

|                                                                                                                                                                                                                                       | Gephebase Gene       | GepheID      |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|--------------|
| OsCKX2=Gn1a ( <a href="https://www.gephebase.org/search-criteria?/and+Gene+Gephebase=^OsCKX2=Gn1a^#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Gene+Gephebase=^OsCKX2=Gn1a^#gephebase-summary-title</a> ) | GP00000809           | Main curator |
| Published                                                                                                                                                                                                                             | Entry Status: Martin |              |

|                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Morphology ( <a href="https://www.gephebase.org/search-criteria?/and+TraitCategory=~Morphology~#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+TraitCategory=~Morphology~#gephebase-summary-title</a> )                                                               | Trait Category                                                                                                                                                                                                                                                                                 |
| Grain yield ( <a href="https://www.gephebase.org/search-criteria?/and+Trait=~Grainyield~#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Trait=~Grainyield~#gephebase-summary-title</a> )                                                                              | Trait                                                                                                                                                                                                                                                                                          |
| Triticum aestivum - Yanzhan1                                                                                                                                                                                                                                                                   | Trait State in Taxon A                                                                                                                                                                                                                                                                         |
| Triticum aestivum - Neixiang188                                                                                                                                                                                                                                                                | Trait State in Taxon B                                                                                                                                                                                                                                                                         |
| Data not curated                                                                                                                                                                                                                                                                               | Ancestral State                                                                                                                                                                                                                                                                                |
| Domesticated ( <a href="https://www.gephebase.org/search-criteria?/and+TaxonomicStatus=~Domesticated~#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+TaxonomicStatus=~Domesticated~#gephebase-summary-title</a> )                                                     | Taxonomic Status                                                                                                                                                                                                                                                                               |
| Taxon A                                                                                                                                                                                                                                                                                        | Taxon B                                                                                                                                                                                                                                                                                        |
| Triticum aestivum<br>( <a href="https://www.gephebase.org/search-criteria?/and+Taxon+Synonyms=~Triticumaestivum~#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Taxon+Synonyms=~Triticumaestivum~#gephebase-summary-title</a> )                                       | Triticum aestivum<br>( <a href="https://www.gephebase.org/search-criteria?/and+Taxon+Synonyms=~Triticumaestivum~#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Taxon+Synonyms=~Triticumaestivum~#gephebase-summary-title</a> )                                       |
| Common Name                                                                                                                                                                                                                                                                                    | Common Name                                                                                                                                                                                                                                                                                    |
| bread wheat                                                                                                                                                                                                                                                                                    | bread wheat                                                                                                                                                                                                                                                                                    |
| Synonyms                                                                                                                                                                                                                                                                                       | Synonyms                                                                                                                                                                                                                                                                                       |
| Triticum aestivum subsp. aestivum; Triticum vulgare; bread wheat; Canadian hard winter wheat; common wheat; wheat; Triticum aestivum L.; Triticum vulgare L.; Triticum vulgare Vill., nom. illeg.; Tricum aestivum; Triticum aestivam; Triticum aestivum8                                      | Triticum aestivum subsp. aestivum; Triticum vulgare; bread wheat; Canadian hard winter wheat; common wheat; wheat; Triticum aestivum L.; Triticum vulgare L.; Triticum vulgare Vill., nom. illeg.; Tricum aestivum; Triticum aestivam; Triticum aestivum8                                      |
| 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; Pooideae; Triticodae; Triticeae; Triticinae; Triticum | cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; Liliopsida; Petrosaviidae; commelinids; Poales; Poaceae; BOP clade; Pooideae; Triticodae; Triticeae; Triticinae; Triticum |
| Parent                                                                                                                                                                                                                                                                                         | Parent                                                                                                                                                                                                                                                                                         |
| Triticum () - (Rank: genus)<br>( <a href="https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=4564">https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=4564</a> )                                                                                                             | Triticum () - (Rank: genus)<br>( <a href="https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=4564">https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=4564</a> )                                                                                                             |
| NCBI Taxonomy ID                                                                                                                                                                                                                                                                               | NCBI Taxonomy ID                                                                                                                                                                                                                                                                               |
| 4565<br>( <a href="https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=4565">https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=4565</a> )                                                                                                                                    | 4565<br>( <a href="https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=4565">https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=4565</a> )                                                                                                                                    |
| is Taxon A an Intraspecies?                                                                                                                                                                                                                                                                    | is Taxon B an Intraspecies?                                                                                                                                                                                                                                                                    |
| Yes                                                                                                                                                                                                                                                                                            | Yes                                                                                                                                                                                                                                                                                            |
| Taxon A Description                                                                                                                                                                                                                                                                            | Taxon B Description                                                                                                                                                                                                                                                                            |
| Triticum aestivum - Yanzhan1                                                                                                                                                                                                                                                                   | Triticum aestivum - Neixiang188                                                                                                                                                                                                                                                                |

