

GEPHE SUMMARY

GS5 (https://www.gephebase.org/search-criteria?/and+GeneGephebase=~GS5~#gephebase-summary-title)	Gephebase Gene	GP00000418	GepheID
	Entry Status	Martin	Main curator
	Published		

PHENOTYPIC CHANGE

		Trait Category	
Morphology (https://www.gephebase.org/search-criteria?/and+TraitCategory=~Morphology~#gephebase-summary-title)		Trait	
Grain size (https://www.gephebase.org/search-criteria?/and+Trait=~Grain size~#gephebase-summary-title)		Trait State in Taxon A	
Oryza sativa L. ssp. indica - Zhenshan 97		Trait State in Taxon B	
Oryza sativa L. ssp. indica - H94		Ancestral State	
Data not curated		Taxonomic Status	
Domesticated (https://www.gephebase.org/search-criteria?/and+TaxonomicStatus=~Domesticated~#gephebase-summary-title)			
Taxon A		Taxon B	
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)	
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?	
Yes		Yes	
Taxon A Description		Taxon B Description	
Oryza sativa L. ssp. indica - Zhenshan 97		Oryza sativa L. ssp. indica - H94	

GENOTYPIC CHANGE

		Generic Gene Name	
GS5		UniProtKB Oryza sativa subsp. indica B8AYD6 (http://www.uniprot.org/uniprot/B8AYD6)	
		Synonyms	
OsL18545		GenebankID or UniProtKB AEO37083 (https://www.ncbi.nlm.nih.gov/nuccore/AEO37083)	
		String	
39946.BGIOSGA018771-PA (http://string-db.org/newstring.cgi/show_network_section.pl?identifier=39946.BGIOSGA018771-PA)			
		Sequence Similarities	
Belongs to the peptidase S10 family.			
		GO - Molecular Function	
GO:0004185 : serine-type carboxypeptidase activity (https://www.ebi.ac.uk/QuickGO/term/GO:0004185)			
		GO - Biological Process	
-			
		GO - Cellular Component	

-	Presumptive Null
No (https://www.gephebase.org/search-criteria?/and+Presumptive Null=^No^#gephebase-summary-title)	
Cis-regulatory (https://www.gephebase.org/search-criteria?/and+Molecular Type=^Cis-regulatory^#gephebase-summary-title)	Molecular Type
Unknown (https://www.gephebase.org/search-criteria?/and+Aberration Type=^Unknown^#gephebase-summary-title)	Aberration Type
Promoter variation	Molecular Details of the Mutation
Linkage Mapping (https://www.gephebase.org/search-criteria?/and+Experimental Evidence=^Linkage Mapping^#gephebase-summary-title)	Experimental Evidence
Natural variation in GS5 plays an important role in regulating grain size and yield in rice. (2011) (https://pubmed.ncbi.nlm.nih.gov/22019783)	Main Reference
Li Y; Fan C; Xing Y; Jiang Y; Luo L; Sun L; Shao D; Xu C; Li X; Xiao J; He Y; Zhang Q	Authors
Increasing crop yield is one of the most important goals of plant science research. Grain size is a major determinant of grain yield in cereals and is a target trait for both domestication and artificial breeding(1). We showed that the quantitative trait locus (QTL) GS5 in rice controls grain size by regulating grain width, filling and weight. GS5 encodes a putative serine carboxypeptidase and functions as a positive regulator of grain size, such that higher expression of GS5 is correlated with larger grain size. Sequencing of the promoter region in 51 rice accessions from a wide geographic range identified three haplotypes that seem to be associated with grain width. The results suggest that natural variation in GS5 contributes to grain size diversity in rice and may be useful in improving yield in rice and, potentially, other crops(2).	Abstract
	Additional References

RELATED GEPHE

9 (GL3.1, GS3, GW2, OsPPKL1/qGL3, qSW5, OsSPL13, GL7, Os07g0603400, OsSPL16) (https://www.gephebase.org/search-criteria?/or+Taxon ID=^4530^/and+Trait=Grain size/and+groupHaplotypes=true#gephebase-summary-title)	Related Genes
No matches found.	Related Haplotypes

EXTERNAL LINKS

COMMENTS