

GEPHE SUMMARY

Rc	Gephebase Gene	GephelD
(#gephebase-summary-title)	GP00000958	Main curator
	Entry Status	Martin
Published		

PHENOTYPIC CHANGE

Morphology (#gephebase-summary-title)	Trait Category
Coloration (seed) (#gephebase-summary-title)	Trait
Oryza glaberrima (Africa; wild strains with red pericarp)	Trait State in Taxon A
Oryza glaberrima (Africa; domesticated strains with white pericarp)	Trait State in Taxon B
Data not curated	Ancestral State
Domesticated (#gephebase-summary-title)	Taxonomic Status

Taxon A	Latin Name	Taxon B	Latin Name
Oryza glaberrima (#gephebase-summary-title))	Oryza glaberrima (#gephebase-summary-title))	African rice	African rice
African rice	Common Name	African rice	Common Name
African rice; Oryza glaberrima Steud.	Synonyms	African rice; Oryza glaberrima Steud.	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	Parent	cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; Liliopsida; Petrosaviidae; commelinids; Poales; Poaceae; BOP clade; Oryzoideae; Oryzeae; Oryzinae; Oryza	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
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)	
Yes	is Taxon A an Infraspecies?	Yes	is Taxon B an Infraspecies?
Oryza glaberrima (Africa; wild strains with red pericarp)	Taxon A Description	Oryza glaberrima (Africa; domesticated strains with white pericarp)	Taxon B Description

GENOTYPIC CHANGE

Rc	Generic Gene Name	UniProtKB Oryza sativa subsp. japonica
-	Synonyms	A7J5U6 (http://www.uniprot.org/uniprot/A7J5U6)
-	String	GenebankID or UniProtKB
-	Sequence Similarities	ADR01106 (https://www.ncbi.nlm.nih.gov/nuccore/ADR01106)
-	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 ([#gephebase-summary-title\)](https://www.gephebase.org/search-criteria?/and+Presumptive+Null=^Yes)

Molecular Type

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

Aberration Type

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

SNP Coding Change

Nonsense

Molecular Details of the Mutation

Premature stop codon in exon 7; Lys>*

Experimental Evidence

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

	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