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Supplementary Material

Expression characterisation of cyclophilin *BrROCI* during light treatment and abiotic stresses response in *Brassica rapa* subsp. *rapa* ‘Tsuda’

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BrROC1-1 (KJ173686)

1 GAAATTATCAAACAGGGCCTTTTAGCTCTTTCATAAAAAATCGCCCTTATGCGTTCCCAAAGGTGTTCTTCGACATAAACATCAACGGCCAG
M A F P K V F F D I N I N G Q 15

93 GCAGCGGAAGGATCGTGATGGAGTTGTATACGGATAAGACGCCGAAGACGGCTGAGAATTCAGAGCTCTGTGCACTGGAGAGAAGGGAGTG
A A G R I V M E L Y T D K T P K T A E N F R A L C T G E K G V 46

186 GGGCGTAAGGAAAGCCCTCCACTTCAAGGGATCTTCCTCCACCGAGTGATCCCCAGTTTCATGTGCCAGGGAGGTGATTTACCGCGGGA
G R K G K P L H F K G S S F H R V I P S E M C Q G G D F T A G 77

279 AACGGGACAGGAGGTGAGTCCATCTACGGTGATAAGTTCGAGGACGAGAAGTTGAGAGGAAGCACAGGGTCTGGCAACCTTCCATGGCG
N G T G G E S I Y G D K F E D E N F E R K H T G P G N L S M A 108

372 AACGCCGAGCCAACCCAACGGATCTCAGTTCTTCATCTGCACCGTAAAAACCGATTGGCTTGACGGTAAGCACGTGGTGTTCGGGCAGGTG
N A G A N T N G S Q F F I C T V K T D W L D G K H V V F G Q V 139

465 GTGGAAGGGTTAGACGTGGTGAAGGCGATCGAGAAGTTGGGATCGTCTGAAAAGCCGTCGAAGCCGGTGGTTATCGCCGATTGTGGACAG
V E G L D V V K A I E K L G S S S G K P S K P V V I A D C G Q 170

558 CTCTCTTAGATAGATCTCTCTCATCTATCCTCATTTTAAATTATAGCGTCAGCGTCTTGCTATATATGTTATGTATGTTGGTGTCTCGT
L S 172

651 TTGTATGTGTAGTCATAAGCTTGGTGTGTCTCATGGCAGTCTTTGGATTGCCAGAGAGAACTCGTCACCCTAATTACCTACTACCATA

744 AATAAATATTGAACATCTTGCAGTAAAAAAAAAAAAAAAAAAAA

BrROC1-2(KJ173687)

1 GGCCTTATCCAACACCATTCTCTCAAAGCTCTCTCATACCAATCAAAACGATGCGTTCCTAAAAGTTTCTTCGACATGACCGTTGACGGC
M A F P K V F F D M T V D G 14

93 AAGCCCGCGGAAGGATCGTGATGGAGCTGTACACCGACAAGACTCCCAAGACTGCCGAGAATTCAGAGCTCTCTGCACGGGTGAGAAGGGT
K P A G R I V M E L Y T D K T P K T A E N F R A L C T G E K G 45

186 GTCGGAAGCAAAGGCAAGCCTCTCACTTCAAGGGATCTTCTCCACCGTGTGATCCCTAACTTCATGTGCCAGGGAGGCGATTTCACGGCC
V G S K G K P L H F K G S S F H R V I P N F M C Q G G D F T A 76

279 GGGAACGGGACGGGAGGCGAGTCCATCTACGGTGAGAAGTTCGCTGACGAGAATTCGAGAGGAAGCACACCGGTCCTGGGATCCTCTCTATG
G N G T G G E S I Y G E K F A D E N F E R K H T G P G I L S M 107

372 GCCAACGCTGGTCCAACACCAACGGGTCTCAGTTCTTATCTGCACGTAAAGACCGATTGGCTTGATGGCAAGCACGTGGTGTTCGGACAG
A N A G P N T N G S Q F F I C T V K T D W L D G K H V V F G Q 138

465 GTGGTGAAGGGTTGGACGTGGTGAAGGCGATTGAGAAGGTGGGGTCGGCTTCTGAAAAGCCGTCGAAGCCGGTGGTGTGGCTGACTGTGGT
V V E G L D V V K A I E K V G S A S G K P S K P V V V A D C G 169

