

GEPHE SUMMARY

beta-tubulin (<a +beta-tubulin+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Gene+Gephebase=">https://www.gephebase.org/search-criteria?/and+Gene+Gephebase="+beta-tubulin+"#gephebase-summary-title)	Gephebase Gene	GP00001802	GepheID
Published	Entry Status	Courtier	Main curator

PHENOTYPIC CHANGE

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

Trait
 Xenobiotic resistance (benomyl) ([https://www.gephebase.org/search-criteria?/and+Trait="+Xenobiotic+resistance+\(benomyl\)+"#gephebase-summary-title](https://www.gephebase.org/search-criteria?/and+Trait=))

Trait State in Taxon A
 sensitive

Trait State in Taxon B
 resistant

Taxon A

Ancestral State

Taxonomic Status
 Intraspecific ([https://www.gephebase.org/search-criteria?/and+Taxonomic+Status="+Intraspecific+"#gephebase-summary-title](https://www.gephebase.org/search-criteria?/and+Taxonomic+Status=))

Taxon A	Latin Name	Taxon B	Latin Name
Penicillium expansum (<a +penicillium+expansum+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=">https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms="+Penicillium+expansum+"#gephebase-summary-title)	Penicillium expansum (<a +penicillium+expansum+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=">https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms="+Penicillium+expansum+"#gephebase-summary-title)	Penicillium expansum (<a +penicillium+expansum+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=">https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms="+Penicillium+expansum+"#gephebase-summary-title)	Penicillium expansum (<a +penicillium+expansum+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=">https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms="+Penicillium+expansum+"#gephebase-summary-title)
-	Common Name	-	Common Name
-	Synonyms	-	Synonyms
ATCC 7861; ATCC:7861; CBS 325.48; CBS:325.48; Penicillium expasum	ATCC 7861; ATCC:7861; CBS 325.48; CBS:325.48; Penicillium expasum	ATCC 7861; ATCC:7861; CBS 325.48; CBS:325.48; Penicillium expasum	ATCC 7861; ATCC:7861; CBS 325.48; CBS:325.48; Penicillium expasum
species	Rank	species	Rank
cellular organisms; Eukaryota; Opisthokonta; Fungi; Dikarya; Ascomycota; saccharomyceta; Pezizomycotina; leotiomyceta; Eurotiomycetes; Eurotiomycetidae; Eurotiales; Aspergillaceae; Penicillium	Lineage	cellular organisms; Eukaryota; Opisthokonta; Fungi; Dikarya; Ascomycota; saccharomyceta; Pezizomycotina; leotiomyceta; Eurotiomycetes; Eurotiomycetidae; Eurotiales; Aspergillaceae; Penicillium	Lineage
Penicillium () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=5073)	Parent	Penicillium () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=5073)	Parent
27334 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=27334)	NCBI Taxonomy ID	27334 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=27334)	NCBI Taxonomy ID
No	is Taxon A an Intraspecies?	No	is Taxon B an Intraspecies?

GENOTYPIC CHANGE

TUB2	Generic Gene Name	UniProtKB Saccharomyces cerevisiae (strain ATCC 204508 / S288c)
ARM10; SHE8; YFL037W	Synonyms	P02557 (http://www.uniprot.org/uniprot/P02557)
4932.YFL037W (http://string-db.org/newstring.cgi/show_network_section.pl?identifier=4932.YFL037W)	String	GenebankID or UniProtKB
Belongs to the tubulin family.	Sequence Similarities	
GO:0005525 : GTP binding (https://www.ebi.ac.uk/QuickGO/term/GO:0005525)	GO - Molecular Function	
GO:0003924 : GTPase activity (https://www.ebi.ac.uk/QuickGO/term/GO:0003924)		
GO:0005200 : structural constituent of cytoskeleton (https://www.ebi.ac.uk/QuickGO/term/GO:0005200)		
GO:0007010 : cytoskeleton organization (https://www.ebi.ac.uk/QuickGO/term/GO:0007010)	GO - Biological Process	
GO:0000278 : mitotic cell cycle (https://www.ebi.ac.uk/QuickGO/term/GO:0000278)		
GO:0000070 : mitotic sister chromatid segregation		

(<https://www.ebi.ac.uk/QuickGO/term/GO:0000070>)
 GO:0007017 : microtubule-based process
 (<https://www.ebi.ac.uk/QuickGO/term/GO:0007017>)
 GO:0046677 : response to antibiotic (<https://www.ebi.ac.uk/QuickGO/term/GO:0046677>)
 GO:0000226 : microtubule cytoskeleton organization
 (<https://www.ebi.ac.uk/QuickGO/term/GO:0000226>)
 GO:0045143 : homologous chromosome segregation
 (<https://www.ebi.ac.uk/QuickGO/term/GO:0045143>)
 GO:0030473 : nuclear migration along microtubule
 (<https://www.ebi.ac.uk/QuickGO/term/GO:0030473>)
 GO:0090316 : positive regulation of intracellular protein transport
 (<https://www.ebi.ac.uk/QuickGO/term/GO:0090316>)

GO - Cellular Component

GO:0005737 : cytoplasm (<https://www.ebi.ac.uk/QuickGO/term/GO:0005737>)
 GO:0005874 : microtubule (<https://www.ebi.ac.uk/QuickGO/term/GO:0005874>)
 GO:0005816 : spindle pole body (<https://www.ebi.ac.uk/QuickGO/term/GO:0005816>)
 GO:0005881 : cytoplasmic microtubule
 (<https://www.ebi.ac.uk/QuickGO/term/GO:0005881>)
 GO:0005828 : kinetochore microtubule
 (<https://www.ebi.ac.uk/QuickGO/term/GO:0005828>)
 GO:0005880 : nuclear microtubule (<https://www.ebi.ac.uk/QuickGO/term/GO:0005880>)
 GO:0045298 : tubulin complex (<https://www.ebi.ac.uk/QuickGO/term/GO:0045298>)

Presumptive Null

No ([https://www.gephebase.org/search-criteria?/and+Presumptive Null="No"#gephebase-summary-title](https://www.gephebase.org/search-criteria?/and+Presumptive Null=))

Molecular Type

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

Aberration Type

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

SNP Coding Change

Nonsynonymous

Molecular Details of the Mutation

Glu1198Ala

Experimental Evidence

Candidate Gene ([https://www.gephebase.org/search-criteria?/and+Experimental Evidence="Candidate Gene"#gephebase-summary-title](https://www.gephebase.org/search-criteria?/and+Experimental Evidence=))

	Taxon A	Taxon B	Position
Codon	GAG	GCG	-
Amino-acid	Glu	Ala	198

Main Reference

Characterization of mutations in the beta-tubulin gene of benomyl-resistant field strains of *Venturia inaequalis* and other plant pathogenic fungi .
 (<https://pubmed.ncbi.nlm.nih.gov/00000000.000004>)

Authors

Koenraadt Harrie; Somerville Shauna C; Jones AL

Abstract

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Additional References

Mechanism of action of N-phenylcarbamates in benzimidazole-resistant *Neurospora* strains . (1990) (<https://pubmed.ncbi.nlm.nih.gov/00000000.000005>)

RELATED GEPHE

Related Genes

No matches found.

Related Haplotypes

No matches found.

EXTERNAL LINKS

COMMENTS

The amino acid change Glu198Gly was shown to confer resistance in *Neurospora crassa*

