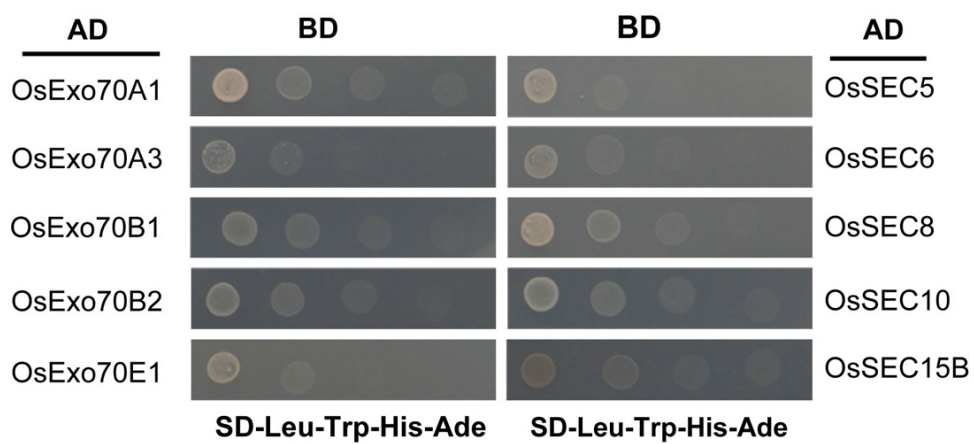


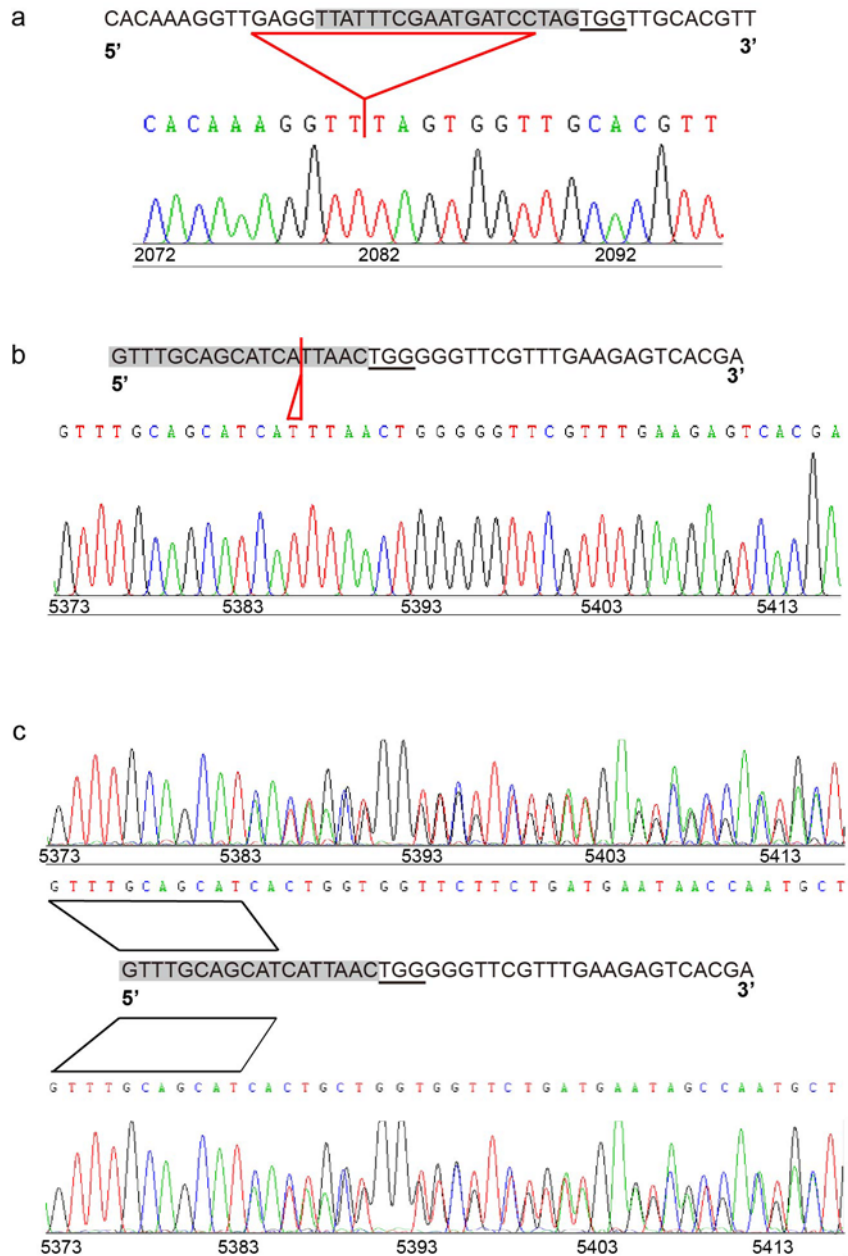
Disruption of OsSEC3A increases the content of salicylic acid and induces plant defense responses in rice.

