

GEPHE SUMMARY

Gephebase Gene		GepheID
Rc (<a +rc+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Gene+Gephebase=">https://www.gephebase.org/search-criteria?/and+Gene+Gephebase="+Rc+"#gephebase-summary-title)	GP00000958	
Entry Status		Main curator
Published		

PHENOTYPIC CHANGE

Trait Category			
Morphology (<a +morphology+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Trait+Category=">https://www.gephebase.org/search-criteria?/and+Trait+Category="+Morphology+"#gephebase-summary-title)		Trait	
Coloration (seed) (<a +coloration+(seed)+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Trait=">https://www.gephebase.org/search-criteria?/and+Trait="+Coloration+(seed)+"#gephebase-summary-title)		Trait State in Taxon A	
Oryza glaberrima (Africa; wild strains with red pericarp)		Trait State in Taxon B	
Oryza glaberrima (Africa; domesticated strains with white pericarp)		Ancestral State	
Data not curated		Taxonomic Status	
Domesticated (<a +domesticated+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Taxonomic+Status=">https://www.gephebase.org/search-criteria?/and+Taxonomic+Status="+Domesticated+"#gephebase-summary-title)			
Taxon A		Taxon B	
Oryza glaberrima (<a +oryza+glaberrima+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=">https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms="+Oryza+glaberrima+"#gephebase-summary-title)		Oryza glaberrima (<a +oryza+glaberrima+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=">https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms="+Oryza+glaberrima+"#gephebase-summary-title)	
Common Name		Common Name	
African rice		African rice	
Synonyms		Synonyms	
African rice; Oryza glaberrima Steud.		African rice; Oryza glaberrima Steud.	
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	
4538 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=4538)		4538 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=4538)	
is Taxon A an Intraspecies?		is Taxon B an Intraspecies?	
Yes		Yes	
Taxon A Description		Taxon B Description	
Oryza glaberrima (Africa; wild strains with red pericarp)		Oryza glaberrima (Africa; domesticated strains with white pericarp)	

GENOTYPIC CHANGE

Generic Gene Name		UniProtKB Oryza sativa subsp. japonica
Rc	A7J5U6 (http://www.uniprot.org/uniprot/A7J5U6)	
Synonyms		GenebankID or UniProtKB
-		ADR01106 (https://www.ncbi.nlm.nih.gov/nuccore/ADR01106)
String		
-		
Sequence Similarities		
-		
GO - Molecular Function		
GO:0046983 ; protein dimerization activity (https://www.ebi.ac.uk/QuickGO/term/GO:0046983)		
GO - Biological Process		
-		
GO - Cellular Component		
-		
		Presumptive Null

Yes ([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))

Molecular Type

Coding ([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))

Aberration Type

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

SNP Coding Change

Nonsense

Molecular Details of the Mutation

Premature stop codon in exon 7; Lys>*

Experimental Evidence

Candidate Gene ([https://www.gephebase.org/search-criteria?/and+Experimental Evidence=~Candidate Gene^#gephebase-summary-title](https://www.gephebase.org/search-criteria?/and+Experimental+Evidence=~Candidate+Gene^#gephebase-summary-title))

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

Main Reference

The molecular basis of white pericarps in African domesticated rice: novel mutations at the Rc gene. (2010) (<https://pubmed.ncbi.nlm.nih.gov/21121088>)

Authors

Gross BL; Steffen FT; Olsen KM

Abstract

Repeated phenotypic evolution can occur at both the inter- and intraspecific level and is especially prominent in domesticated plants, where artificial selection has favoured the same traits in many different species and varieties. The question of whether repeated evolution reflects changes at the same or different genes in each lineage can now be addressed using the domestication and improvement genes that have been identified in a variety of crops. Here, we document the genetic basis of nonpigmented ('white') pericarps in domesticated African rice (*Oryza glaberrima*) and compare it with the known genetic basis of the same trait in domesticated Asian rice (*Oryza sativa*). In some cases, white pericarps in African rice are apparently caused by unique mutations at the Rc gene, which also controls pericarp colour variation in Asian rice. In one case, white pericarps appear to reflect changes at a different gene or potentially a cis-regulatory region.

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Additional References

RELATED GEPHE

Related Genes

No matches found.

Related Haplotypes

No matches found.

EXTERNAL LINKS

COMMENTS

@Parallelism