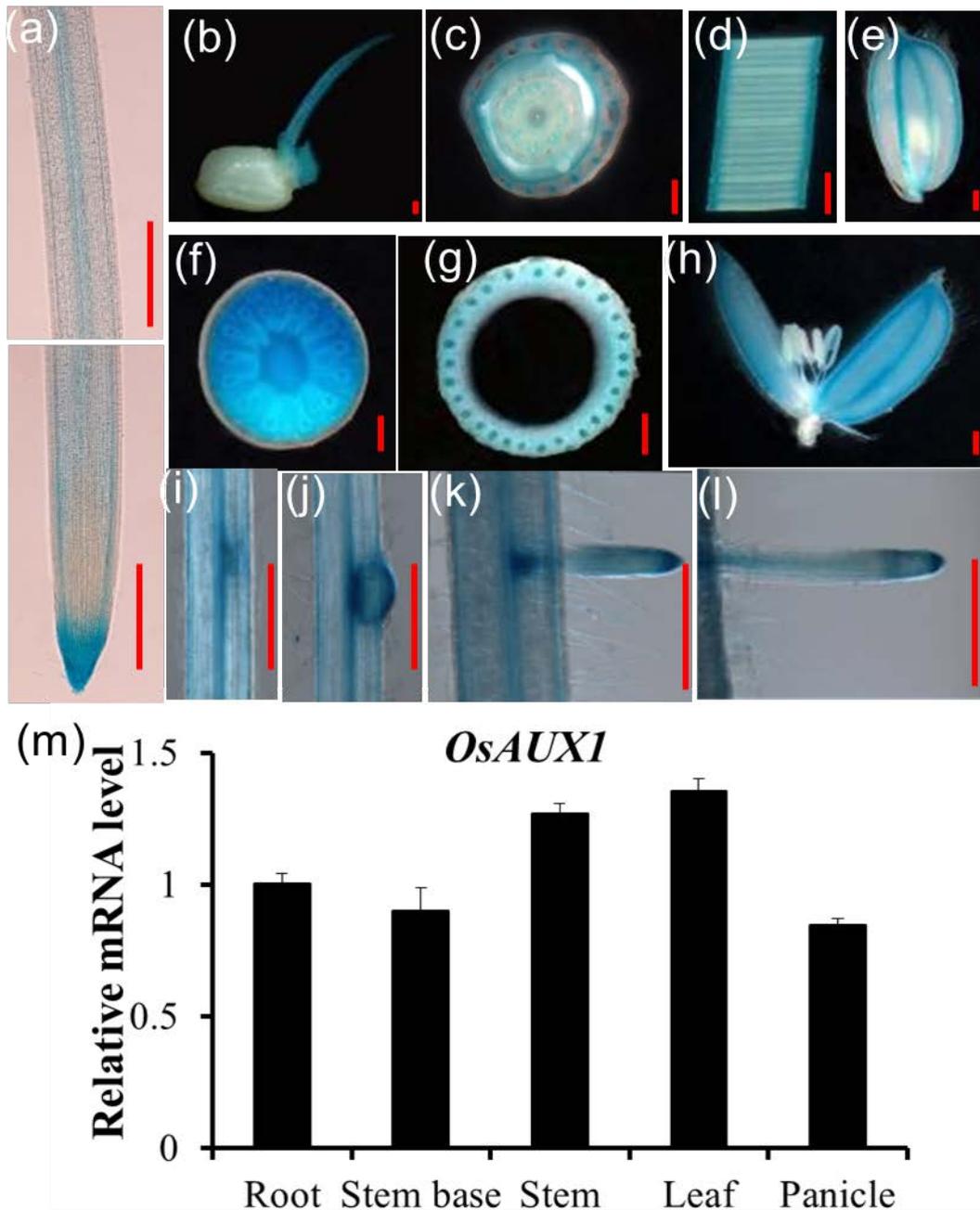


**Figure S1.** Root hair length in WT and *osaux1-1* mutant under various treatments.

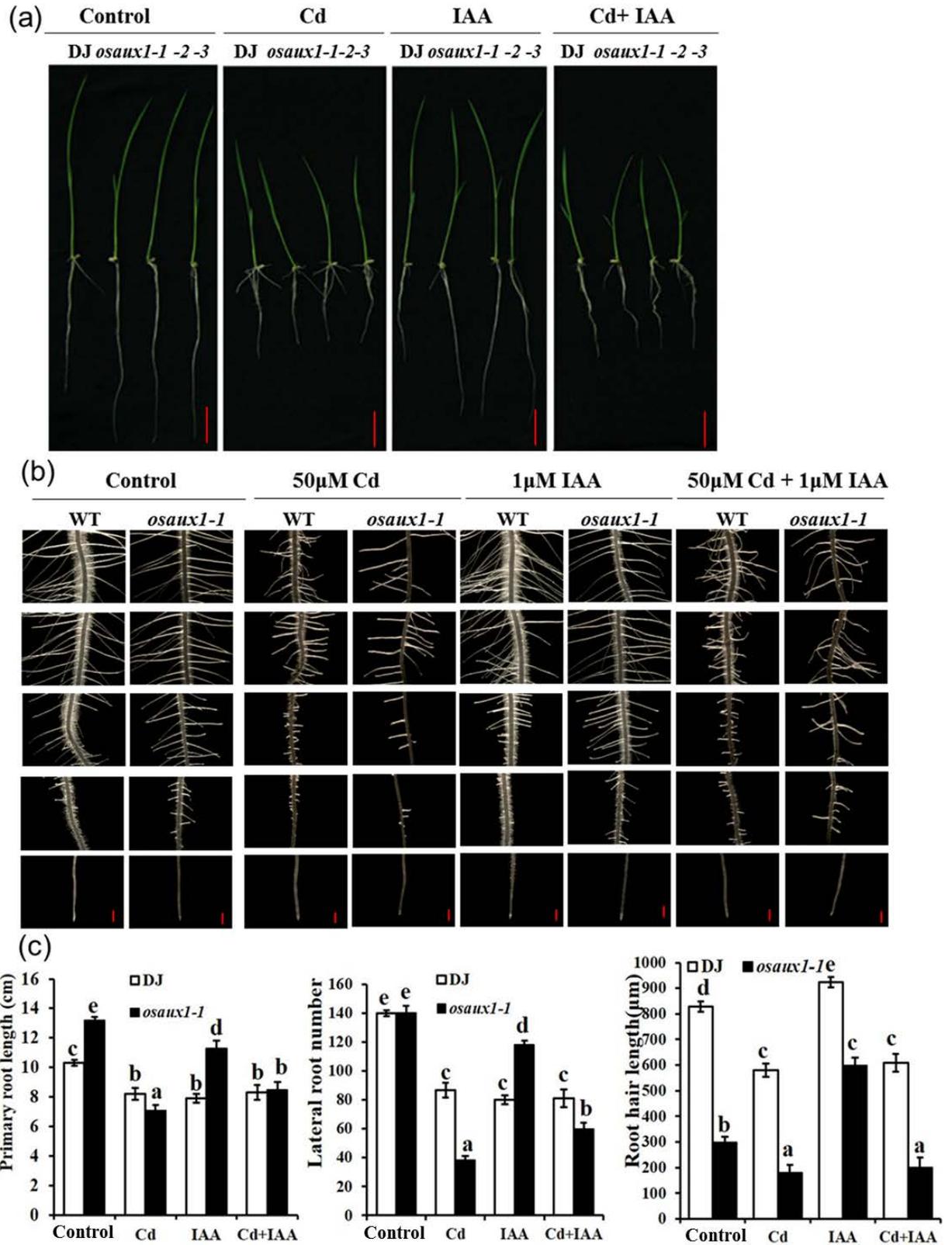
Root hair length of WT and *osaux1-1* under Control, 1µM IAA, 0.1µM 2, 4-D and 0.1µM NAA treatments for 3 days. Ten seedlings were measured at each treatment. Means marked with different letters indicate significant differences using Duncan's multiple range mean comparisons at 5% alpha.



