

Supplementary Figures and Tables

Genome-wide survey indicates diverse physiological roles of the barley (*Hordeum vulgare* L.) calcium-dependent protein kinase genes

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Fig. S1 Isolation of HvCDPKs from the low-confidence genes of barley. Nucleotide and deduced protein sequences of *MLOC_58648a* (GenBank accession: KY008232) (a), (b) *MLOC_19618a* (GenBank accession: KY008233), (c) *MLOC_71733a* (GenBank accession: KY008234), (d) *AK249361a* (GenBank accession: KY008235) and (e) *MLOC_4965a* (GenBank accession: KY008236).



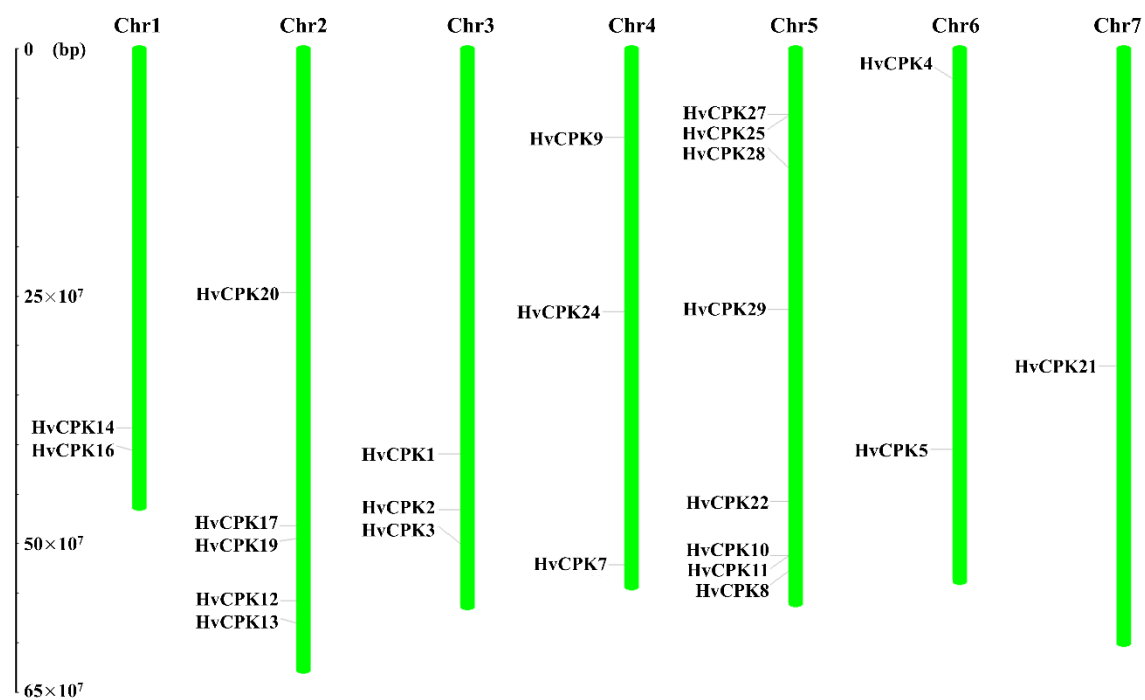
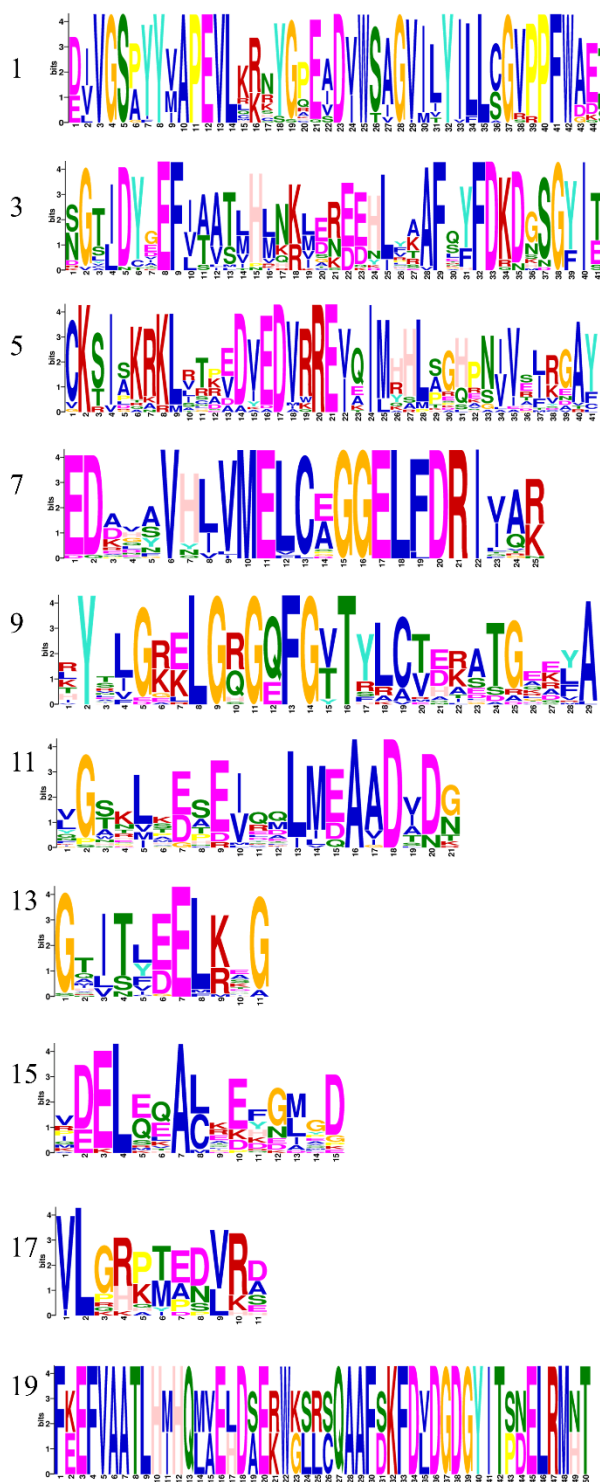


