GEPHE SUMMARY

Gephebase Gene
PROG1

GepheID
GP00000925

Entry Status
Published

Main curator
Martin

PHENOTYPIC CHANGE

Trait Category
Morphology

Trait
Plant architecture

Trait State in Taxon A
Oryza rufipogon

Trait State in Taxon B
Oryza sativa

Ancestral State
Data not curated

Taxonomic Status
Domesticated

Taxon A

Latin Name
Oryza rufipogon

Common Name
-

Synonyms
red rice; common wild rice; Oryza rufipogon Griff.

Rank
species

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
Oryza () - (Rank: genus)

NCBI Taxonomy ID
4529

is Taxon A an Infraspecies?
No

Taxon B

Latin Name
Oryza sativa

Common Name
rice

Synonyms
rice; red rice; Oryza sativa L.

Rank
species

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
Oryza () - (Rank: genus)

NCBI Taxonomy ID
4530

is Taxon B an Infraspecies?
No

GENOTYPIC CHANGE

Generic Gene Name
PROG1

Synonyms
PROG1; Os07g0153600; OsJ_23131; OSJNBb0050B07.12; OSNPB_070153600

String
39947.LOC_Os07g05900.1

Sequence Similarities
-

GO - Molecular Function
GO:0003676 : nucleic acid binding

GO - Biological Process
-

GO - Cellular Component
-

Presumptive Null
Unknown

Molecular Type

UniProtKB Oryza sativa subsp. japonica
Q69NY0

GenebankID or UniProtKB
ACE06780

Unknown

Aberration Type
Unknown

Molecular Details of the Mutation
Various

Experimental Evidence
Candidate Gene

Main Reference
Control of a key transition from prostrate to erect growth in rice domestication. (2008)

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)

Genetic control of rice plant architecture under domestication. (2008)

RELATED GEPHE

Related Genes
No matches found.
Related Haplotypes
No matches found.

COMMENTS