**Figure S2.** Expression pattern of *OsAUX1*.

(a-k) The expression pattern of *OsAUX1*, as revealed by promoter GUS fusion analysis in transgenic seedlings. Region of PR maturation (a), germinated seed (b), stem base (c), leaf (d), glume (e), stem node (f), stem (g), flower (h), LR from initiation to mature (i-l). Bar=500 $\mu$ m for (a-k). (m) Quantitative reverse transcription PCR of *OsAUX1* expression in various tissues. Total RNA was extracted from the root, stem base, stem, mature leaf and panicle of the wild-type.

Experiments were analyzed using three independent biological repeats.



**Figure S3.** Phenotype of WT and *osaux1* under Cd and IAA co-treatment

(a) Phenotype of WT and *osaux1* under Cd and IAA cotreatment. Left to right, WT, *osaux1-1*, *osaux1-2* and *osaux1-3* growth in Control, 50 $\mu$ M CdCl<sub>2</sub>, 1 $\mu$ M IAA, and 50 $\mu$ M CdCl<sub>2</sub> plus 1 $\mu$ M IAA for 7 days. Bar=2cm.

(b) Phenotype of LR and RH in WT and *osaux1* under Cd and IAA cotreatment. Left to right, WT and *osaux1-1* mutant planted in Control, 50 $\mu$ M CdCl<sub>2</sub>, 1 $\mu$ M IAA, and 50 $\mu$ M CdCl<sub>2</sub> plus 1 $\mu$ M IAA for 7 days. Bar=1mm. These phenotypes were observed with a Leica MZ95 stereomicroscope.

(c) Statistics of roots phenotype. PR length, the number of LR and RH length was measured in WT and *osaux1* planted in Control, 50 $\mu$ M CdCl<sub>2</sub>, 1 $\mu$ M IAA, and 50 $\mu$ M CdCl<sub>2</sub> plus 1 $\mu$ M IAA for 7 days. Ten seedlings were measured at each parameter. Means marked with different letters indicate significant differences using Duncan's multiple range mean comparisons at 5% alpha.

**Table S1.** PR lengths of 7 days seedling of WT, *osaux1* mutants and *OsAUX1* over-expression lines under various treatments.

PR length (cm)	DJ	<i>osaux1-1</i>	<i>osaux1-2</i>	<i>osaux1-3</i>	<i>OsAUX1-O1</i>	<i>OsAUX1-O2</i>	<i>OsAUX1-O3</i>
Control	10.21 $\pm$ 0.58	13.91 $\pm$ 0.54**	13.86 $\pm$ 0.32**	13.88 $\pm$ 0.44**	7.12 $\pm$ 0.45**	7.25 $\pm$ 0.34**	7.85 $\pm$ 0.55**
IAA treatment	7.21 $\pm$ 0.25	11.19 $\pm$ 0.45**	11.31 $\pm$ 0.36**	11.40 $\pm$ 0.42**	4.12 $\pm$ 0.24**	4.75 $\pm$ 0.28**	4.95 $\pm$ 0.32**
2.4-D treatment	4.42 $\pm$ 0.18	8.30 $\pm$ 0.45**	8.52 $\pm$ 0.25**	8.64 $\pm$ 0.55**	1.54 $\pm$ 0.12**	2.05 $\pm$ 0.15**	2.15 $\pm$ 0.18**
NAA treatment	2.24 $\pm$ 0.15	2.12 $\pm$ 0.18	2.25 $\pm$ 0.21	2.23 $\pm$ 0.18	1.25 $\pm$ 0.14**	1.55 $\pm$ 0.14**	1.65 $\pm$ 0.14**
NPA treatment	4.31 $\pm$ 0.25	8.56 $\pm$ 0.45**	8.55 $\pm$ 0.34**	8.58 $\pm$ 0.42**	1.56 $\pm$ 0.12**	2.15 $\pm$ 0.25**	2.23 $\pm$ 0.22**

All values are the averages of 10 seedlings for 7 days plants ( $\pm$ SD).