Fig. S3 Chromosomal locations of HvCDPKgenes in barley.

Motif



Motif

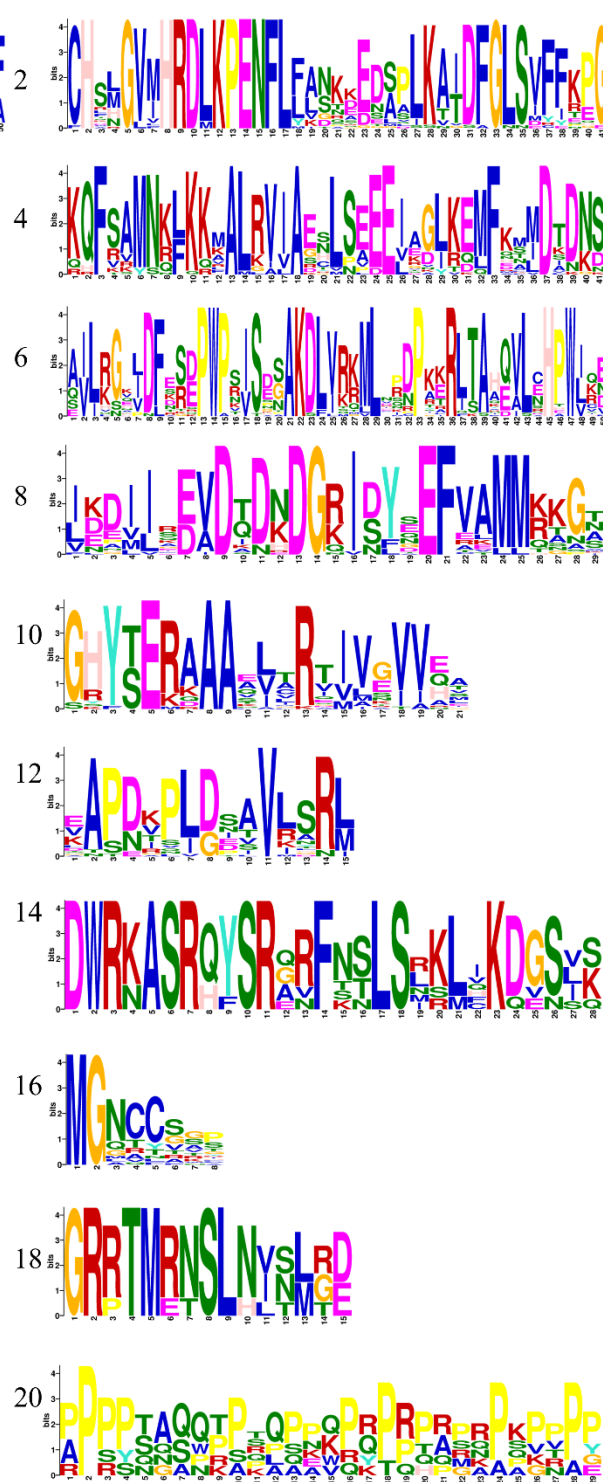


Fig. S4 Sequence logos for the 20 CDPK-associated motifs.

