

GEPHE SUMMARY

| | | |
|---|----------------|--------------|
| | Gephebase Gene | GephelD |
| shattering4 - sh4 (https://www.gephebase.org/search-criteria?/and+Gene Gephebase=^shattering4 - sh4^#gephebase-summary-title) | GP00001046 | |
| | Entry Status | Main curator |
| Published | Martin | |

PHENOTYPIC CHANGE

| | Trait Category |
|--|------------------------|
| Physiology (https://www.gephebase.org/search-criteria?/and+Trait Category=^Physiology^#gephebase-summary-title) | Trait |
| Seed shattering (https://www.gephebase.org/search-criteria?/and+Trait=^Seed shattering^#gephebase-summary-title) | Trait State in Taxon A |
| Oryza rufipogon and Oryza nivara | 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 | | Taxon B | |
|---|-----------------------------|---|-----------------------------|
| | Latin Name | | 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? | No | is Taxon B an Infraspecies? |

GENOTYPIC CHANGE

| | | |
|--|-------------------------|--------------------------------------|
| sh4 | Generic Gene Name | UniProtKB Oryza sativa subsp. indica |
| SHA1 | Synonyms | GenebankID or UniProtKB |
| - | String | |
| | Sequence Similarities | |
| - | GO - Molecular Function | |
| - | GO - Biological Process | |
| - | GO - Cellular Component | |
| | | Presumptive Null |
| No (https://www.gephebase.org/search-criteria?/and+Presumptive+Null=^No^#gephebase-summary-title) | | Molecular Type |
| Coding (https://www.gephebase.org/search-criteria?/and+Molecular+Type=^Coding^#gephebase-summary-title) | | |

Aberration Type

[SNP \(https://www.gephebase.org/search-criteria?/and+Aberration Type=%5E%5CSNP%5E%23gephebase-summary-title\)](https://www.gephebase.org/search-criteria?/and+Aberration%20Type=%5E%5CSNP%5E%23gephebase-summary-title)

SNP Coding Change

Nonsynonymous

Molecular Details of the Mutation

Asn -> Lys

Experimental Evidence

[Linkage Mapping \(https://www.gephebase.org/search-criteria?/and+Experimental Evidence=%5ELinkage Mapping%5E%23gephebase-summary-title\)](https://www.gephebase.org/search-criteria?/and+Experimental%20Evidence=%5ELinkage%20Mapping%5E%23gephebase-summary-title)

| | Taxon A | Taxon B | Position |
|------------|---------|---------|----------|
| Codon | - | - | - |
| Amino-acid | - | - | - |

Main Reference

[Rice domestication by reducing shattering. \(2006\) \(https://pubmed.ncbi.nlm.nih.gov/16527928\)](https://pubmed.ncbi.nlm.nih.gov/16527928)

Authors

Li C; Zhou A; Sang T

Abstract

Crop domestication frequently began with the selection of plants that did not naturally shed ripe fruits or seeds. The reduction in grain shattering that led to cereal domestication involved genetic loci of large effect. The molecular basis of this key domestication transition, however, remains unknown. Here we show that human selection of an amino acid substitution in the predicted DNA binding domain encoded by a gene of previously unknown function was primarily responsible for the reduction of grain shattering in rice domestication. The substitution undermined the gene function necessary for the normal development of an abscission layer that controls the separation of a grain from the pedicel.

Additional References

RELATED GEPHE

Related Genes

1 (OsLG1) ([https://www.gephebase.org/search-criteria?/or+Taxon ID=%5E4529%5E%2Fand+Trait=Seed shattering/or+Taxon ID=%5E4530%5E%2Fand+Trait=Seed shattering/and+groupHaplotypes=true#gephebase-summary-title](https://www.gephebase.org/search-criteria?/or+Taxon%20ID=%5E4529%5E%2Fand+Trait=Seed%20shattering/or+Taxon%20ID=%5E4530%5E%2Fand+Trait=Seed%20shattering/and+groupHaplotypes=true%23gephebase-summary-title))

Related Haplotypes

No matches found.

EXTERNAL LINKS

COMMENTS

Verify Orthology