SUPPLEMENTARY INFORMATION

Multiple roles of the ER stress sensor IRE1 demonstrated by gene targeting in rice

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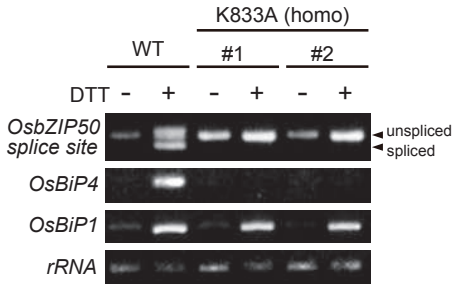
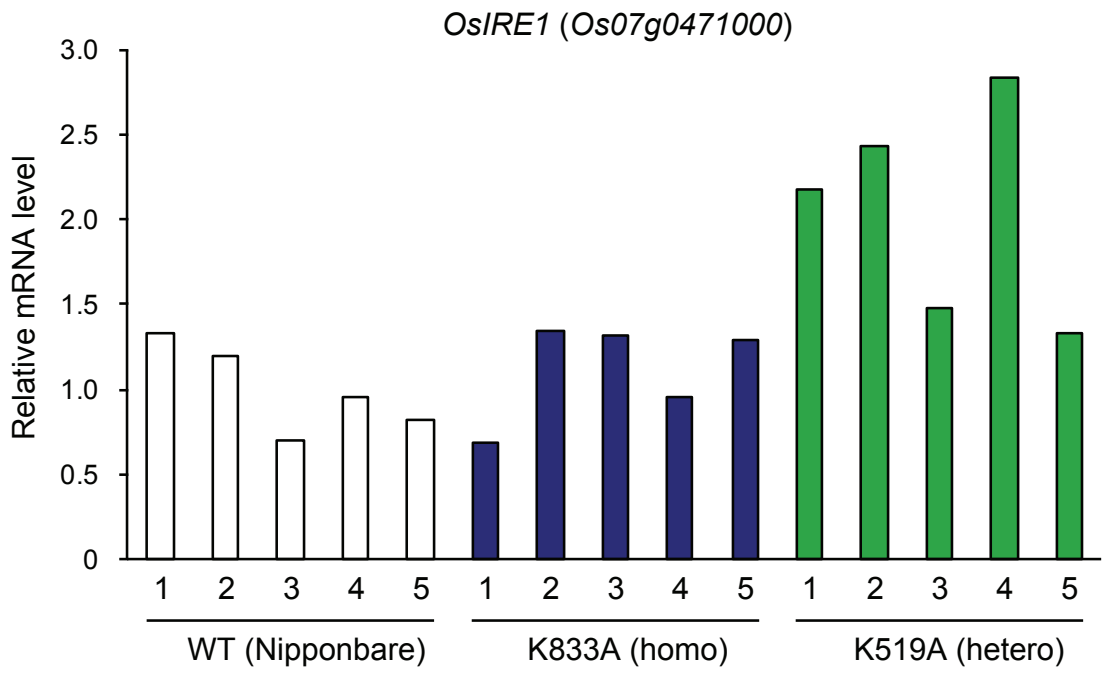


Supplementary Figure S1. OsbZIP50-dependent gene expression in K833A lines.

RT-PCR analysis of K833A homozygous plants. After treatment for 2 h with or without DTT, two independent lines were analysed by RT-PCR. A 20 base deletion resulting from OsIRE1-mediated splicing of *OsbZIP50* mRNA was investigated (top panel). mRNA levels of *OsBiP4* reflect the activity of OsbZIP50. The ER stress-induced expression of *OsBiP1* was partially dependent on OsbZIP50[8]. First-strand cDNA derived from equal amounts of total RNA were analysed by PCR (30 cycles of 98ºC for 10 sec, 58ºC for 1 min, 72ºC for 1 min) with Ex Taq polymerase (Takara) and specific primer sets (Supplementary Table 1).

Supplementary Figure S2. Growth defect in *OsIRE1* KD plants.

Adult plants of *OsIRE1* KD lines in which the expression of *OsIRE1* was severely knocked down. Plants were germinated at approximately the same time and grown under similar conditions.



Supplementary Figure S3. Expression level of *OsIRE1* in GT plants.

mRNA levels, determined by quantitative RT-PCR, of *OsIRE1* in GT and wild-type plants (Nipponbare). Five plants of each genotype were analysed.

Supplementary Table S1. PCR primers used in this study

Primer name	Sequence (5' - 3')	Experiments
F1	GTGTATTTTTGGAATTTCCAAAAATGCTTTTCGGGCATCCG	Fig. 2a
R1	CCTGGAGATTATTGCTCGGGTAGATCGTCTTGATGAGACC	Fig. 2a
R3	TCTAATTACACCAGTTCTAGAGATGTTGCATGCTGACAATCTGAC	Fig. 2a
F2	CCAGCACTCGTCCGAGGGCAAAGGAATAG	Fig. 2a
R2	TTGCACGGCGCGGGAGCGATGGGGAGC	Fig. 2a
K519 HaeIII F	CAATGGGCGTCAGATTGGTAAGCTTTG	Fig. 2b
K519 HaeIII R	ATCAAGTTAAGCTATGCATAAGCGTG	Fig. 2b
K833 MspI F	GTGGATCACATACCAGAAGCAGTGC	Fig. 2b
K833 MspI R	ATCATCACAAACTAGCACACTACATAG	Fig. 2b
Ubiqutin F	GTGGTGGCCAGTAAGTCCTC	Fig. 3 & Fig. S3
Ubiqutin R	GGACACAATGATTAGGGATCA	Fig. 3 & Fig. S3
Os10g0552600 F	GAGCAGTCTGAACTCTCTGAAC	Fig. 3
Os10g0552600 R	GGTCACAACCAACACTTACAC	Fig. 3
Os03g0103100 F	CTTAATTACCATACCATTACAC	Fig. 3
Os03g0103100 R	GATGGATCAATCATATCATATCAG	Fig. 3
BiP4 qRT F	CACACGTCATTACCACGTCTC	Fig. 3a
BiP4 qRT R	ACGTCAGTGGCGTGATCTGG	Fig. 3a
bZIP50 qRT F	TGGATGGCGATGATCCCATGAGC	Fig. 3a
bZIP50 qRT R	TGCGCAGCACTGAAGCGCGTAG	Fig. 3a
bZIP50 splicing F	CCAGAGCTTGTTGAAGGATAG	Fig. S1
bZIP50 splicing R	GGTTTCGGTTGGGTAGAC	Fig. S1
BiP4 F	CAAGGAGGAGTACGAGGAGAAG	Fig. S1
BiP4 R	CACACTTTCGATCGAATCCAAAC	Fig. S1
BiP1 F	TGAACGTGAAGGCTGAGGAC	Fig. S1
BiP1 R	CTACAGCTCGTCATGCACG	Fig. S1
rRNA F	ACACGGGGAAACTTACCAGGTC	Fig. S1
rRNA R	CCAGAACATCTAAGGGCATCAC	Fig. S1
IRE1 qRT F	GTTAGATCCAGATCCAGAGAAGAGAC	Fig. S3
IRE1 qRT R	GCCTTCCAAAGCATCTATGAGATCAG	Fig. S3