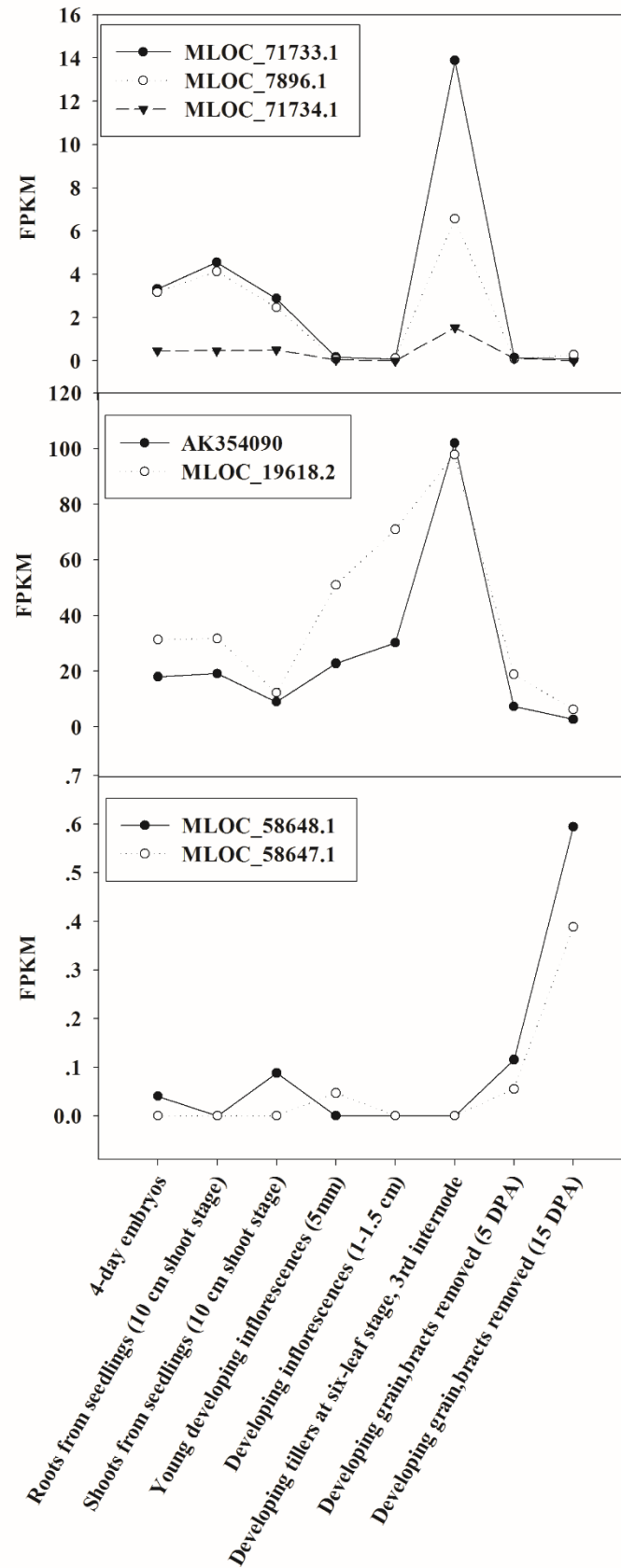


Fig. S5 Transcript levels of *MLOC_58648a(a)*, *MLOC_19618a(b)*, *MLOC_71733a(c)*, *AK249361a (d)* and *MLOC_4965a(e)* with their EST sequences in different barley tissues and developmental stages.

Table S1. Primers used for full-length gene cloning.

Gene name	Locus ID	Forward primer for qRT-PCR (5'-3')	Reverse primer for qRT-PCR (5'-3')
HvCDPK16	MLOC_19618.2	ATGGACCGGGCTCCAAGGAGCT	TCACTCGTTTCCCATCTTTACAG
HvCDPK9	MLOC_71733.1	ATGGGCAACGCGTGCTTCTCCTGCT	TCAGCGCGCCATGGAGATGGAG
HvCDPK7	AK249361.1	ATGGGTAATCAGAATGGGACC	TTAATGTACTTGAGCTGCATCTC
HvCDPK27	MLOC_58648.1	ATGGGCAACGTCTGCGTCGGC	TTAGCTATTTGACTTTATGTTCAAG
HvCDPK26	MLOC_4965.2	ATGGGCCAAAGGTGCTCCAAGG	CTATAGAACTAGATCTCTCCTCTTC

Table S2. Primers used for qPCR analysis.

