

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 | GP00001800 | GepheID |
| Published | Entry Status | Courtier | Main curator |

PHENOTYPIC CHANGE

| | | | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|--|--|
| Physiology (<a +physiology^#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Trait+Category=">https://www.gephebase.org/search-criteria?/and+Trait+Category="+Physiology^#gephebase-summary-title) | Trait Category | | |
| Xenobiotic resistance (benomyl) (<a +xenobiotic+resistance+(benomyl)^#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Trait=">https://www.gephebase.org/search-criteria?/and+Trait="+Xenobiotic+resistance+(benomyl)^#gephebase-summary-title) | Trait | | |
| sensitive | Trait State in Taxon A | | |
| resistant | Trait State in Taxon B | | |
| Taxon A | Ancestral State | | |
| Intraspecific (<a +intraspecific^#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Taxonomic+Status=">https://www.gephebase.org/search-criteria?/and+Taxonomic+Status="+Intraspecific^#gephebase-summary-title) | Taxonomic Status | | |

| Taxon A | | Taxon B | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|
| | Latin Name | | Latin Name |
| Penicillium puberulum (<a +penicillium+puberulum^#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+puberulum^#gephebase-summary-title) | Penicillium puberulum (<a +penicillium+puberulum^#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+puberulum^#gephebase-summary-title) | | |
| - | Common Name | - | Common Name |
| - | Synonyms | - | Synonyms |
| 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 |
| 1343408 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=1343408) | NCBI Taxonomy ID | 1343408 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=1343408) | 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 | () |
| Belongs to the tubulin family. | Sequence Similarities | GenebankID or UniProtKB |
| 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

-

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

1 ([https://www.gephebase.org/search-criteria?/or+Gene Gephebase="beta-tubulin"/and+Taxon ID="1343408"/or+Gene Gephebase="beta-tubulin"/and+Taxon ID="1343408"#gephebase-summary-title](https://www.gephebase.org/search-criteria?/or+Gene Gephebase=))

EXTERNAL LINKS

COMMENTS

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

