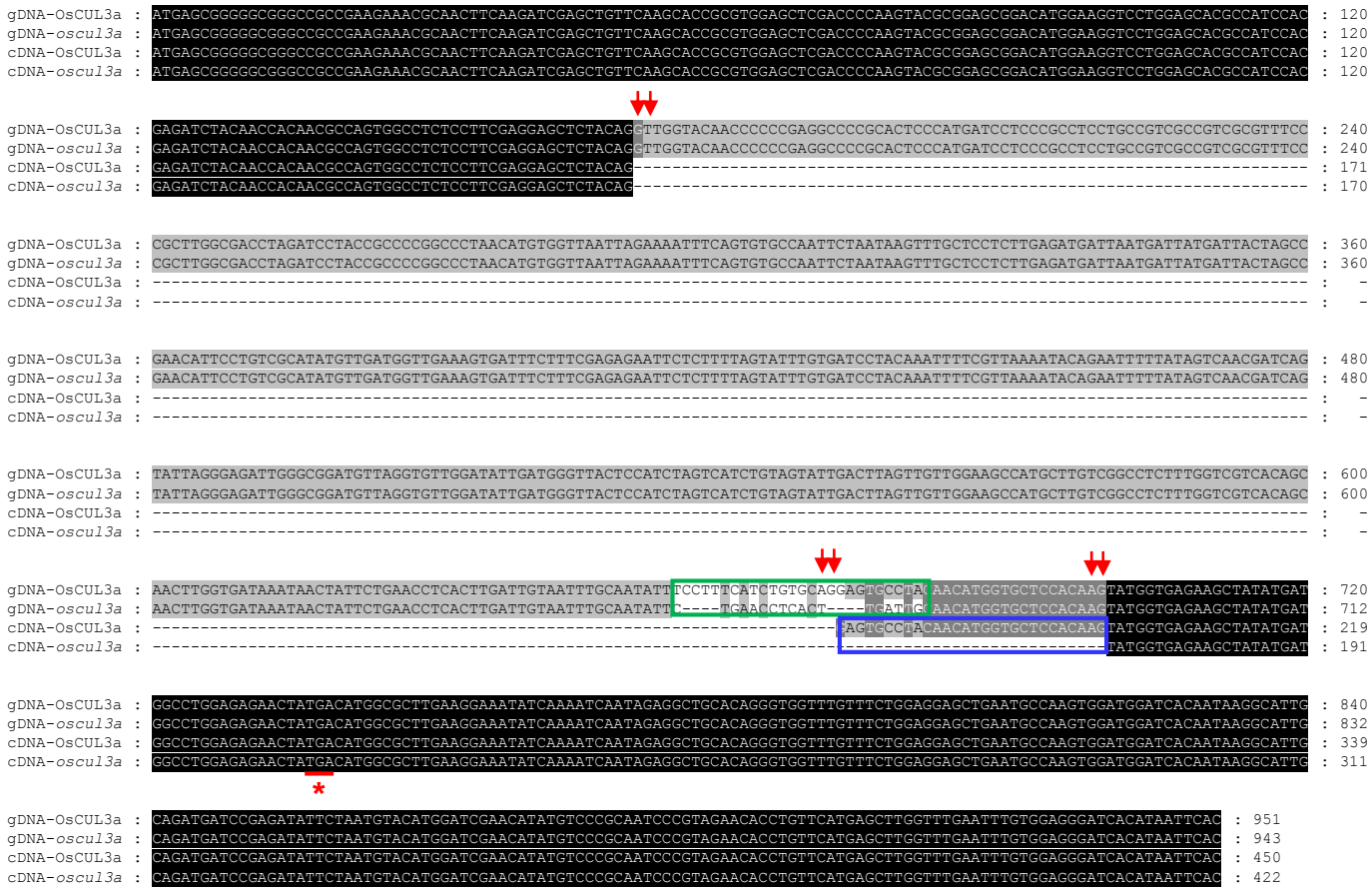
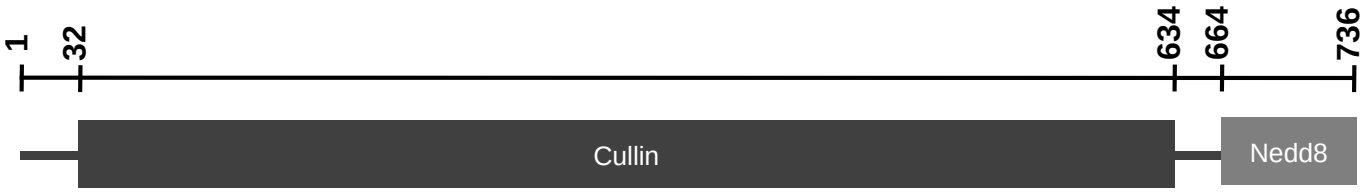
Supplemental Figure 1: Cell Death Phenotypes of the *oscul3a* Mutant under Field Conditions. The top three leaves were collected from ZH11 and *oscul3a* and photographed at 60 dps.

