.8-kb linear mitochondrial genome of C. reinhardtii. The algal cytochrome b apoprotein contains 381 amino-acid residues and exhibits a sequence similarity of about 59% with other plant cytochrome b proteins. The cyt b gene from four myxothiazol resistant mutants of C. reinhardtii was amplified for DNA sequence analysis. In comparison to the wild-type strain, all mutants contain an identical point mutation in the cyt b gene, leading to a change of a phenylalanine codon to a leucine codon at amino acid position 129 of the cytochrome b protein. Segregation analysis in tetrads from reciprocal crosses of mutants with wild type shows a strict uniparental inheritance of this mutation from the mating type minus parent (UP-). However, mitochondrial markers from both parents are recovered in vegetative diploids in variable proportions from one experiment to the next for a given cross. On the average, a strong bias is seen for markers inherited from the mating type minus parent.

Additional References

RELATED GEPHE

Related Genes

No matches found.

Related Haplotypes

No matches found.

EXTERNAL LINKS

COMMENTS

@MitochondrialGene