

Supplemental Material to:

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**Genome-wide transcriptome modulation in rice
transgenic lines expressing engineered mitogen activated
protein kinase kinase 6**

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Supplemental Figure S1

Supplemental Table S1

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Supplementary Information

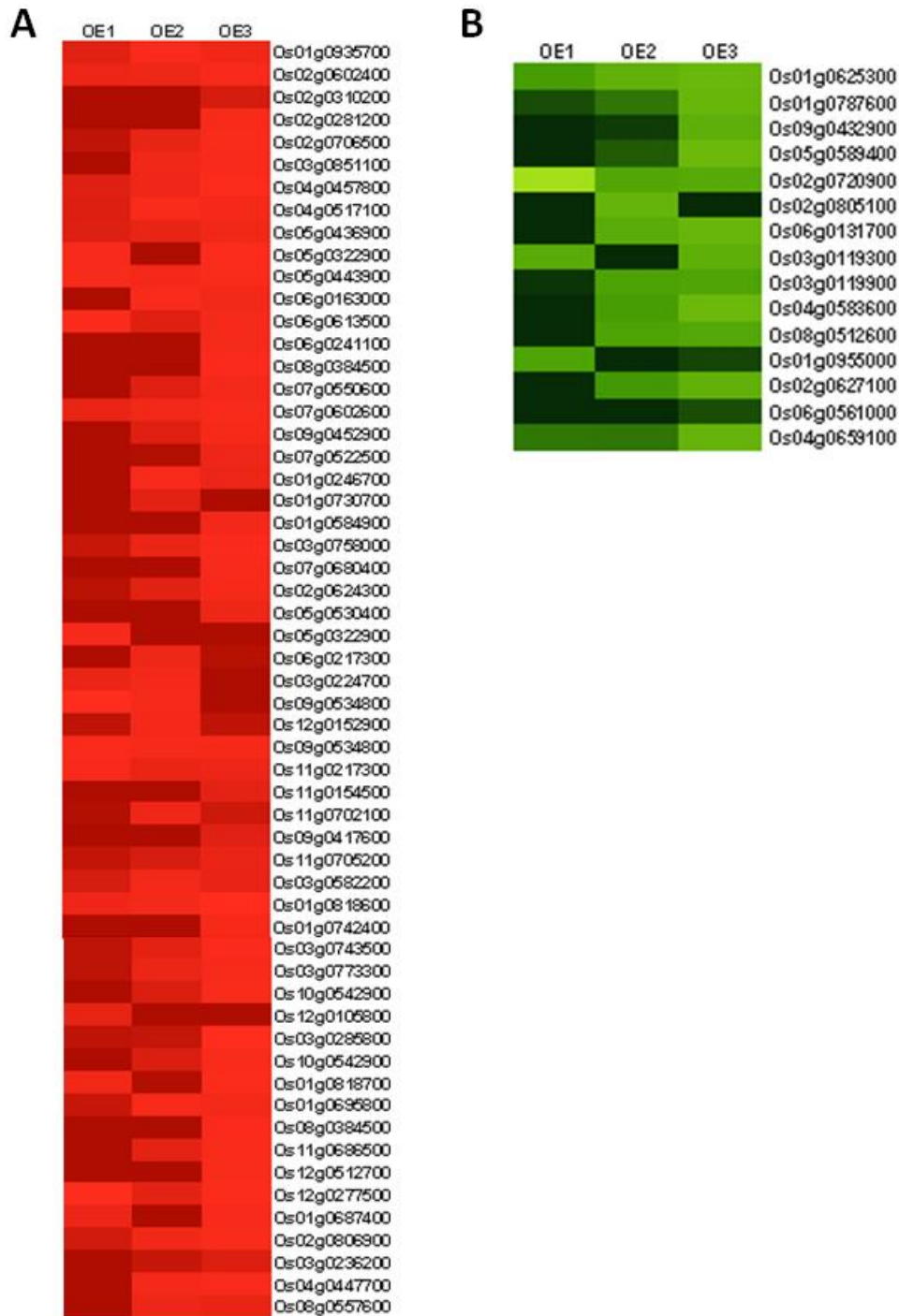


Figure S1.

Figure S1. A heat map showing expression of selected 72 genes that showed at least more than 2-fold expression difference in *OsMKK6^{EE}* overexpressed transgenic lines compared to wild-type PB-1 rice plants in the absence of stress treatments. The affected genes were divided into two clusters (A) Cluster I represents upregulated genes, genes showing ratio of >2 (upregulated in 3 transgenic overexpressed lines designated as OE1, OE2 and OE3 samples) and (B) Cluster II represents downregulated genes showing ratio less than 0.5 (downregulated in 3 transgenic overexpressed lines designated as OE1, OE2 and OE3 samples).

Table S1 Some common up-regulated and down-regulated genes in overexpressed rice plant

Upregulated genes

S.No. Accession No. Gene name

Transcription

1	Os01g0935700	Cytochrome c1, heme protein, mitochondrial precursor
2	Os02g0602400	Mitochondrial transcription termination factor
3	Os02g0310200	FDRMADS6
4	Os02g0281200	NB-ARC domain containing protein