\* Significant difference from wild type at 5% by student' *t* test.

\*\* Significant difference from wild type at 1% by student' *t* test.

**Table S2.** LR number of 7 days seedling of WT, *osaux1* mutants and *OsAUX1*-overexpression lines under various treatments.

PR length (cm)	DJ	<i>osaux1-1</i>	<i>osaux1-2</i>	<i>osaux1-3</i>	<i>OsAUX1-O1</i>	<i>OsAUX1-O2</i>	<i>OsAUX1-O3</i>
Control	140±5	138±9	140±8	142±9	65±4**	70±4**	78±5**
IAA treatment	68±4	116±5**	118±4**	121±4**	25±5**	30±5**	30±6**
2.4-D treatment	57±6	107±5**	113±6**	109±7**	10±2**	15±1**	15±1**
NAA treatment	40±2	40±3	39±3	40±5	15±2**	18±2**	18±3**
NPA treatment	40±4	92±5**	95±5**	95±7**	8±1**	8±1**	8±1**

All values are the averages of 10 seedlings for 7 days plants ( $\pm$ SD).

\* Significant difference from wild type at 5% by student' *t* test.

\*\* Significant difference from wild type at 1% by student' *t* test.

**Table S3.** Primers used in this study.

Name	Primer sequences (5'-3')
OVAUX1 U/L	GAGCTCATGGTGCCGCGCAGCAGGC/GGATCCGTGGTGCGGCAATGGCACCG
35S:ORF <sub>AUX1</sub> -GFP U/L	GAGCTCATGGTGCCGCGCAGCAGGC/GGATCCGTGGTGCGGCAATGGCACCG
ProAUX1-GUS U/L	AAGCTTTGAGACAAATAGAGTAGATT/GGATCCGCTGACCACGCCGCCCTTCC
ProAUX1-GFP U/L	GAATTCTGAGACAAATAGAGTAGATT/GAGCTCGCTGACCACGCCGCCCTTCC
<i>osaux1-1</i> LP / RP	TGGACCGCCTACCTAATCAG/TTTGCTTACACTGTGACGGC
<i>osaux1-2</i> LP / RP	AACAAAAACATGCATGCAGC/ATCTTGACAATGCCCTCAC
<i>osaux1-3</i> LP / RP	TATTTGTCGGCTCCTCCATC/AAGCGTCGATGAAATCCATC
Ngus-RB	AACGCTGATCAATCCACAG
AUX1-qRT U/L	GCCTGCGCGAGTAACATCTA/CAGCACCAGCTTGGTTGGAC
AUX2-qRT U/L	CTCTTCTACGGGCTGTGGG/CGTCCTCTGTCCAGCTTGT
AUX3-qRT U/L	TTGGAATTTTGCAGGTGGCG/ACCACTGGATGACGTGGTTC
AUX4-qRT U/L	GGCCTTCAACTGCACGTTT/GATGTACCAGGCGGTGTAGG
AUX5-qRT U/L	GACAAGCGGACATGGACCTA/AGATCATCTTGAACCGCCG
OsACTIN U/L	TCAGCAACTGGGATGATATGGAG/GCCGTTGTGGTGAATGAGTAAC
OsCyCB1;1-qRT U/L	AATGTTGCCGCTCTGGGAAA/GATGACATGCTCGGGCGGAGG
OsHMA3-qRT U/L	GCAAGTCAAGCCACCCAATG/ACGCCCTTGATCATCTCACC
OsHMA5-qRT U/L	GGGGCTAATCATGGGGTACT/GAACTCCTGTCTTCGCGTTC
OsHMA6-qRT U/L	ATAATGGAGGAGGCCGAACT/CCTGCCTTTTCATGTGGAGT
OsHMA9-qRT U/L	CAGTAATCGGAGGACAATG/GTGTGAAACGGTGAAGAGG