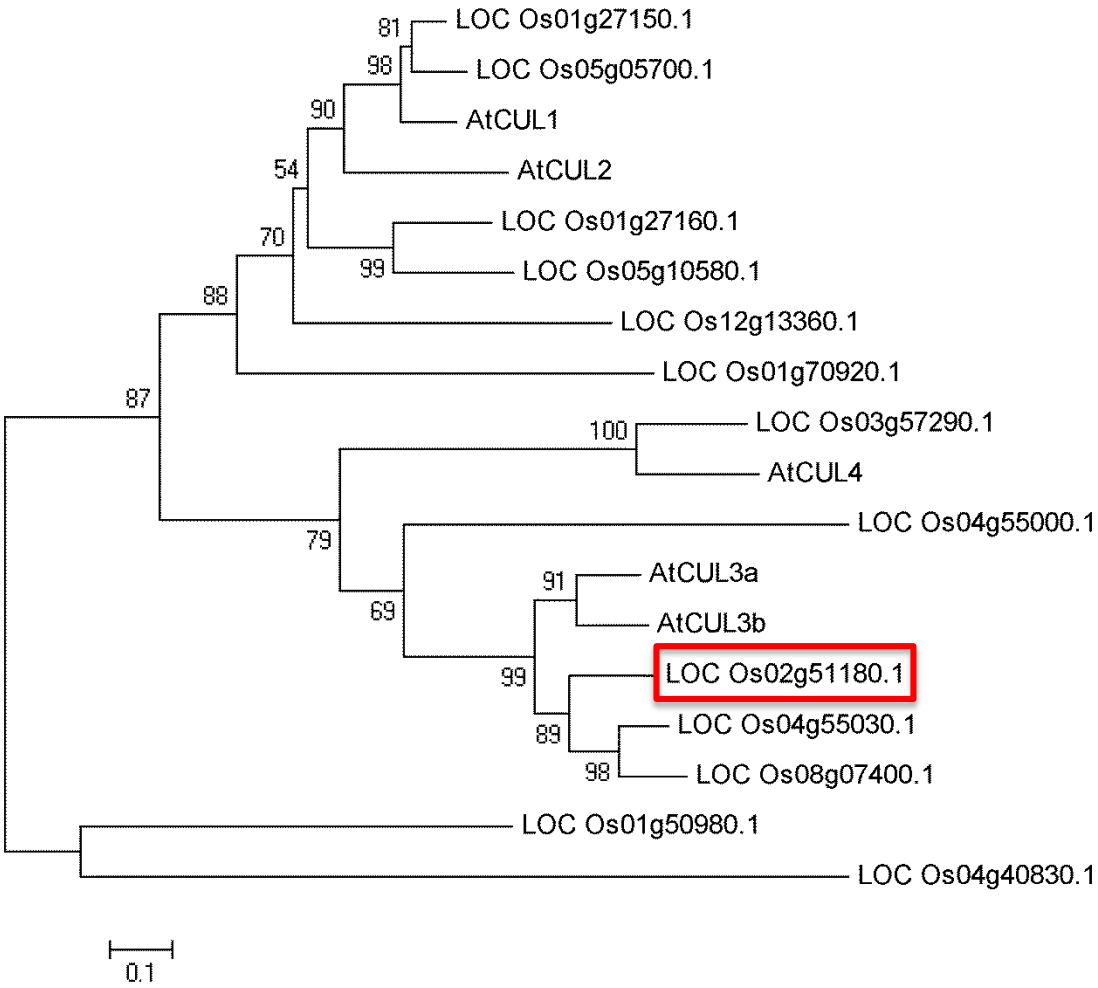
A



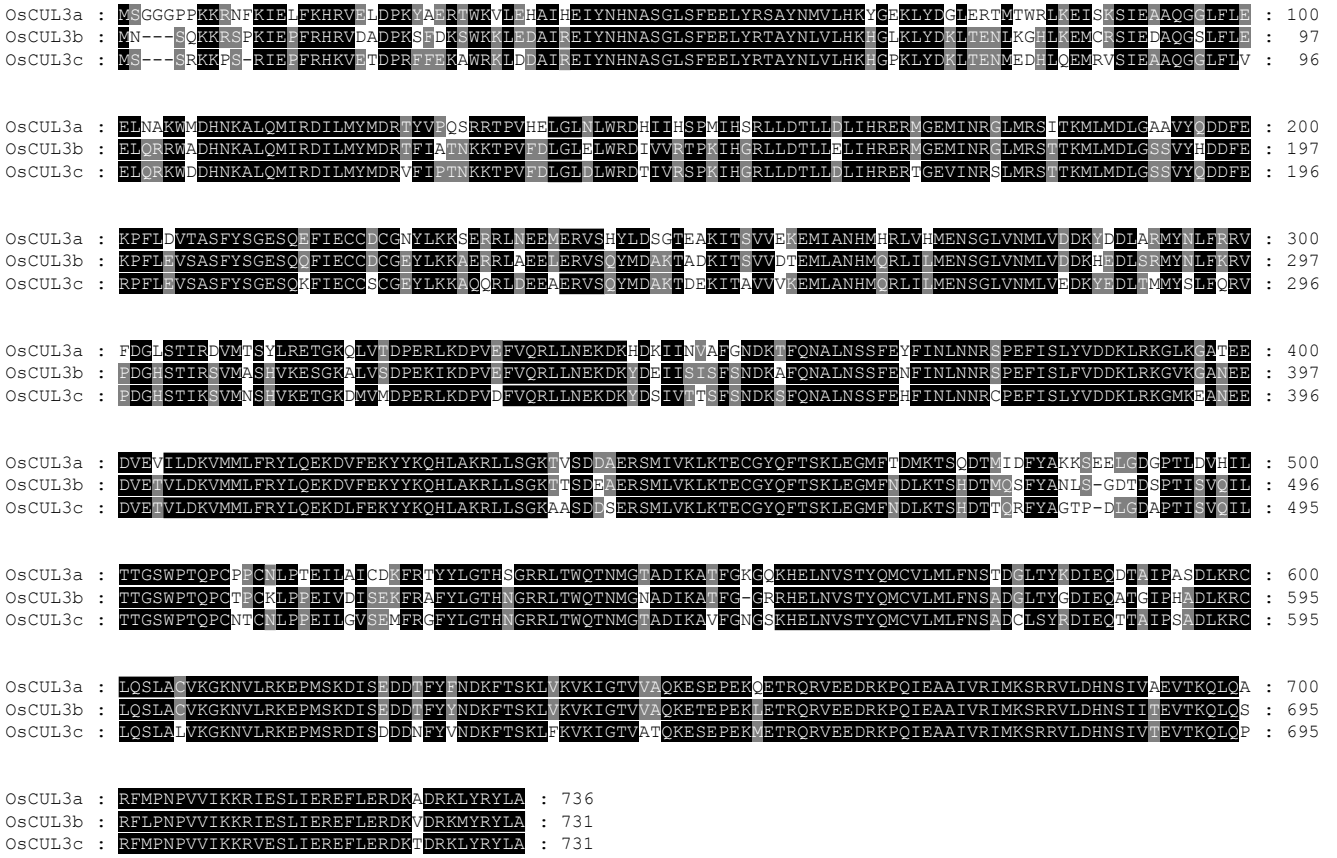
B



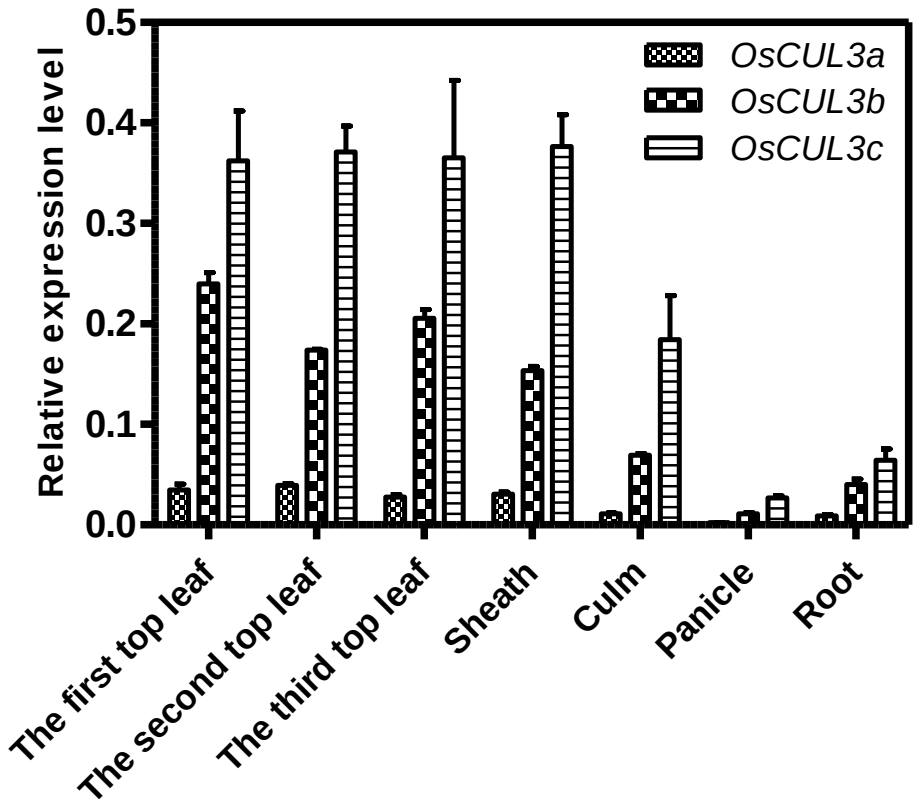
Supplemental Figure 2: Sequence Alignments between ZH11 and the *oscul3a* Mutant.
(A) Genomic DNA and cDNA of OsCUL3a were PCR amplified from ZH11 and *oscul3a* respectively. Sequence comparison was conducted using ClustalW software after sequencing.
(B) Protein structure of OsCUL3a.