Gene name	Locus ID	Forward primer for qRT-PCR (5'-3')	Reverse primer for qRT-PCR (5'-3')
HvCDPK1	MLOC_12765.1	GGCTGATGTTGATGGAAA	CTCCTGGTAGTTGATTCTTC
HvCDPK2	MLOC_54510.1	GGCTACATTTCGAAGGAG	GACTTCCGATACGATTTC
HvCDPK3	AK371805	AGTTGACACCGATAAGGA	TGCTAAGGCTGTTGAATC
HvCDPK4	AK372866	CAACTCTCCACATACATCAG	GTATCCATCACCATCCAAAT
HvCDPK5	AK364859	TAGAGCGAGAGGAACATC	ATAATCAATGCGACCATCAT
HvCDPK6	MLOC_6934.1	GATCGACGACATCATCAG	TTCTTCATCATCGCAACAA
HvCDPK7	AK249361.1	AAGATGGCAGTGGCTATA	CTCTCAAGGTCACATTCAG
HvCDPK8	AK360154	TCTTCAGATGTTGATGGATG	TTATCTTCCCGTCCTTGT
HvCDPK9	MLOC_71733.1	TTCAAGAAGAAGGCGATG	CATGAAGGCGAACATCTC
HvCDPK10	MLOC_55774.3	GTACTTCGACAAGGACGGCA	TCGTTGTAGTCTATGCGCCC
HvCDPK11	MLOC_6391.1	CAGTGGTTACATTACTCAAGA	TTCCATCATTGTCCTTATCG
HvCDPK12	AK365481	ATTAGTGAGGCAGAGGTT	CATCATAGCAGTCAGGAATT
HvCDPK13	AK358395	CTATGGATGCCGATAACAG	CATAAGATCACGAATCTCAGTA
HvCDPK14	MLOC_76003.1	ACTACGACGAGTTCATCA	GTCCATCAACCCTTTCTC
HvCDPK15	AK363357	AGAGAAGGAAGACCACATAT	TGTATCCACTTCAGCAATG
HvCDPK16	MLOC_19618.2	GGTAGAGGAGCACTAGATTA	AATATGTCCTTCACCACTTC
HvCDPK17	AK373165	ATGGCAGTGGTTACATTAC	TCGGATAATATCGTCAAGATG
HvCDPK18	AK363630	TTGATGTTGACGGTGATG	AATATCAGCCTCCTCCAG
HvCDPK19	MLOC_79572.1	TGGCTTCATCACTAGAGAT	TCCTCGTAGTTAATCCTCC
HvCDPK20	AK365058	TTGTTACTCTGTCTGTTTAC	GCTTATCTTGCCATCCTTAT
HvCDPK21	AK374710	GAAGATGACCAACGACAA	TGAGGGTGTGAAGTTTG
HvCDPK22	AK376018	AGTCAGAGATACAGATGCT	CAGGTAGGTACTCCTCATTA
HvCDPK24	AK373462	CAGCGGAACGATTGATTA	ATCCACTTCCATCCTTGT
HvCDPK25	MLOC_72770.1	GAGCAAGCCTTACAAGAG	GCCACGAACCTGAATAG
HvCDPK26	MLOC_4965.2	GATTGATTGACTACGAGGAG	GAAGTGAATGCTGTGTAT
HvCDPK27	MLOC_58648.1	CAATGATGGACGCATAGAT	CCGACACTAAGGTTATACTG
HvCDPK28	MLOC_59921.1	CGGCTGATATTGACAACA	TCCCTCTCCAGTTTATTCA
HvCDPK29	MLOC_21560.3	AGTCGCAAGATGTTCAAG	CATCCCTTTGTCCTTTCC
Ubiquitin	GI:167075	TCTCGCCGACTACAACATCC	TTGTAGAACTGGAGGACGGC

Table S3. Primers used for *in situ* hybridization analysis.

Gene name	Locus ID	Forward primer for qRT-PCR (5'-3')	Reverse primer for qRT-PCR (5'-3')
HvCDPK1	MLOC_12765.1	ACACGGGGAGCAGTTTAAGG	TTTCCATCAACATCAGCCGC
HvCDPK16	MLOC_19618.2	CCTGGCCCCATGTTTCTGAT	CTCGAATAATGCCGCGAAGC
HvCDPK9	MLOC_71733.1	GAGCGGTTCACTGAGATCGT	CTCGGCATAGTCGAGGTAGC
HvCDPK10	NF	ATTCACCGACGTTGTCGGAA	TGTCGAAGTACTGGAACGCC