| CKX2                                                                                                                                                                                                                                  | Generic Gene Name       | UniProtKB Oryza sativa subsp. japonica                                                                                 |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                                                                                                       |                         | Q4ADV8 ( <a href="http://www.uniprot.org/uniprot/Q4ADV8">http://www.uniprot.org/uniprot/Q4ADV8</a> )                   |
|                                                                                                                                                                                                                                       | Synonyms                | GenebankID or UniProtKB                                                                                                |
| CKX2; Gn1a; OsCKX2; OsJ_00744; B1046G12.8; Os01g0197700; LOC_Os01g10110; P0419B01.20                                                                                                                                                  |                         | AFM10539 ( <a href="https://www.ncbi.nlm.nih.gov/nuccore/AFM10539">https://www.ncbi.nlm.nih.gov/nuccore/AFM10539</a> ) |
|                                                                                                                                                                                                                                       | String                  |                                                                                                                        |
| 39947.LOC_Os01g10110.1<br>( <a href="http://string-db.org/newstring.cgi/show_network_section.pl?identifier=39947.LOC_Os01g10110.1">http://string-db.org/newstring.cgi/show_network_section.pl?identifier=39947.LOC_Os01g10110.1</a> ) |                         |                                                                                                                        |
|                                                                                                                                                                                                                                       | Sequence Similarities   |                                                                                                                        |
| Belongs to the oxygen-dependent FAD-linked oxidoreductase family.                                                                                                                                                                     |                         |                                                                                                                        |
|                                                                                                                                                                                                                                       | GO - Molecular Function |                                                                                                                        |
| GO:0071949 : FAD binding ( <a href="https://www.ebi.ac.uk/QuickGO/term/GO:0071949">https://www.ebi.ac.uk/QuickGO/term/GO:0071949</a> )                                                                                                |                         |                                                                                                                        |
| GO:0019139 : cytokinin dehydrogenase activity                                                                                                                                                                                         |                         |                                                                                                                        |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                         |                                   |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|-----------------------------------|
| ( <a href="https://www.ebi.ac.uk/QuickGO/term/GO:0019139">https://www.ebi.ac.uk/QuickGO/term/GO:0019139</a> )                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | GO - Biological Process |                                   |
| GO:0009736 : cytokinin-activated signaling pathway<br>( <a href="https://www.ebi.ac.uk/QuickGO/term/GO:0009736">https://www.ebi.ac.uk/QuickGO/term/GO:0009736</a> )                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                         |                                   |
| GO:0010229 : inflorescence development<br>( <a href="https://www.ebi.ac.uk/QuickGO/term/GO:0010229">https://www.ebi.ac.uk/QuickGO/term/GO:0010229</a> )                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                         |                                   |
| GO:0009690 : cytokinin metabolic process<br>( <a href="https://www.ebi.ac.uk/QuickGO/term/GO:0009690">https://www.ebi.ac.uk/QuickGO/term/GO:0009690</a> )                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | GO - Cellular Component |                                   |
| GO:0005615 : extracellular space ( <a href="https://www.ebi.ac.uk/QuickGO/term/GO:0005615">https://www.ebi.ac.uk/QuickGO/term/GO:0005615</a> )                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                         | Presumptive Null                  |
| Unknown ( <a href="https://www.gephebase.org/search-criteria?/and+Presumptive Null=~Unknown~#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Presumptive Null=~Unknown~#gephebase-summary-title</a> )                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                         | Molecular Type                    |
| Cis-regulatory ( <a href="https://www.gephebase.org/search-criteria?/and+Molecular Type=~Cis-regulatory~#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Molecular Type=~Cis-regulatory~#gephebase-summary-title</a> )                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                         | Aberration Type                   |
| Unknown ( <a href="https://www.gephebase.org/search-criteria?/and+Aberration Type=~Unknown~#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Aberration Type=~Unknown~#gephebase-summary-title</a> )                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                         | Molecular Details of the Mutation |
| unknown                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                         | Experimental Evidence             |
| Linkage Mapping ( <a href="https://www.gephebase.org/search-criteria?/and+Experimental Evidence=~Linkage Mapping~#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Experimental Evidence=~Linkage Mapping~#gephebase-summary-title</a> )                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                         | Main Reference                    |
| TaCKX6-D1, the ortholog of rice OsCKX2, is associated with grain weight in hexaploid wheat. (2012) ( <a href="https://pubmed.ncbi.nlm.nih.gov/22670578">https://pubmed.ncbi.nlm.nih.gov/22670578</a> )                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                         | Authors                           |
| Zhang L; Zhao YL; Gao LF; Zhao GY; Zhou RH; Zhang BS; Jia JZ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                         | Abstract                          |
| <p>The cytokinin oxidase/dehydrogenase (CKX) gene plays a principal role in controlling cytokinin levels and has been shown to be a major quantitative trait locus (QTL) affecting grain number in rice. However, the function and evaluation of the haplotypes of the wheat CKX gene have yet to be illustrated. In this study, TaCKX6-D1, a wheat ortholog of rice OsCKX2, was cloned and its haplotype variants were determined to be significantly associated with the 1000-grain weight on the basis of linkage mapping, association analysis and gene expression analysis. Five TaCKX6-D1 haplotypes, designated a-e, were identified. An indel marker was developed to identify haplotype a, which was associated with higher grain weight. Haplotype a showed decreased expression relative to haplotype b in seeds at 8 d after pollination. Sequence variations among modern cultivars, landraces and wild species suggest a significant domestication signature at the TaCKX6-D1 locus in Chinese wheat germplasm. TaCKX6-D1 may serve as a useful gene for the breeding of high-yielding wheat. A strategy for allele mining and utilization of TaCKX6-D1 was proposed. Our study also sheds light on the mechanisms of grain development and domestication of wheat, as well as the functional divergence of orthologs in comparative genomics.</p> |                         |                                   |
| <p>Â© 2012 Institute of Crop Sciences. CAAS New Phytologist Â© 2012 New Phytologist Trust.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                         |                                   |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                         | Additional References             |

RELATED GEPHE

|                   |                    |
|-------------------|--------------------|
| No matches found. | Related Genes      |
| No matches found. | Related Haplotypes |

EXTERNAL LINKS

COMMENTS