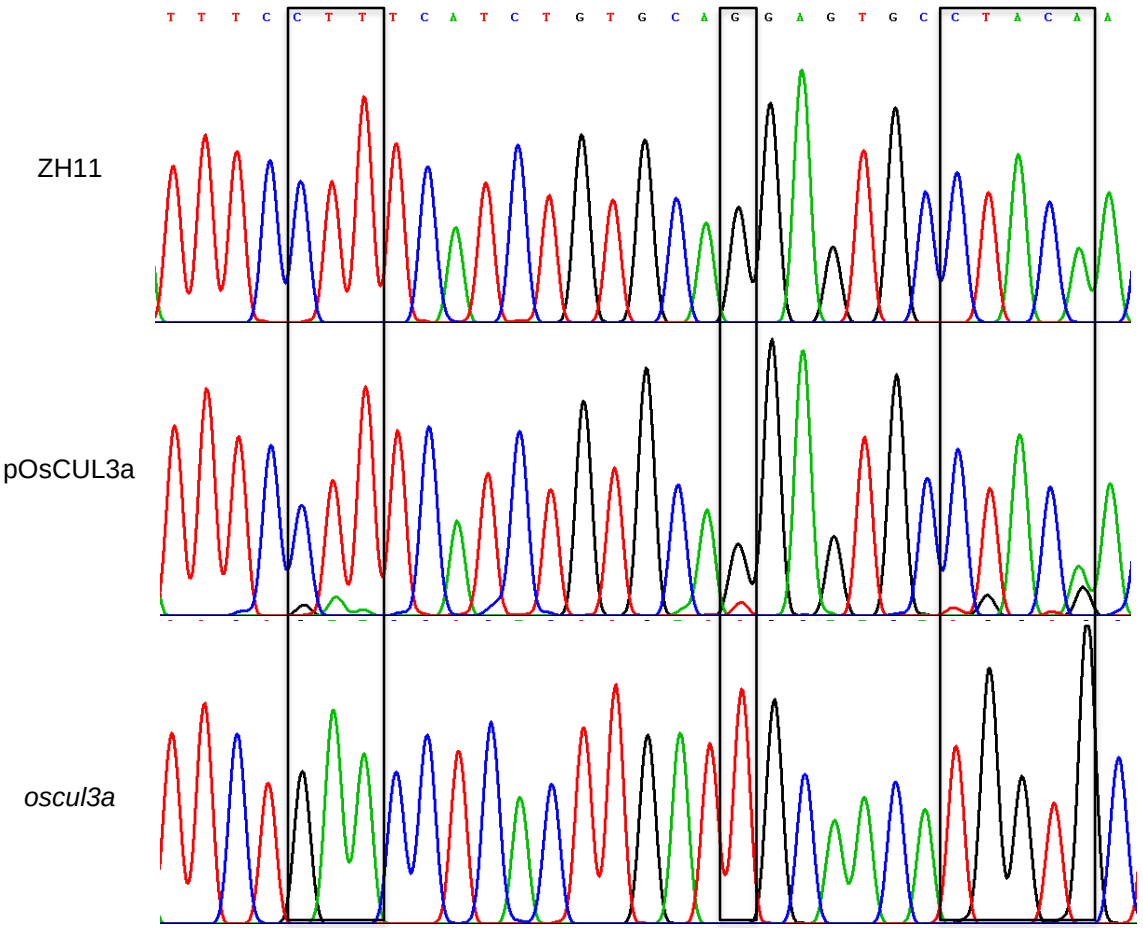
Supplemental Figure 3: Phylogenetic Analysis of CUL Proteins in Arabidopsis and Rice. The phylogenetic tree was generated by MEGA5 software using neighbor joining method. Numbers at nodes indicate bootstrap values. Scale bar indicates 0.1 substitutions.



Supplemental Figure 4: Protein Alignment of OsCUL3a, OsCUL3b, and OsCUL3c.

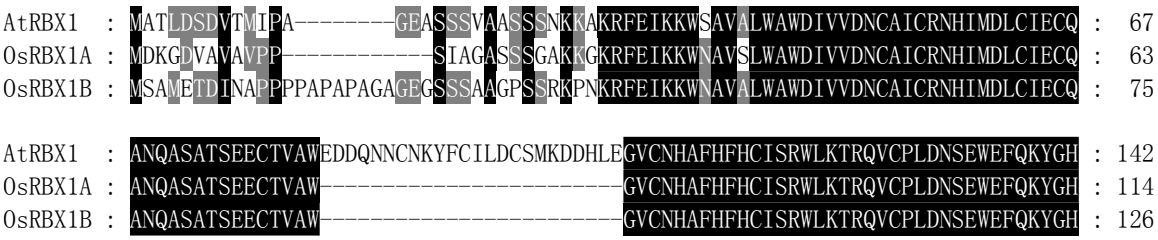


Supplemental Figure 5: *OsCUL3a*, *OsCUL3b*, *OsCUL3c* Are Constitutively Expressed in Rice. Different tissues were collected from ZH11 plants at the flowering stage for total RNA isolation. *OsCUL3a/b/c* mRNA level were analyzed by qRT-PCR. Error bars represent the SEM, n=3.

