

GEPHE SUMMARY

<p>GS5 (https://www.gephebase.org/search-criteria?/and+Gene+Gephebase+GS5+gephebase-summary-title)</p> <p>Published</p>	<p>Gephebase Gene</p> <p>Entry Status</p>	<p>GP00000418</p> <p>Martin</p>	<p>GepheID</p> <p>Main curator</p>
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PHENOTYPIC CHANGE

<p>Morphology (https://www.gephebase.org/search-criteria?/and+Trait+Category+Morphology+gephebase-summary-title)</p> <p>Grain size (https://www.gephebase.org/search-criteria?/and+Trait+Grain+size+gephebase-summary-title)</p> <p>Oryza sativa L. ssp. indica - Zhenshan 97</p> <p>Oryza sativa L. ssp. indica - H94</p> <p>Data not curated</p> <p>Domesticated (https://www.gephebase.org/search-criteria?/and+Taxonomic+Status+Domesticated+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>	<p>Oryza sativa L. ssp. indica - Zhenshan 97</p> <p>Oryza sativa L. ssp. indica - H94</p> <p>Data not curated</p> <p>Domesticated</p>	<p>Taxon A</p> <p>Latin Name</p> <p>Oryza sativa (https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms+Oryza+sativa+gephebase-summary-title)</p> <p>Common Name</p> <p>rice</p> <p>Synonyms</p> <p>rice; red rice; Oryza sativa L.</p> <p>Rank</p> <p>species</p> <p>Lineage</p> <p>cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; Liliopsida; Petrosaviidae; commelinids; Poales; Poaceae; BOP clade; Oryzoideae; Oryzaceae; Oryzinae; Oryza</p> <p>Parent</p> <p>Oryza () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=4527)</p> <p>NCBI Taxonomy ID</p> <p>4530 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=4530)</p> <p>is Taxon A an Intraspecies?</p> <p>Yes</p> <p>Taxon A Description</p> <p>Oryza sativa L. ssp. indica - Zhenshan 97</p>	<p>Taxon B</p> <p>Latin Name</p> <p>Oryza sativa (https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms+Oryza+sativa+gephebase-summary-title)</p> <p>Common Name</p> <p>rice</p> <p>Synonyms</p> <p>rice; red rice; Oryza sativa L.</p> <p>Rank</p> <p>species</p> <p>Lineage</p> <p>cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; Liliopsida; Petrosaviidae; commelinids; Poales; Poaceae; BOP clade; Oryzoideae; Oryzaceae; Oryzinae; Oryza</p> <p>Parent</p> <p>Oryza () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=4527)</p> <p>NCBI Taxonomy ID</p> <p>4530 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=4530)</p> <p>is Taxon B an Intraspecies?</p> <p>Yes</p> <p>Taxon B Description</p> <p>Oryza sativa L. ssp. indica - H94</p>
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GENOTYPIC CHANGE

<p>GS5</p> <p>OsL18545</p> <p>39946.BGIOSGA018771-PA (http://string-db.org/newstring_cgi/show_network_section.pl?identifier=39946.BGIOSGA018771-PA)</p> <p>Belongs to the peptidase S10 family.</p> <p>GO:0004185 : serine-type carboxypeptidase activity (https://www.ebi.ac.uk/QuickGO/term/GO:0004185)</p> <p>-</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</p> <p>B8AYD6 (http://www.uniprot.org/uniprot/B8AYD6)</p> <p>AEO37083 (https://www.ncbi.nlm.nih.gov/nuccore/AEO37083)</p> <p>GenebankID or UniProtKB</p>
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No ([#gephebase-summary-title](https://www.gephebase.org/search-criteria?/and+Presumptive+Null=))

Presumptive Null

Cis-regulatory ([#gephebase-summary-title](https://www.gephebase.org/search-criteria?/and+Molecular+Type=))

Molecular Type

Unknown ([#gephebase-summary-title](https://www.gephebase.org/search-criteria?/and+Aberration+Type=))

Aberration Type

Promoter variation

Molecular Details of the Mutation

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

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](https://www.gephebase.org/search-criteria?/or+Taxon+ID=))

Related Genes

No matches found.

Related Haplotypes

EXTERNAL LINKS

COMMENTS