Overexpression of *AtCSP4* affects late stages of embryo development in Arabidopsis

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Supplementary Table 1. Primer list for AtCSP4 transcript detection and amplicon length of PCR product with the R1 primer

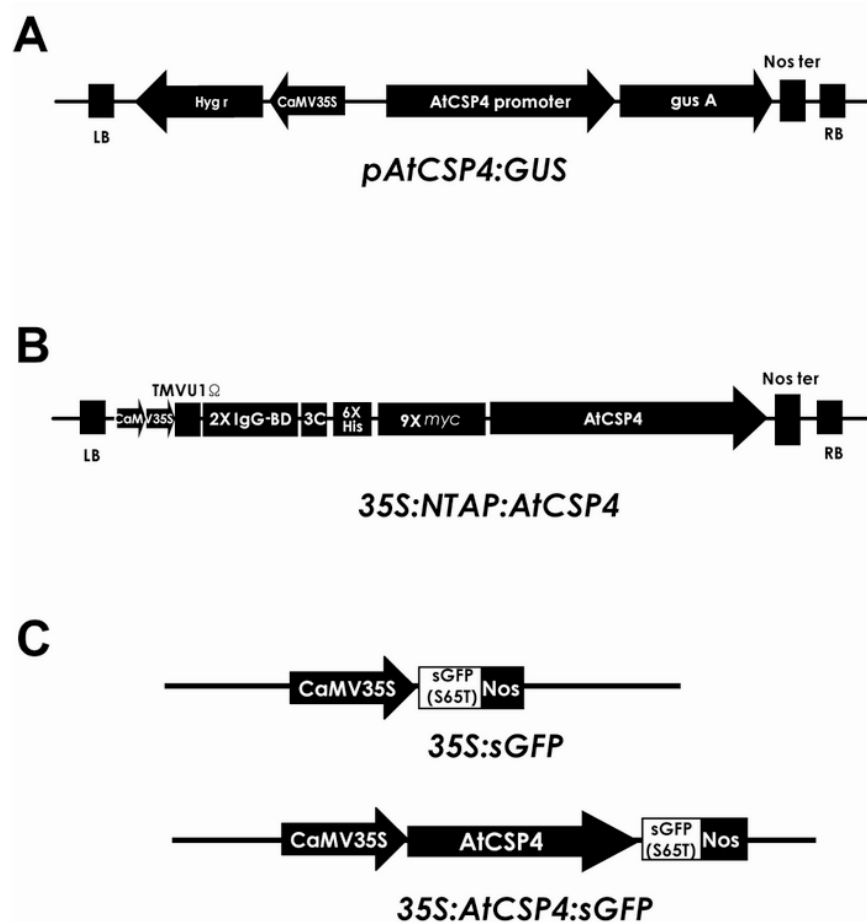| Primer name	Sequence (5'-3')	Amplicon length (b.p.)
F1	CACCATGAGCGGAGGAGGAGAC	777
R1	TTTCTCAAATCACAAGGAACCA	777

Supplementary Table 2. Primer list for semi-quantitative RT-PCR analysis

Primer Name	Forward Sequence (5'-3')	Reverse Sequence (5'-3')
AAC1	CGGCGATTCCAGGGAACATTGTGG	GTGCTCGACTCTGGAGATGGTGTG
AP1	CTTACGCCGAAAGACAGCTT	ACTGCTCCTGTTGAGCCCTA
CAL	TAGCAGGCTTAAGGCCAAGA	GTTGTGGCTGTGGTACATCG
AG	AGGCAATTGATGGGTGAGAC	CTAACTGGAGAGCGGTTTGG
FUL	GGGGGAAGATCTTGATTCGT	AGTTTGGTTCCGTCAACGAC
SHP2	CGACGCAATGGTTTACTCAA	CGGACACGACTGATTCCTTT
FUS3	GTGGCAAGTGTTGATCATGG	CGTGAAAACCGTCCAAATCT
LEC1	TTGAACTTGGACCAGCACAG	AAGCTTGCTCATAGCCCAAA
MEA	TTGCTGCTAATCGTGAATGC	TCATCAACTTGGCGTAGCAG
FIS2	GCTTGATTCCATGTGGAGGT	CTGTGCCACGAGGTAAGTCA
FIE	TTGTGGGTCATGGAGATTCA	TGTGGGGAATTTTGATGGAT

Supplementary Table 3. List of context sequence and amplicon lengths for Taq-Man probes

Primer name	Sequence (5'-3')	Amplicon length (b.p.)
Actin 2 NM_180280.1	CTGGATCGGTGGTTCCATTCTTGCT	85
AtCSP4 NM_127676.2	TAATTAGGACTTGTGGTTGTTATGG	142

Supplementary Figure 1. Secondary protein structure of AtCSP4 and redundancy with AtCSP2

(A) Predicted domain architecture of the AtCSP4 protein. Amino acid sequence and secondary structures were predicted with the AtCSP4 ORF from the Columbia ecotype by using the PROF web based software. (B) Amino acid alignment between predicted amino acid sequences of AtCSP4 and AtCSP2. Predicted amino acid sequences of both proteins were aligned by the Clustal W software. Identical sequences are marked with a star (*) and conserved amino acids are denoted by a dot (·). (C) Semi-quantitative RT-PCR for comparison of *AtCSP2* gene expression in T-DNA insertion or overexpressed *AtCSP4* transgenics. Arabidopsis Actin 1 (AAC1) was used as an internal standard.

Supplementary Figure 2. Schematic representation for AtCSP4 gene functional analysis

(A) pAtCSP4:GUS expression in transgenic Arabidopsis. A -2 kb promoter region of AtCSP4 was inserted into the pCAMBIA1303 binary vector (pAtCSP4:GUS). (B) Gene construct of *35S:NTAP:AtCSP4*. (C) Gene construct of *sGFP* and *AtCSP4:sGFP* vectors. The coding region of *AtCSP4* was cloned into the sGFP(S65T) vector for transient expression via a particle bombardment system into onion epidermal peels.