- 5 Os02g0706500 ATPase, AAA family protein
- 6 Os03g0851100 Elongation factor Tu, mitochondrial precursor
- 7 Os04g0457800 BRASSINOSTEROID INSENSITIVE 1-associated receptor kinase
1 precursor
- 8 Os04g0517100 Myb-related protein Myb4
- 9 Os05g0436900 DHHC zinc finger domain containing protein
- 10 Os05g0322900 WRKY DNA binding domain containing protein
- 11 Os05g0443900 Basic leucine zipper protein (liguleless2)
- 12 Os06g0163000 U-box domain containing protein
- 13 Os06g0613500 bHLH transcription factor
- 14 Os06g0241100 Protein kinase domain containing protein
- 15 Os08g0384500 PDR-type ABC transporter
- 16 Os07g0550600 Transferase family protein
- 17 Os07g0602600 RNA recognition motif family protein
- 18 Os09g0452900 Avr9 elicitor response protein
- 19 Os07g0522500 NtPDR1 for pleiotropic drug resistance like protein
- 20 Os01g0246700 WRKY6
- 21 Os01g0730700 WRKY69
- 22 Os01g0584900 WRKY50
- 23 Os03g0758000 WRKY57
- 24 Os07g0680400 WRKY54
- 25 Os02g0624300 myb factor

- 26 Os05g0530400 Spl7 mRNA for heat stress transcription factor Spl7
- 27 Os05g0322900 ABA (chilling-regulated) mRNA
- 28 Os06g0217300 MADS box-like protein
- 29 Os03g0224700 Heat shock factor 3
- 30 Os09g0534800 Transcription factor TFIIB (TFIIB)
- 31 Os12g0152900 bZIP transcription factor (AtbZIP21 gene)
- 32 Os09g0534800 Transcription initiation factor IIB
- 33 Os11g0217300 GHMP kinases putative ATP-binding protein
- 34 Os11g0154500 NAC-domain containing protein 90
- 35 Os11g0702100 Xylanase inhibitor protein 1 precursor
- 36 Os09g0417600 WRKY DNA binding domain containing protein
- 37 Os11g0705200 GRAS family transcription factor containing protein
- 38 Os03g0582200 Secretary carrier-associated membrane protein

Cell signalling

- 39 Os01g0818600 Protein kinase domain containing protein
- 40 Os01g0742400 Leucine Rich Repeat family protein
- 41 Os03g0743500 Calmodulin
- 42 Os03g0773300 Wound and phytochrome signaling involved receptor like kinase
- 43 Os10g0542900 Acidic 27 kDa endochitinase precursor / jasmonic acid and ethylene-dependent systemic resistance
- 44 Os12g0105800 Protein kinase family protein/ transmembrane receptor protein tyrosine kinase
- 45 Os03g0285800 MAP kinase 1

46	Os10g0542900	Chitinase
47	Os01g0818700	Putative receptor protein kinase
48	Os01g0695800	Multidrug resistance protein 1 homolog, putative/ ATPase activity
49	Os08g0384500	PDR-type ABC transporter 1, putative, expressed / lead ion transport
50	Os11g0686500	NB-ARC domain containing protein
51	Os12g0512700	PDR-like ABC transporter
52	Os12g0277500	RuBisCO subunit binding-protein alpha subunit, chloroplast precursor

Metabolic pathway

53	Os01g0687400	Acidic endochitinase precursor
54	Os02g0806900	Aminotransferase, classes I and II family protein, expressed / serine C-palmitoyltransferase activity
55	Os03g0236200	Glutamate decarboxylase
56	Os04g0447700	NADH-dependent oxidoreductase 2
57	Os08g0557600	Monodehydroascorbate reductase, putative, expressed / dihydrolipoyl dehydrogenase / thioredoxin-disulfide reductase

Downregulated genes

S.No. Accession No. Gene name

Transcription

1	Os01g0625300	HSF-type DNA-binding domain containing protein
2	Os01g0787600	Hydrolase, alpha/beta fold family protein
3	Os09g0432900	Hypro1

4	Os05g0589400	MCB2 protein
5	Os02g0720900	Eukaryotic aspartyl protease family protein
6	Os02g0805100	Auxin-responsive protein (IAA2)
7	Os06g0131700	OsNAC7 protein
8	Os03g0119300	Subtilisin N-terminal region family protein

Cell communication

9	Os03g0119900	Histone H4
10	Os04g0583600	Histone H4
11	Os08g0512600	cdc2 kinase

Metabolism

12	Os01g0955000	Phosphoesterase family protein
13	Os02g0627100	Phenylalanine ammonia-lyase
14	Os06g0561000	Inositol oxygenase
15	Os04g0659100	Glutamine synthetase, chloroplast precursor

Supplementary information

Table S2. List of primers used for qRT-PCR analysis

S. No.	Genes	Primer Sequence
1	Actin	5' CGGTGTGATGGTTGGTATGG 3' 5' GCCTCAGTCAGCAACACAGG 3'
2	MKK6	5' TCCGAGGAAACTGCAGATGA 3'

		5' TTTGCGAACTGCCTCTTGAA 3'
3	APX	5' TGGTCACACCCTGGGAAGAT 3' 5' GTCCAGGCTCCCTCAAAGC 3'
4	PR1	5' GGCGACTGCAGCCTGATC 3' 5' GAAGAGGTTCTCGCCAAGGTT 3'
5	RbCs	5' GCCACCCAGGTCGTCAAG 3' 5' ATGCATCAGGGTACGCCTTCT 3'
6	SalT	5' GGAGTCCCAAATGGAAAGGAA 3' 5' CCAACGACATGGCCAGAGT 3'
7	Lip9	5' GCCGGCTACAGAGGAAGTGA 3' 5' TCCATGATCTTGCCCAAGTATAACC 3'
8	WRKY50	5' TGGGCCGTACAGGAATGG 3' 5' TTGATTCAGGTCGCCTTGGT 3'
9	ABA	5' CTTGACCTTGGCTCGATCGT 3' 5' TGGTGCCCCATTTCCACTA 3'
10	DREB1	5' TCTGGTCACTTTCAACACGCTATT 3' 5' CTCAGCGCCATCCATGTCT 3'
11	MAPK1	5' CACCGACCTCCATCACATCA 3' 5' CTGGCAGTGCTCTTCTGACAGT 3'