

GEPHE SUMMARY

Sd1 (=GA20ox-2) (https://www.gephebase.org/search-criteria?/and+Gene Gephebase='Sd1 (=GA20ox-2)^#gephebase-summary-title)	Generic Gene Name	GP00001030	GephelID
Published	Entry Status	Martin	Main curator

PHENOTYPIC CHANGE

	Trait Category	Trait	
Morphology (https://www.gephebase.org/search-criteria?/and+Trait Category='Morphology^#gephebase-summary-title)			
Plant size (dwarfism) (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 Reimei	Ancestral State		
Data not curated	Taxonomic Status		
Domesticated (https://www.gephebase.org/search-criteria?/and+Taxonomic Status='Domesticated^#gephebase-summary-title)			
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)		Oryza sativa (https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms='Oryza sativa^#gephebase-summary-title)	
rice	Common Name	rice	Common Name
rice; red rice; Oryza sativa L.	Synonyms	rice; red rice; Oryza sativa L.	Synonyms
species	Rank	species	Rank
	Lineage		Lineage
cellular organisms; Eukaryota; Viriplantae; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophytina; Magnoliophyta; Mesangiospermae; Liliopsida; Petrosaviidae; commelinids; Poales; Poaceae; BOP clade; Oryzoideae; Oryzeae; Oryzinae; Oryza		cellular organisms; Eukaryota; Viriplantae; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophytina; Magnoliophyta; Mesangiospermae; Liliopsida; Petrosaviidae; commelinids; Poales; Poaceae; BOP clade; Oryzoideae; Oryzeae; Oryzinae; Oryza	
Oryza () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 4527)	Parent	Oryza () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 4527)	Parent
4530 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 4530)	NCBI Taxonomy ID	4530 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 4530)	NCBI Taxonomy ID
No	is Taxon A an Infraspecies?	Yes	is Taxon B an Infraspecies?
		Oryza sativa Reimei	Taxon B Description

GENOTYPIC CHANGE

GA20OX2	Generic Gene Name	UniProtKB Oryza sativa subsp. japonica
sd1; GA20; Sd-1; 20ox2; C20ox2; SD1-2E; Os20ox2; osGA20ox2; SD1; Os01g0883800; LOC_Os01g66100; B1065E10.46	Synonyms	GenebankID or UniProtKB
39947.LOC_Os01g66100.1 (http://string-db.org/newstring_cgi/show_network_section.pl?identifier=39947.LOC_Os01g66100.1)	String	AER45908 (https://www.ncbi.nlm.nih.gov/nuccore/AER45908)
Belongs to the iron/ascorbate-dependent oxidoreductase family. GA20OX subfamily.	Sequence Similarities	
GO:0046872 : metal ion binding (https://www.ebi.ac.uk/QuickGO/term/GO:0046872)	GO - Molecular Function	
GO:0051213 : dioxygenase activity (https://www.ebi.ac.uk/QuickGO/term/GO:0051213)	GO - Biological Process	

No (https://www.gephebase.org/search-criteria?/and+Presumptive+Null=%No%#gephebase-summary-title)	Presumptive Null
Coding (https://www.gephebase.org/search-criteria?/and+Molecular+Type=%Coding%#gephebase-summary-title)	Molecular Type
SNP (https://www.gephebase.org/search-criteria?/and+Aberration+Type=%SNP%#gephebase-summary-title)	Aberration Type
Nonsynonymous	SNP Coding Change
D349H	Molecular Details of the Mutation
Candidate Gene (https://www.gephebase.org/search-criteria?/and+Experimental+Evidence=%Candidate+Gene%#gephebase-summary-title)	Experimental Evidence

Taxon A	Taxon B	Position
Codon	-	-
Amino-acid	-	-

Green revolution: a mutant gibberellin-synthesis gene in rice. (2002) (https://pubmed.ncbi.nlm.nih.gov/11961544)	Main Reference
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	Authors
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 <i>sd1</i> 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.	Abstract
	Additional References

RELATED GEPHE

No matches found.	Related Genes
	Related Haplotypes
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)	

EXTERNAL LINKS

COMMENTS