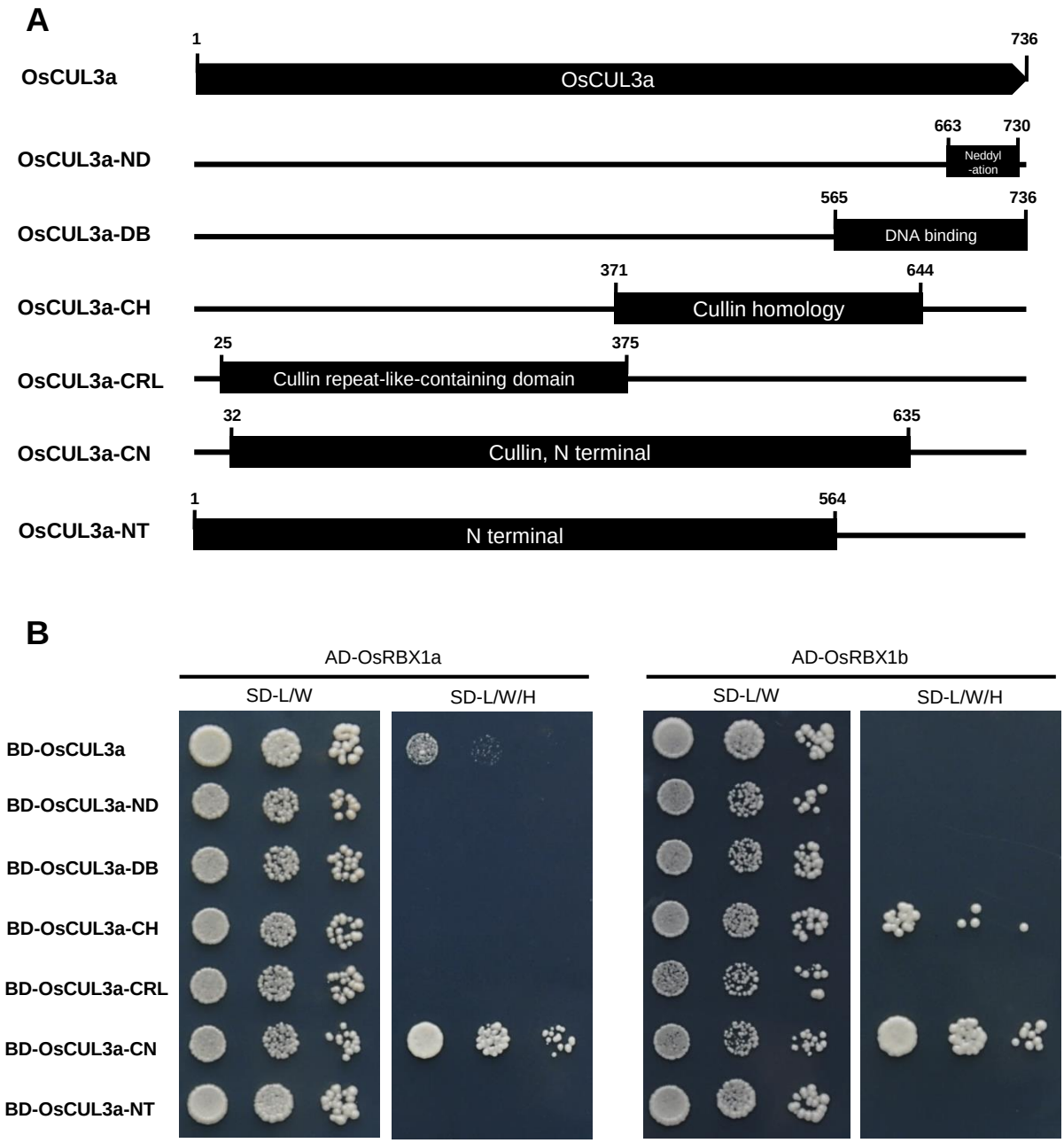


Supplemental Figure 6: Confirmation of the pOsCUL3a Plants by Sequencing.
Sequence chromatograms obtained for the region around the mutation site in ZH11, pOsCUL3a and *osCul3a* plants indicated by pane.

