

## Supplementary Material

### **Light regulates hydrogen sulfide signalling during skoto- and photo-morphogenesis in foxtail millet**

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**a**

AtLCD ...MEAGERRNGDSMHNHRAPKPKRLAGLLTESIDSEFAHHTGVARHNGSFGCCP  
 FMLCD1 MRLRVGGCAAPAGHGNGGSPAKRPRAVISAARAEFAHHDAAVARHNGSFGCCP

AtLCD GSVLSAGREWQLRYLQPDFAFYENGLRRLASRIVISDLINADVLESLVDNATTAAG  
 FMLCD1 ASVLSAAGRWQLRFLQPDFAFYENGLRRLASRAAAGAVAGAGVSEVSLVDNATTAAG

AtLCD IVLQKVGRCSEKYYKKEHVMWHLDFQSVKKSICAYVSRMGSSIVEVLPFPVVADEE  
 FMLCD1 IVLQHAASVDFEGHFARGDAVWHLDFHNYGAVKKSICAYVSRMGATVVEVLPFPVVAADA

AtLCD ILSKFRDFEKGRANCRVRLAIDHITSMPLAVVVELVLCREEGVQKVFDAAHAI  
 FMLCD1 ILSKFRDFEVAKEGGRVRLAIDHITSMPLAVVVELVLCREEGVQKVFDAAHAI

AtLCD SSVVDVKEIGADYVSNLHKWFCCPPIAFYCKRGESESDVHHPPVVSHEGNGLPIE  
 FMLCD1 SSVVDVKEIGADYVSNLHKWFCCPPIAFVAFVHTKDDPIASQHHPPVVSHEGNGLPIE

AtLCD SSWICTRDYSQLVVSVVMEFVNRFEQEGEGIMNHDEAVRNGMLAAMGTGLGSPPE  
 FMLCD1 SSWICTRDYSQLVVSEAITFVNRFEQEGEGIRINHEKVIEMGMLAAMGTGLGSPPE

AtLCD MCVGMVHGLDSDKLVSDDAIKLRSMVHYHYSVEVPLVGLRDGEEGVKRDSDGLI  
 FMLCD1 ICGSMVHGLDSDKLVSDDAIKLRSMVHYHYSVEVPLVGLRDGEEGVKRDSDGLI

AtLCD VVYVRISSHVVVREDEYERLRDAITVYKDMITQNPAL  
 FMLCD1 VVYVRISSHVVVREDEYERLRDAITVYKDMITQNPAL

**b**

AtLCD MEAGERNGDSMHNHRAPKPKRLAGLLTESIDSEFAHHTGVARHNGSFGCCP  
 FMLCD2 .MASTHIGDTPENGDAAGPAKHFRAPITAEIICAEFAHHDAAVARHNGSFGCCP

AtLCD ASVLSAAGRWQLRFLQPDFAFYENGLRRLASRIVISDLINADVLESLVDNATTAAG  
 FMLCD2 AASRSRQRLFLQPDFAFYENGLRRLASRAAAGAVAGAGVSEVSLVDNATTAAG

AtLCD IVLQKVGRCSEKYYKKEHVMWHLDFQSVKKSICAYVSRMGSSIVEVLPFPVVADEE  
 FMLCD2 IIVASVDFEGHFARGDAVWHLDFHNYGAVKKSICAYVSRMGATVVEVLPFPVVAE

AtLCD ILSKFRDFEKGRANCRVRLAIDHITSMPLAVVVELVLCREEGVQKVFDAAHAI  
 FMLCD2 ILSKFRDFEVAKEGGRVRLAIDHITSMPLAVVVELVLCREEGVQKVFDAAHAI

AtLCD SSVVDVKEIGADYVSNLHKWFCCPPIAFYCKRGESESDVHHPPVVSHEGNGLPIE  
 FMLCD2 ILSKFRDFEVAKEGGRVRLAIDHITSMPLAVVVELVLCREEGVQKVFDAAHAI

AtLCD SSWICTRDYSQLVVSVVMEFVNRFEQEGEGIMNHDEAVRNGMLAAMGTGLGSPPE  
 FMLCD2 SSWICTRDYSQLVVSEAITFVNRFEQEGEGIRINHEKVIEMGMLAAMGTGLGSPPE

AtLCD MCVGMVHGLDSDKLVSDDAIKLRSMVHYHYSVEVPLVGLRDGEEGVKRDSDGLI  
 FMLCD2 MCVGMVHGLDSDKLVSDDAIKLRSMVHYHYSVEVPLVGLRDGEEGVKRDSDGLI

AtLCD VVYVRISSHVVVREDEYERLRDAITVYKDMITQNPAL  
 FMLCD2 VVYVRISSHVVVREDEYERLRDAITVYKDMITQNPAL

**c**

FMLCD1 MRLRVGGCAAPAGHGNGGSPAKRPRAVISAARAEFAHHDAAVARHNGSFGCCP  
 FMLCD2 .MASTHIGDTPENGDAAGPAKHFRAPITAEIICAEFAHHDAAVARHNGSFGCCP

