

GEPHE SUMMARY

<p>Xa1 (https://www.gephebase.org/search-criteria?/and+Gene+Gephebase=Xa1#gephebase-summary-title)</p> <p>Published</p>	<p>Gephebase Gene</p> <p>Entry Status</p>	<p>GP00001216</p> <p>Martin</p>	<p>GepheID</p> <p>Main curator</p>
---	---	---------------------------------	------------------------------------

PHENOTYPIC CHANGE

<p>Physiology (https://www.gephebase.org/search-criteria?/and+Trait+Category=Physiology#gephebase-summary-title)</p> <p>Pathogen resistance (https://www.gephebase.org/search-criteria?/and+Trait=Pathogen+resistance#gephebase-summary-title)</p> <p>Oryza sativa - wild-type</p> <p>Oryza sativa- bacterial blight resistant strains</p> <p>Data not curated</p> <p>Intraspecific (https://www.gephebase.org/search-criteria?/and+Taxonomic+Status=Intraspecific#gephebase-summary-title)</p>	<p>Trait Category</p> <p>Trait</p> <p>Trait State in Taxon A</p> <p>Trait State in Taxon B</p> <p>Ancestral State</p> <p>Taxonomic Status</p>
---	---

Taxon A	Latin Name	Taxon B	Latin Name
Oryza sativa (https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=Oryza+sativa#gephebase-summary-title)			
Common Name	Common Name	Common Name	Common Name
rice	rice	rice	rice
Synonyms	Synonyms	Synonyms	Synonyms
rice; red rice; Oryza sativa L.			
Rank	Rank	Rank	Rank
species	species	species	species
Lineage	Lineage	Lineage	Lineage
cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; Liliopsida; Petrosaviidae; commelinids; Poales; Poaceae; BOP clade; Oryzoideae; Oryzaceae; Oryzinae; Oryza	cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; Liliopsida; Petrosaviidae; commelinids; Poales; Poaceae; BOP clade; Oryzoideae; Oryzaceae; Oryzinae; Oryza	cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; Liliopsida; Petrosaviidae; commelinids; Poales; Poaceae; BOP clade; Oryzoideae; Oryzaceae; Oryzinae; Oryza	cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; Liliopsida; Petrosaviidae; commelinids; Poales; Poaceae; BOP clade; Oryzoideae; Oryzaceae; Oryzinae; Oryza
Parent	Parent	Parent	Parent
Oryza () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=4527)	Oryza () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=4527)	Oryza () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=4527)	Oryza () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=4527)
NCBI Taxonomy ID	NCBI Taxonomy ID	NCBI Taxonomy ID	NCBI Taxonomy ID
4530 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=4530)			
is Taxon A an Intraspecies?	is Taxon A an Intraspecies?	is Taxon B an Intraspecies?	is Taxon B an Intraspecies?
No	No	No	No

GENOTYPIC CHANGE

<p>XA1</p> <p>-</p> <p>-</p> <p>Belongs to the disease resistance NB-LRR family.</p> <p>GO:0003677 : DNA binding (https://www.ebi.ac.uk/QuickGO/term/GO:0003677)</p> <p>GO:0043531 : ADP binding (https://www.ebi.ac.uk/QuickGO/term/GO:0043531)</p> <p>-</p> <p>-</p> <p>Unknown (https://www.gephebase.org/search-criteria?/and+Presumptive+Null=Unknown#gephebase-summary-title)</p>	<p>Generic Gene Name</p> <p>Synonyms</p> <p>String</p> <p>Sequence Similarities</p> <p>GO - Molecular Function</p> <p>GO - Biological Process</p> <p>GO - Cellular Component</p>	<p>UniProtKB Oryza sativa subsp. indica A0A0H5AGW3 (http://www.uniprot.org/uniprot/A0A0H5AGW3)</p> <p>GenebankID or UniProtKB BAA25068 (https://www.ncbi.nlm.nih.gov/nuccore/BAA25068)</p> <p>Presumptive Null</p> <p>Molecular Type</p>
---	--	--

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

unknown

Experimental Evidence

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

Main Reference

Expression of Xa1, a bacterial blight-resistance gene in rice, is induced by bacterial inoculation. (1998) (<https://pubmed.ncbi.nlm.nih.gov/9465073>)

Authors

Yoshimura S; Yamanouchi U; Katayose Y; Toki S; Wang ZX; Kono I; Kurata N; Yano M; Iwata N; Sasaki T

Abstract

The Xa1 gene in rice confers resistance to Japanese race 1 of *Xanthomonas oryzae* pv. *oryzae*, the causal pathogen of bacterial blight (BB). We isolated the Xa1 gene by a map-based cloning strategy. The deduced amino acid sequence of the Xa1 gene product contains nucleotide binding sites (NBS) and a new type of leucine-rich repeats (LRR); thus, Xa1 is a member of the NBS-LRR class of plant disease-resistance genes, but quite different from Xa21, another BB-resistance gene isolated from rice. Interestingly, Xa1 gene expression was induced on inoculation with a bacterial pathogen and wound, unlike other isolated resistance genes in plants, which show constitutive expression. The induced expression may be involved in enhancement of resistance against the pathogen.

Additional References

RELATED GEPHE

Related Genes

15 (Pi-ta, Pi2 (Nbs4-Pi2), Pi36, Pi37, Pi5-1 + Pi5-2 cluster, Pi9 (= Nbs2-Pi9), Pi1b, Pi1d3, Pi1gR, Pi1km1-TS + Pi1km2-TS cluster, Pi1t, Pi1z-t, SLB1/2, Xa21, Xa26) (<https://www.gephebase.org/search-criteria?/or+Taxon+ID=^4530^/and+Trait=Pathogen+resistance/and+groupHaplotypes=true#gephebase-summary-title>)

Related Haplotypes

No matches found.

EXTERNAL LINKS

COMMENTS