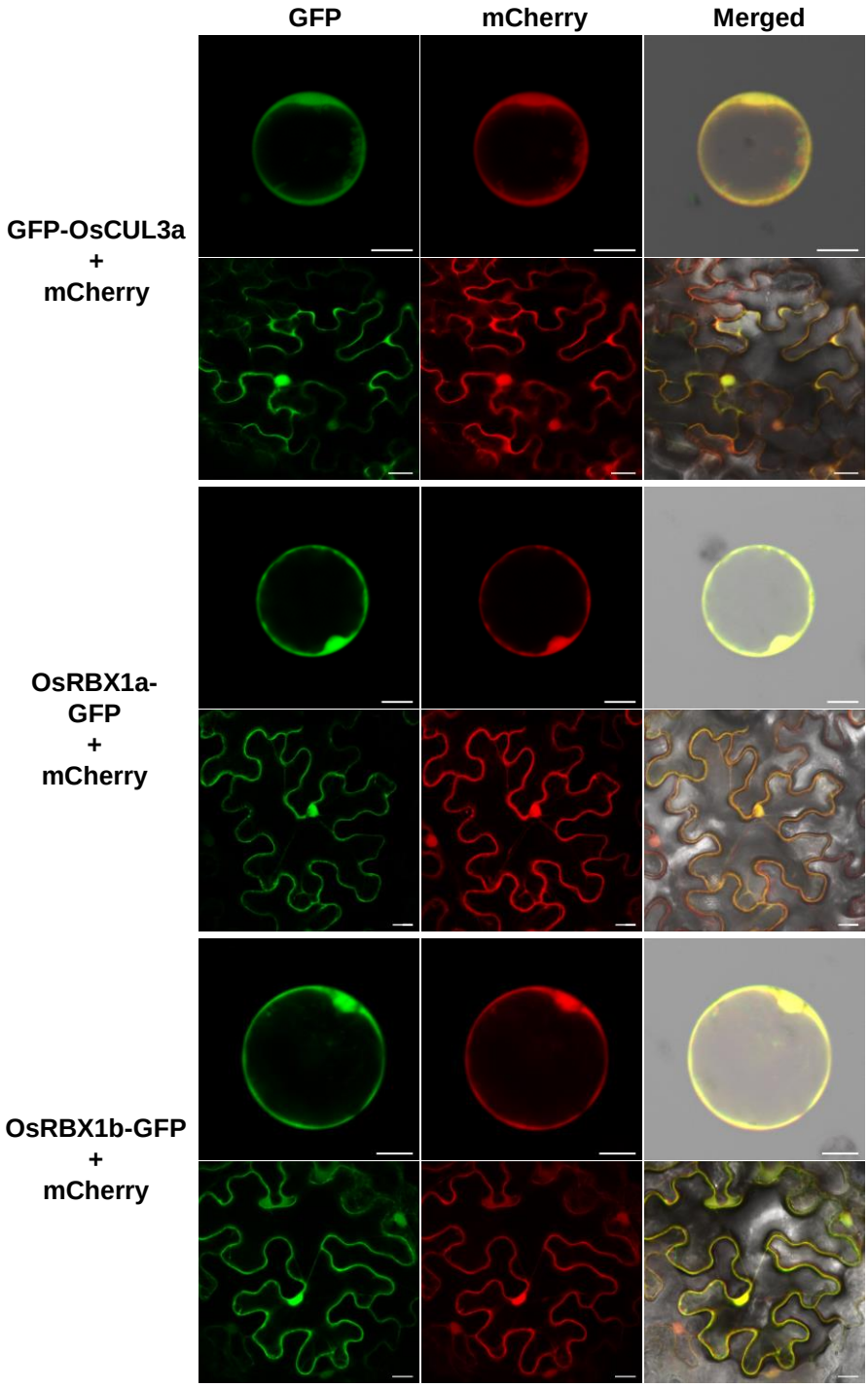
Supplemental Figure 7: Cell Death Phenotype of *oscul3a* is Rescued by OsCUL3a.
(A) ZH11, *oscul3a*, and pOsCUL3a plants were grown in summer field and photographed at the filling stage.
(B) Flag leaves collected from (A).



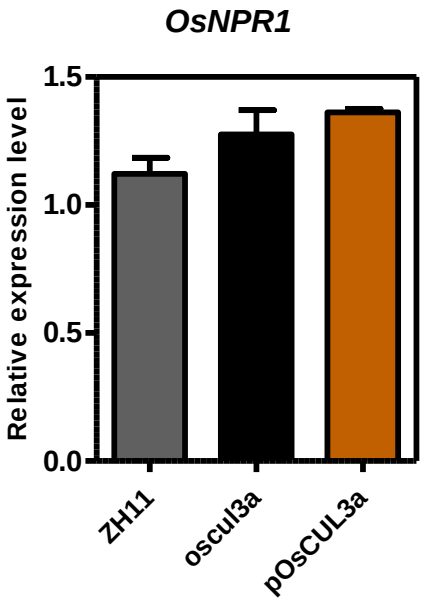
Supplemental Figure 8: Protein Alignment between AtRBX1, OsRBX1a, and OsRBX1b.



Supplemental Figure 9: OsCUL3a Interacts with OsRBX1a and OsRBX1b in Yeast.
(A) Schematic diagrams of full-length or truncated OsCUL3a proteins.
(B) Protein interactions as indicated by the ability of yeast cells to grow on synthetic dropout medium lacking L, W, and H in the presence of 2.5 mM 3-amino-1,2,4-triazole.



Supplemental Figure 10: Subcellular Localization of OsCUL3a, OsRBX1a, and OsRBX1b.
GFP tagged OsCUL3a, OsRBX1a, and OsRBX1b were transiently expressed in rice protoplast or *Nicotiana benthamiana* leaves. GFP signal were detected using ZEISS confocal microscope at 36 h or 72 h post transfection. Bar=10 μm.

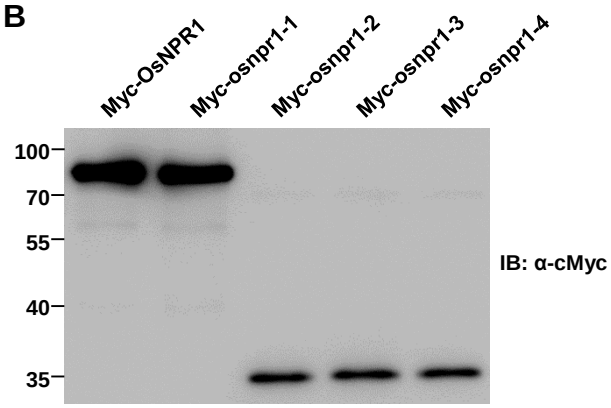


Supplemental Figure 11: OsNPR1 Transcriptional Level in ZH11, *oscul3a* Mutant, and pOsCUL3a Plants.
Total RNA was isolated from the second top leaves of ZH11, *oscul3a*, and pOsCUL3a plants at 60 dps. *OsNPR1* mRNA level was analyzed by qRT-PCR.