FMLCD1 PASVLSAAGRWQLRFLQPDFAFYENGLRRLASRAAAGAVAGAGVSEVSLVDNATTAAG  
 FMLCD2 PASVLSAAGRWQLRFLQPDFAFYENGLRRLASRAAAGAVAGAGVSEVSLVDNATTAAG

FMLCD1 IVLQKVGRCSEKYYKKEHVMWHLDFQSVKKSICAYVSRMGSSIVEVLPFPVVADEE  
 FMLCD2 IVLQKVGRCSEKYYKKEHVMWHLDFQSVKKSICAYVSRMGSSIVEVLPFPVVADEE

FMLCD1 ILSKFRDFEKGRANCRVRLAIDHITSMPLAVVVELVLCREEGVQKVFDAAHAI  
 FMLCD2 ILSKFRDFEVAKEGGRVRLAIDHITSMPLAVVVELVLCREEGVQKVFDAAHAI

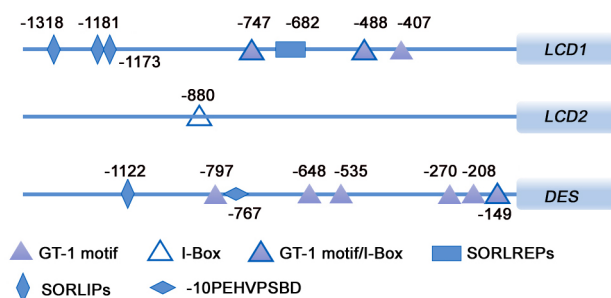
FMLCD1 IGOVVDVKEIGADYVSNLHKWFCCPPIAFVAFVHTKDDPIASQHHPPVVSHEGNGLPIE  
 FMLCD2 IGOVVDVKEIGADYVSNLHKWFCCPPIAFVAFVHTKDDPIASQHHPPVVSHEGNGLPIE

FMLCD1 SSWICTRDYSQLVVSVVMEFVNRFEQEGEGIMNHDEAVRNGMLAAMGTGLGSPPE  
 FMLCD2 SSWICTRDYSQLVVSEAITFVNRFEQEGEGIRINHEKVIEMGMLAAMGTGLGSPPE

FMLCD1 MCVGMVHGLDSDKLVSDDAIKLRSMVHYHYSVEVPLVGLRDGEEGVKRDSDGLI  
 FMLCD2 MCVGMVHGLDSDKLVSDDAIKLRSMVHYHYSVEVPLVGLRDGEEGVKRDSDGLI

FMLCD1 VVYVRISSHVVVREDEYERLRDAITVYKDMITQNPAL  
 FMLCD2 VVYVRISSHVVVREDEYERLRDAITVYKDMITQNPAL

**Fig. S1.** Sequence alignment between AtLCD, FMLCD1, and FMLCD2. (a, b): comparison of presumed amino acid sequences of FMLCD1 and FMLCD2 with AtLCD. (c) Comparison of presumed amino acid sequences of FMLCD1 with FMLCD2. Identical amino acids have a black background and unmatched amino acids have a white background.



**Fig. S2.** Photoresponsive cis-acting elements analysis of promoters of *LCD1*, *LCD2*, and *DES*. Promoter sequences of *LCD1* and *LCD2* and *DES* were analysed in SOGO promoter analysis (<https://sogo.dna.affrc.go.jp/cgi-bin/sogo.cgi>). A few light responsive cis-acting elements were found, such as GT-1 motif, I-Box, SORLREPs (sequences over-represented in light-repressed promoters), SORLIPs (sequences over-represented in light-induced promoters), and -10PEHVPSBD (“-10 promoter element” found in the barley (*H.v.*) chloroplast *psbD* gene promoter).

**Table S1. Primers used for qRT-PCR analysis**

Primers used for qRT-PCR analysis	
Name	Sequence (5'-3')
<i>ACTIN</i> -qPCR-F	GGTATGGAGTCGCCTGGAATCC
<i>ACTIN</i> -qPCR-R	GCGGTCAGCAATACCAGGGAAC
<i>LCD1</i> -qPCR-F	TTCACCACCCTGTTGTCTCG
<i>LCD1</i> -qPCR-R	CAGCAAGCATCCTACCCATC
<i>LCD2</i> -qPCR-F	GCCTGGTTGCCTTGGTATT
<i>LCD2</i> -qPCR-R	GTCACTTGATCGCCATTCG
<i>DES</i> -qPCR-F	GGTGCTGAACTTGTCTTAC
<i>DES</i> -qPCR-R	ACCTTCCCCTTTGAATCCTC