

GEPHE SUMMARY

	Gephebase Gene		GepheID
Sd1 (=GA20ox-2) (<a +sd1+"(='GA20ox-2)^#gephebase-summary-title"' href="https://www.gephebase.org/search-criteria?/and+Gene+Gephebase=">https://www.gephebase.org/search-criteria?/and+Gene+Gephebase="+Sd1+"(=GA20ox-2)^#gephebase-summary-title)		GP00001031	
	Entry Status	Martin	Main curator
Published			

PHENOTYPIC CHANGE

	Trait Category		
Morphology (<a +morphology+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Trait+Category=">https://www.gephebase.org/search-criteria?/and+Trait+Category="+Morphology+"#gephebase-summary-title)			
	Trait		
Plant size (dwarfism) (<a +plant+size+(dwarfism)+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Trait=">https://www.gephebase.org/search-criteria?/and+Trait="+Plant+size+(dwarfism)+"#gephebase-summary-title)			
	Trait State in Taxon A		
Oryza sativa			
	Trait State in Taxon B		
Oryza sativa Calrose 76			
	Ancestral State		
Data not curated			
	Taxonomic Status		
Domesticated (<a +domesticated+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Taxonomic+Status=">https://www.gephebase.org/search-criteria?/and+Taxonomic+Status="+Domesticated+"#gephebase-summary-title)			
Taxon A		Taxon B	
	Latin Name		Latin Name
Oryza sativa (<a +oryza+sativa+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=">https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms="+Oryza+sativa+"#gephebase-summary-title)		Oryza sativa (<a +oryza+sativa+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=">https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms="+Oryza+sativa+"#gephebase-summary-title)	
	Common Name		Common Name
rice		rice	
	Synonyms		Synonyms
rice; red rice; Oryza sativa L.		rice; red rice; Oryza sativa L.	
	Rank		Rank
species		species	
	Lineage		Lineage
cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; Liliopsida; Petrosaviidae; commelinids; Poales; Poaceae; BOP clade; Oryzoideae; Oryzeae; Oryzinae; Oryza		cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; Liliopsida; Petrosaviidae; commelinids; Poales; Poaceae; BOP clade; Oryzoideae; Oryzeae; Oryzinae; Oryza	
	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)	
	NCBI Taxonomy ID		NCBI Taxonomy ID
4530 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=4530)		4530 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=4530)	
	is Taxon A an Intraspecies?		is Taxon B an Intraspecies?
No		Yes	
			Taxon B Description
		Oryza sativa Calrose 76	

GENOTYPIC CHANGE

	Generic Gene Name		UniProtKB Oryza sativa subsp. japonica
GA20OX2		Q0JH50 (http://www.uniprot.org/uniprot/Q0JH50)	
	Synonyms		GenebankID or UniProtKB
sd1; GA20; Sd-1; 20ox2; C20ox2; SD1-2E; Os20ox2; osGA20ox2; SD1; Os01g0883800; LOC_Os01g66100; B1065E10.46		()	
	String		
39947.LOC_Os01g66100.1 (http://string-db.org/newstring.cgi/show_network_section.pl?identifier=39947.LOC_Os01g66100.1)			
	Sequence Similarities		
Belongs to the iron/ascorbate-dependent oxidoreductase family. GA20OX subfamily.			
	GO - Molecular Function		
GO:0046872 : metal ion binding (https://www.ebi.ac.uk/QuickGO/term/GO:0046872)			
GO:0051213 : dioxygenase activity (https://www.ebi.ac.uk/QuickGO/term/GO:0051213)			
	GO - Biological Process		
-			

- 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
- L266F 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	-	-	-
Amino-acid	-	-	-

Main Reference

Green revolution: a mutant gibberellin-synthesis gene in rice. (2002) (<https://pubmed.ncbi.nlm.nih.gov/11961544>)

Authors

Sasaki A; Ashikari M; Ueguchi-Tanaka M; Itoh H; Nishimura A; Swapan D; Ishiyama K; Saito T; Kobayashi M; Khush GS; Kitano H; Matsuoka M

Abstract

The chronic food shortage that was feared after the rapid expansion of the world population in the 1960s was averted largely by the development of a high-yielding semi-dwarf variety of rice known as IR8, the so-called rice 'green revolution'. The short stature of IR8 is due to a mutation in the plant's sd1 gene, and here we identify this gene as encoding an oxidase enzyme involved in the biosynthesis of gibberellin, a plant growth hormone. Gibberellin is also implicated in green-revolution varieties of wheat, but the reduced height of those crops is conferred by defects in the hormone's signalling pathway.

Additional References

RELATED GEPHE

- No matches found. Related Genes
- 4 ([https://www.gephebase.org/search-criteria?/or+Gene Gephebase="+Sd1 \(=GA20ox-2\)^/and+Taxon ID="+4530^/or+Gene Gephebase="+Sd1 \(=GA20ox-2\)^/and+Taxon ID="+4530^#gephebase-summary-title](https://www.gephebase.org/search-criteria?/or+Gene+Gephebase=)) Related Haplotypes

EXTERNAL LINKS

COMMENTS