A

```
OsNPR1   : CCCAAGGCGGCGTGCCTCTGCGTCG-ACGAGGACTGCGCCCACGTCGGGTGC
osnpr1-1 : CCCAAGGCGGCGTGCCTCTGCGT----CGAGGACTGCGCCCACGTCGGGTGC
osnpr1-2 : CCCAAGGCGGCGTGCCTCTGCGTCGTACGAGGACTGCGCCCACGTCGGGTGC
osnpr1-3 : CCCAAGGCGGCGTGCCTCTGCGTCGAACGAGGACTGCGCCCACGTCGGGTGC
osnpr1-4 : CCCAAGGCGGCGTGCCTCTGCGTCGGACGAGGACTGCGCCCACGTCGGGTGC
```

B



Supplemental Figure 12: Characterization of Different Types of the *osnpr1* Mutants Created by CRISPR/Cas9.
(A) Genomic DNA sequence alignment of *osnpr1s* flanked the mutation site.
(B) *osnpr1s* created by Crispr/Cas9 method encode 2 types osnpr1 proteins. The full length cDNA of wild-type *OsNPR1* and 4 *osnpr1* mutants were PCR amplified and fused with Myc tag. The recombinant protein were transiently expressed in rice protoplast for western blot analysis with anti-cMyc antibody.

Supplemental Table 1

Primer name	Primer sequence (5'-3')	Enzyme	Vectors
Primers for qRT-PCR			
qMoPot2	**F:** ACGACCCGTCTTTACTTATTTGG		
	R: AAGTAGCGTTGGTTTTGTTGGAT		
qPR1a	**F:** CGTGTCGGCGTGGGTGT		
	R: GGCGAGTAGTTGCAGGTGATG		
qPR1b	**F:** TACGCCAGCCAGAGGAGC		
	R: GCCGAACCCCAGAAGAGG		
qPR10	**F:** GTCCGGGCACCATCTACACC		
	R: CAAGCTTCGTCTCCGTCGAGT		
qPAL1	**F:** TTCAACGCCGACACCT		
	R: GTAGAGCGGATACGACCTG		
qAOS2	**F:** AAGCTGCTGCAATACGTGTACTGG		
	R: CGACGAGCAACAGCCTTCCG		
qWRKY45	**F:** GCCGACGACCAGCACGATCACC		
	R: ACGAGCCGACGCCGCCCTC		
qACTIN	**F:** CAGGCCGTCCTCTCTCTGTA		
	R: AAGGATAGCATGGGGGAGAG		
Primers for genotyping			
ZN7	**F:** GCGTGAAACGGAGGGA		
	R: CAAAGGGGACCAAACATTAT		
ZN26	**F:** AGGAGACATAGCCTGAGGACACT		
	R: CTTTGAGCCAATCCACAATACAT		
ZN30	**F:** GCCTGTTGAAGTTGGTAGCG		
	R: AGGGACTGCGGGATGGA		
ZN32	**F:** CTAACTTTGCCAAATTCGCTAC		
	R: TCGTGGTTACATTTAAGATGCA		
ZN34	**F:** GTGGTTCAGTCAAAGATGCCA		
	R: ACTCTAACCCTCAGGAGTACATACC		
ZN35	**F:** GCTCGGCTAAGATTCATACATC		
	R: GGTTATCACATACCGTGGTTTC		

Primer name	Primer sequence (5’-3’)	Enzyme	Vectors
Primers for genotyping			
ZN36	**F:** TAGCACAATCAAAGGAACATGC		
	R: GCCCCTCAAACAACTCAATCT		
ZN9	**F:** GTCAGCGTCTAGGCAAGG		
	R: GAATCGATATGAACCGACAAT		
ZN19	**F:** CACAACTTCAACACGAGAACC		
	R: TGCCCAAAGCAATAGCC		
Primers used for vector construction			
1300-OsCUL3a	**F:** GGCCAGTGCCAAGCTTTTTGTCAAGGCTGAATAACGA	Hind III	pCAMBIA1300
	R: CCATGATTACGAATTCTAGCCTCAAATTCAACCCGTA	EcoR I	
GFP-OsCUL3a	**F:** GCTTGATATCGAATTCATGAGCGGGGGCGGGC	EcoR I	pYBA1152
	R: CGGGCTGCAGGAATTCTGCAAGATAGCGATATAACTTCCTA	EcoR I	
OsRBX1a-GFP	**F:** TGGCGGCCGCTCTAGAATGGACAAGGGCGACGT	Xba I	pYBA1132
	R: CGGTATCGATAAGCTTGTGACCATACTTCTGGAACTCCC	Hind III	
OsRBX1b-GFP	**F:** TGGCGGCCGCTCTAGAATGTCGGCCATGGAGACCG	Xba I	pYBA1132
	R: CGGTATCGATAAGCTTGTGCCCATATTTCTGAAATTCCC	Hind III	
BD-OsCUL3a	**F:** CATGGAGGCCGAATTCAAGAGCGGGACCTCACC	EcoR I	pGBKT7
	R: GGATCCCCGGGAATTCGACCTTCTATGCAAGATAGCG	EcoR I	
BD-OsCUL3a-CN	**F:** AGGAGGACCTGCATATGTGGAAGGTCCTGGAGCA	Nde I	pGBKT7
	R: GGATCCCCGGGAATTCCTTGTCGTTGAAGTAGAATGT	EcoR I	
BD-OsCUL3a-ND	**F:** AGGAGGACCTGCATATGTTCACAAGCAAGCTTGTTAAG	Nde I	pGBKT7
	R: GGATCCCCGGGAATTCTGCAAGATAGCGATATAACTTCC	EcoR I	
BD-OsCUL3a-NT	**F:** AGGAGGACCTGCATATGATGAGCGGGGGCGGGC	Nde I	pGBKT7
	R: GGATCCCCGGGAATTCTACATTTAGTTCATGCTTCTGACC	EcoR I	
BD-OsCUL3a-CRL	**F:** AGGAGGACCTGCATATGAAACGCAACTTCAAGATCGAG	Nde I	pGBKT7
	R: GGATCCCCGGGAATTCGTTTAAGTTGATGAAGTACTC	EcoR I	
BD-OsCUL3a-CH	**F:** AGGAGGACCTGCATATGTTCATCAACTTAAACAACAGG	Nde I	pGBKT7
	R: GGATCCCCGGGAATTCCCCAATCTTGACCTTAACAAG	EcoR I	
BD-OsCUL3a-DB	**F:** AGGAGGACCTGCATATGTCCACTTATCAGATGTGTGTT	Nde I	pGBKT7
	R: GGATCCCCGGGAATTCCTATGCAAGATAGCGATATAAC	EcoR I	

