

GEPHE SUMMARY

	Gephebase Gene	GephelD
PROG1 (https://www.gephebase.org/search-criteria?/and+Gene Gephebase=^PROG1^#gephebase-summary-title)	GP00000925	Main curator
Published	Entry Status	Martin

PHENOTYPIC CHANGE

	Trait Category
Morphology (https://www.gephebase.org/search-criteria?/and+Trait Category=^Morphology^#gephebase-summary-title)	Trait
Plant architecture (https://www.gephebase.org/search-criteria?/and+Trait=^Plant architecture^#gephebase-summary-title)	Trait State in Taxon A
Oryza rufipogon	Trait State in Taxon B
Oryza sativa	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 rufipogon (https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=^Oryza+rufipogon^#gephebase-summary-title)		Oryza sativa (https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=^Oryza+sativa^#gephebase-summary-title)	
-	Common Name		Common Name
red rice; common wild rice; Oryza rufipogon Griff.	Synonyms	rice	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	
	Parent		Parent
Oryza () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 4527)	NCBI Taxonomy ID	Oryza () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 4527)	NCBI Taxonomy ID
4529 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 4529)		4530 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 4530)	
No	is Taxon A an Infraspecies?		is Taxon B an Infraspecies?
	No		

GENOTYPIC CHANGE

PROG1	Generic Gene Name	UniProtKB Oryza sativa subsp. japonica
	Synonyms	GenebankID or UniProtKB
PROG1; Os07g0153600; OsJ_23131; OSJNBb0050B07.12; OSNPB_070153600		ACE06780 (https://www.ncbi.nlm.nih.gov/nuccore/ACE06780)
39947.LOC_Os07g05900.1 (http://string-db.org/newstring_cgi/show_network_section.pl?identifier=39947.LOC_Os07g05900.1)	String	
	Sequence Similarities	
-	GO - Molecular Function	
GO:0003676 : nucleic acid binding (https://www.ebi.ac.uk/QuickGO/term/GO:0003676)		
	GO - Biological Process	
-	GO - Cellular Component	
-		Presumptive Null
Unknown (https://www.gephebase.org/search-criteria?/and+Presumptive+Null=^Unknown^#gephebase-summary-title)		

Molecular Type

Unknown ([https://www.gephebase.org/search-criteria?/and+Molecular Type=%5EUnknown%5E#gephebase-summary-title](https://www.gephebase.org/search-criteria?/and+Molecular%20Type=%5EUnknown%5E#gephebase-summary-title))

Aberration Type

Unknown ([https://www.gephebase.org/search-criteria?/and+Aberration Type=%5EUnknown%5E#gephebase-summary-title](https://www.gephebase.org/search-criteria?/and+Aberration%20Type=%5EUnknown%5E#gephebase-summary-title))

Molecular Details of the Mutation

Various

Experimental Evidence

Candidate Gene ([https://www.gephebase.org/search-criteria?/and+Experimental Evidence=%5ECandidate Gene%5E#gephebase-summary-title](https://www.gephebase.org/search-criteria?/and+Experimental%20Evidence=%5ECandidate%20Gene%5E#gephebase-summary-title))

Main Reference

Control of a key transition from prostrate to erect growth in rice domestication. (2008) (<https://pubmed.ncbi.nlm.nih.gov/18820699>)

Authors

Tan L; Li X; Liu F; Sun X; Li C; Zhu Z; Fu Y; Cai H; Wang X; Xie D; Sun C

Abstract

The transition from the prostrate growth of ancestral wild rice (*O. rufipogon* Griff.) to the erect growth of *Oryza sativa* cultivars was one of the most critical events in rice domestication. This evolutionary step importantly improved plant architecture and increased grain yield. Here we find that prostrate growth of wild rice from Yuanjiang County in China is controlled by a semi-dominant gene, PROG1 (PROSTRATE GROWTH 1), on chromosome 7 that encodes a single Cys(2)-His(2) zinc-finger protein. prog1 variants identified in *O. sativa* disrupt the prog1 function and inactivate prog1 expression, leading to erect growth, greater grain number and higher grain yield in cultivated rice. Sequence comparison shows that 182 varieties of cultivated rice, including 87 indica and 95 japonica cultivars from 17 countries, carry identical mutations in the prog1 coding region that may have become fixed during rice domestication.

Additional References

A map of rice genome variation reveals the origin of cultivated rice. (2012) (<https://pubmed.ncbi.nlm.nih.gov/23034647>)

Genetic control of rice plant architecture under domestication. (2008) (<https://pubmed.ncbi.nlm.nih.gov/18820696>)

RELATED GEPHE

Related Genes

No matches found.

Related Haplotypes

No matches found.

EXTERNAL LINKS

COMMENTS