

## GEPHE SUMMARY

Sd1 (=GA20ox-2) ( <a href="https://www.gephebase.org/search-criteria?/and+Gene Gephebase='Sd1 (=GA20ox-2)^#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Gene Gephebase='Sd1 (=GA20ox-2)^#gephebase-summary-title</a> )	Gephebase Gene	GP00001028	GephelD
Published	Entry Status	Martin	Main curator

## PHENOTYPIC CHANGE

Trait Category			
Morphology ( <a href="https://www.gephebase.org/search-criteria?/and+Trait Category='Morphology^#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Trait Category='Morphology^#gephebase-summary-title</a> )	Trait		
Plant size (dwarfism) ( <a href="https://www.gephebase.org/search-criteria?/and+Trait=^Plant size (dwarfism)^#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Trait=^Plant size (dwarfism)^#gephebase-summary-title</a> )	Trait State in Taxon A		
Oryza sativa var. Koshihikari	Trait State in Taxon B		
Oryza sativa var. Habataki and IR8	Ancestral State		
Taxon A	Taxonomic Status		
Domesticated ( <a href="https://www.gephebase.org/search-criteria?/and+Taxonomic Status='Domesticated^#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Taxonomic Status='Domesticated^#gephebase-summary-title</a> )			
Taxon A	Latin Name	Taxon B	Latin Name
Oryza sativa ( <a href="https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms='Oryza sativa^#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms='Oryza sativa^#gephebase-summary-title</a> )	Oryza sativa ( <a href="https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms='Oryza sativa^#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms='Oryza sativa^#gephebase-summary-title</a> )	Oryza sativa ( <a href="https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms='Oryza sativa^#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms='Oryza sativa^#gephebase-summary-title</a> )	Oryza sativa ( <a href="https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms='Oryza sativa^#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms='Oryza sativa^#gephebase-summary-title</a> )
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; 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	
Oryza () - (Rank: genus) ( <a href="https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 4527">https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 4527</a> )	Parent	Oryza () - (Rank: genus) ( <a href="https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 4527">https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 4527</a> )	Parent
4530 ( <a href="https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 4530">https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 4530</a> )	NCBI Taxonomy ID	4530 ( <a href="https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 4530">https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 4530</a> )	NCBI Taxonomy ID
Yes	is Taxon A an Infraspecies?	Yes	is Taxon B an Infraspecies?
Oryza sativa var. Koshihikari	Taxon A Description	Oryza sativa var. Habataki and IR8	Taxon B Description

## GENOTYPIC CHANGE

Generic Gene Name		UniProtKB Oryza sativa subsp. japonica
GA20OX2	Synonyms	Q0JH50 ( <a href="http://www.uniprot.org/uniprot/Q0JH50">http://www.uniprot.org/uniprot/Q0JH50</a> )
sd1; GA20; Sd-1; 20ox2; C20ox2; SD1-2E; Os20ox2; osGA20ox2; SD1; Os01g0883800; LOC_Os01g66100; B1065E10.46	String	GenebankID or UniProtKB
39947.LOC_Os01g66100.1 ( <a href="http://string-db.org/newstring_cgi/show_network_section.pl?identifier=39947.LOC_Os01g66100.1">http://string-db.org/newstring_cgi/show_network_section.pl?identifier=39947.LOC_Os01g66100.1</a> )	Sequence Similarities	AER45908 ( <a href="https://www.ncbi.nlm.nih.gov/nuccore/AER45908">https://www.ncbi.nlm.nih.gov/nuccore/AER45908</a> )
Belongs to the iron/ascorbate-dependent oxidoreductase family. GA20OX subfamily.	GO - Molecular Function	
GO:0046872 : metal ion binding ( <a href="https://www.ebi.ac.uk/QuickGO/term/GO:0046872">https://www.ebi.ac.uk/QuickGO/term/GO:0046872</a> )		
GO:0051213 : dioxygenase activity ( <a href="https://www.ebi.ac.uk/QuickGO/term/GO:0051213">https://www.ebi.ac.uk/QuickGO/term/GO:0051213</a> )	GO - Biological Process	

	Presumptive Null
Yes ( <a href="https://www.gephebase.org/search-criteria/?and+Presumptive+Null=%Yes%#gephebase-summary-title">https://www.gephebase.org/search-criteria/?and+Presumptive+Null=%Yes%#gephebase-summary-title</a> )	Molecular Type
Coding ( <a href="https://www.gephebase.org/search-criteria/?and+Molecular+Type=%Coding%#gephebase-summary-title">https://www.gephebase.org/search-criteria/?and+Molecular+Type=%Coding%#gephebase-summary-title</a> )	Aberration Type
Deletion ( <a href="https://www.gephebase.org/search-criteria/?and+Aberration+Type=%Deletion%#gephebase-summary-title">https://www.gephebase.org/search-criteria/?and+Aberration+Type=%Deletion%#gephebase-summary-title</a> )	Deletion Size
100-999 bp	Molecular Details of the Mutation
383bp deletion introducing premature stop codon	Experimental Evidence
Linkage Mapping ( <a href="https://www.gephebase.org/search-criteria/?and+Experimental+Evidence=%Linkage+Mapping%#gephebase-summary-title">https://www.gephebase.org/search-criteria/?and+Experimental+Evidence=%Linkage+Mapping%#gephebase-summary-title</a> )	Main Reference
Green revolution: a mutant gibberellin-synthesis gene in rice. (2002) ( <a href="https://pubmed.ncbi.nlm.nih.gov/11961544">https://pubmed.ncbi.nlm.nih.gov/11961544</a> )	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 <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.	Additional References
Cytokinin oxidase regulates rice grain production. (2005) ( <a href="https://pubmed.ncbi.nlm.nih.gov/15976269">https://pubmed.ncbi.nlm.nih.gov/15976269</a> )	
Positional cloning of rice semidwarfing gene, <i>sd1</i> : rice "green revolution gene" encodes a mutant enzyme involved in gibberellin synthesis. (2002) ( <a href="https://pubmed.ncbi.nlm.nih.gov/11939564">https://pubmed.ncbi.nlm.nih.gov/11939564</a> )	
Semidwarf ( <i>sd-1</i> ), "green revolution" rice, contains a defective gibberellin 20-oxidase gene. (2002) ( <a href="https://pubmed.ncbi.nlm.nih.gov/12077303">https://pubmed.ncbi.nlm.nih.gov/12077303</a> )	

## RELATED GEPHE

No matches found.	Related Genes
	Related Haplotypes
4 ( <a href="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=%Sd1+(=GA20ox-2)%/and+Taxon+ID=%4530%/or+Gene+Gephebase=%Sd1+(=GA20ox-2)%/and+Taxon+ID=%4530%#gephebase-summary-title</a> )	

## EXTERNAL LINKS

## COMMENTS