Primer name	Primer sequence (5'-3')	Enzyme	Vectors
Primers used for vector construction			
AD-OsNPR1	**F:** GGAGGCCAGTGAATTCATGGAGCCGCCGACCAGCC	EcoR I	pGADT7
	R: CACCCGGGTGGAATTCTCATCTCCTTGGTCGAATG	EcoR I	
AD-OsRBX1a	**F:** GGAGGCCAGTGAATTCATGGACAAGGGCGACGT	EcoR I	pGADT7
	R: CACCCGGGTGGAATTCCTAGTGACCATACTTCTGGAACTC	EcoR I	
AD-OsRBX1b	**F:** GGAGGCCAGTGAATTCATGTCGGCCATGGAGACCG	EcoR I	pGADT7
	R: CACCCGGGTGGAATTCCTAGTGCCCATATTTCTGAAATTC	EcoR I	
OsCUL3a-NLuc	**F:** CGGGGGACGAGCTCGGTACCAAGAGCGGGACCTCACC	Kpn I	p35S::NLuc
	R: ACGAGATCTGGTCGACTGCAAGATAGCGATATAACTTC	Sal I	
CLuc-OsNPR1	**F:** ACGCGTCCCGGGGCGGTACCATGGAGCCGCCGACCAGCC	Kpn I	p35S::CLuc
	R: AGCTCTGCAGGTCGACTCATCTCCTTGGTCGAATG	Sal I	
CLuc-OsRBX1a	**F:** ACGCGTCCCGGGGCGGTACCATGGACAAGGGCGACGT	Kpn I	p35S::CLuc
	R: AGCTCTGCAGGTCGACCTAGTGACCATACTTCTGGAACTC	Sal I	
CLuc-OsRBX1b	**F:** ACGCGTCCCGGGGCGGTACCATGTCGGCCATGGAGACCG	Kpn I	p35S::CLuc
	R: AGCTCTGCAGGTCGACCTAGTGCCCATATTTCTGAAATTC	Sal I	
YN-OsCUL3a	**F:** GCCTACTAGTGGATCCATGAGCGGGGGCGGGC	BamH I	pSPYNE (R) 173
	R: GAGCGGTACCCTCGAGCTATGCAAGATAGCGATATAAC	Xho I	
YN-OsCUL3a-NT	**F:** GCCTACTAGTGGATCCATGAGCGGGGGCGGGC	BamH I	pSPYNE (R) 173
	R: GAGCGGTACCCTCGAGTACATTTAGTTCATGCTTCTGACC	Xho I	
YC-OsRBX1a	**F:** CGCCACTAGTGGATCCATGGACAAGGGCGACGT	BamH I	pSPYCE (M)
	R: GAGCGGTACCCTCGAGGTGACCATACTTCTGGAACTCCC	Xho I	
YC-OsRBX1b	**F:** CGCCACTAGTGGATCCATGTCGGCCATGGAGACCG	BamH I	pSPYCE (M)
	R: GAGCGGTACCCTCGAGGTGCCCATATTTCTGAAATTCCC	Xho I	
4HA-OsCUL3a	**F:** AGATTACGCTGGATCCATGAGCGGGGGCGGGC	BamH I	Ubi::HA
	R: CCGCACTAGTAAGCTTCTATGCAAGATAGCGATATAAC	Hind III	
4Myc-OsNPR1	**F:** CTTGAATTCGGGATCCATGGAGCCGCCGACCAGCC	BamH I	Ubi::Myc
	R: CCGCACTAGTAAGCTTTCATCTCCTTGGTCGAATG	Hind III	
C-OsNPR1	**F:** GGCGTGCCTCTGCGTCGACG		pOsU3-sgRNA
	R: CGTCGACGCAGAGGCACGCC		
CS-OsNPR1	**F:** CCGCCTCTCCGACAACCTC		
	R: GAGTCGCATCCACACGTTCA		