558 CAGCTCTCTTAGATCACATGAGTCTGTCTCGGTTCAAATTAGCGTTATCGTCGTCGTCTAGTGAGTGGTGTGGTCTCTCGTCGTGTGT
Q L S 172

651 CTCTCCTATGCTTTTGGCTTTTGTGTTACTTTTCATTTGGTGAATCATAAAAGCTTGGTGTGTGTTTCGTTCTCATGTCACCCCTAATTAGTAGC

744 TAGTCCATAAATAATGAATGAGCTTGTGTTTGTATCAAAAAAAAAAAAAAAAAA

Fig. S1. DNA sequences of *BrROC1-1* and *BrROC1-2*. Start and stop codons are boxed. PPIase active sites are underlined, and CsA binding sites are circled (Zydowsky *et al.* 1992).

M (kbp) H E X H E X

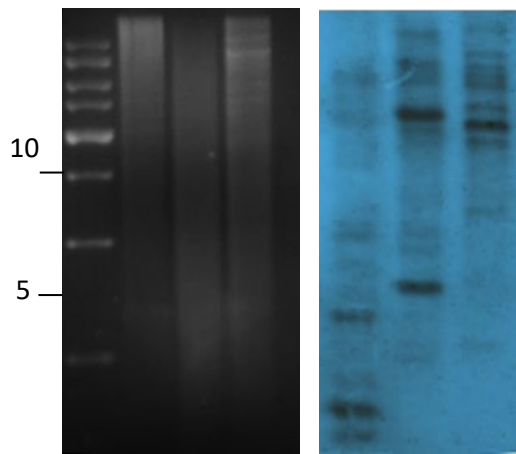


Fig. S2. Genomic southern hybridization analysis of *BrROC1* Tsuda turnip total DNA digested with restriction enzymes HindIII (H), EcoRI (E), and XbaI (X). Hybridization was performed with *BrROC1-1*, which is specific for the coding region of *BrROC1-1*. The numbers on the left indicate fragment sizes.

Table S1a. Primers used for cloning cDNA of BrROC1 genes from Tsuda turnip

Primer name	Nucleotide sequence 5' to 3'
<i>BrROC1-1-F</i>	ATACCAATCAAAACGATG
<i>BrROC1-1-R</i>	ATGAGARAGATCWATCTA
<i>BrROC1-2-F</i>	GAGGATTGATCTGTTATG
<i>BrROC1-2-R</i>	CAGAAMTCATGBGATCTA

Table S1b. Primers used for RACE cloning of *BrROC1* genes from Tsuda turnip

Primer name	Nucleotide sequence 5' to 3'
oligo (dT) ₁₇ adapter primer	GACTCGAGTGCACATCG (T) ₁₇
adapter primer	GACTCGAGTGCACATCG
oligo (dT) ₁₆ anchor primer	GACCACGCGTATCGATGTCGAC (T) ₁₆ <u>V</u>
anchor primer	GACCACGCGTATCGATGTCGAC
<i>BrROC1-1-3'F</i>	TTGGGATCGTCGTCTGGA
<i>BrROC1-2-3'F</i>	GTGGGGTCTGGCTTCTGGA
<i>BrROC1-1-5'R</i>	TTCCCTTACGCCCCACT
<i>BrROC1-2-5'R</i>	GCCTTTGCTTCCGACACC

Notes: Underlines for the degenerate bases used in the primers represent V = A, C or G; W = A or T; M = A or C; B = G, T or C; R = A or G. Other abbreviations: F = forward primer; R = reverse primer.

Table S2. DNA sequences of PCR primers used for real-time PCR of *BrROC1-1* and *BrROC1-2* genes

Primer name	Accession no.	Nucleotide sequence 5' to 3'
<i>BrROC1-1-F</i>	KJ173686	GTGTCTCGTTTGTATGTG
<i>BrROC1-1-R</i>	KJ173686	GCAAGATGTTCAATATTTATT
<i>BrROC1-2-F</i>	KJ173687	CGGTTCAAATTAGCGTTA
<i>BrROC1-2-R</i>	KJ173687	ACACCAAATGAAAAGTAACA
<i>BrACTIN-F</i>	AF111812	GCTCAGTCCAAGAGAGGTATTC
<i>BrACTIN-R</i>	AF111812	GCTCGTTGTAGAAAGTGTGATG

Notes: Actin gene expression was chosen as an internal control. Transcripts levels were quantified using the SYBR Green method. F, forward primer; R, reverse primer.