Jin Ma, Jun Chen, Min Wang, Yulong Ren, Shuai Wang, Cailin Lei, Zhijun Cheng, and Sodmergn Sodmergn

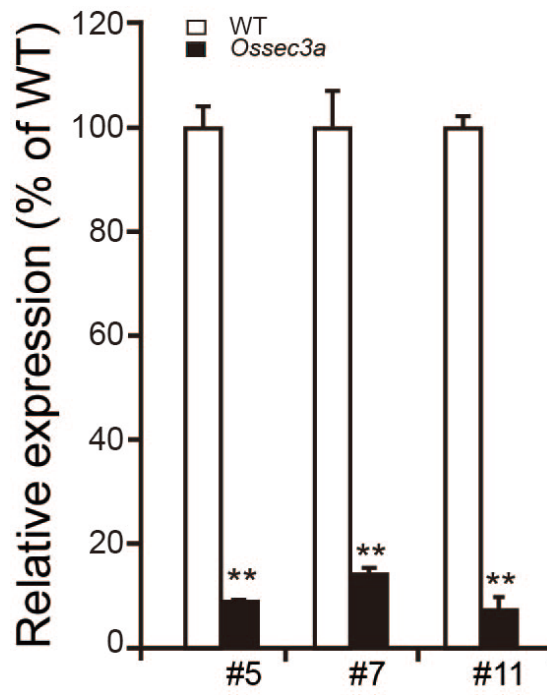
SUPPLEMENTARY DATA



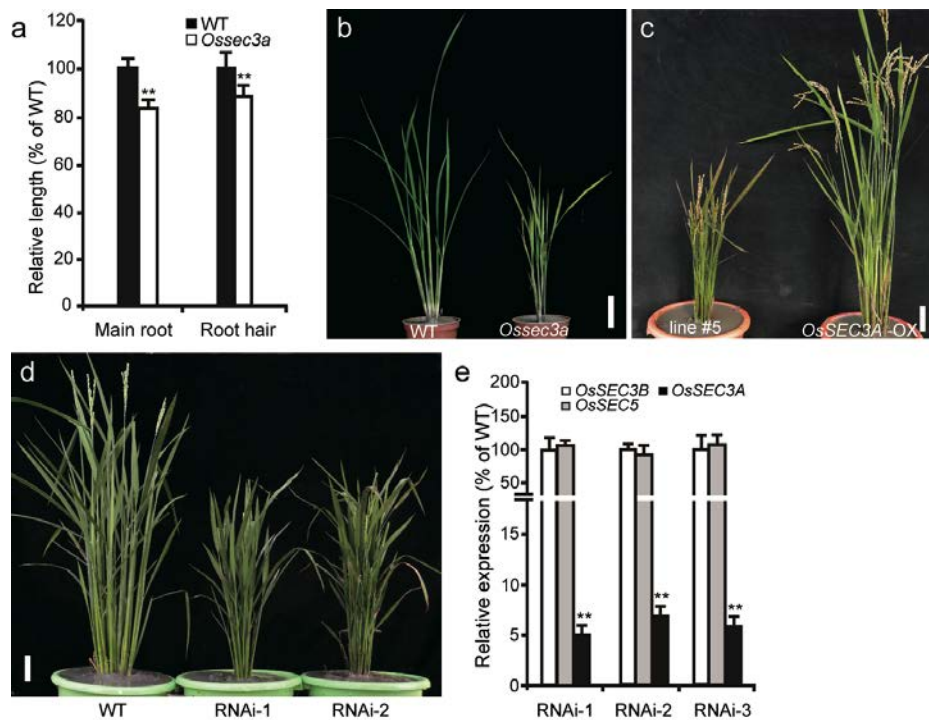
Supplementary Figure S1. Several exocyst subunits fused with AD displayed no auto-activation in our experiments.



Supplementary Figure S2. Alignment of mutations in *OsSEC3A* from chromatograms to the reference genome sequence. (a-b) Insert-cut indels. (c) Overlapping peaks appear after the presumed cleavage site in both directions, indicating sequence heterogeneity at the site.

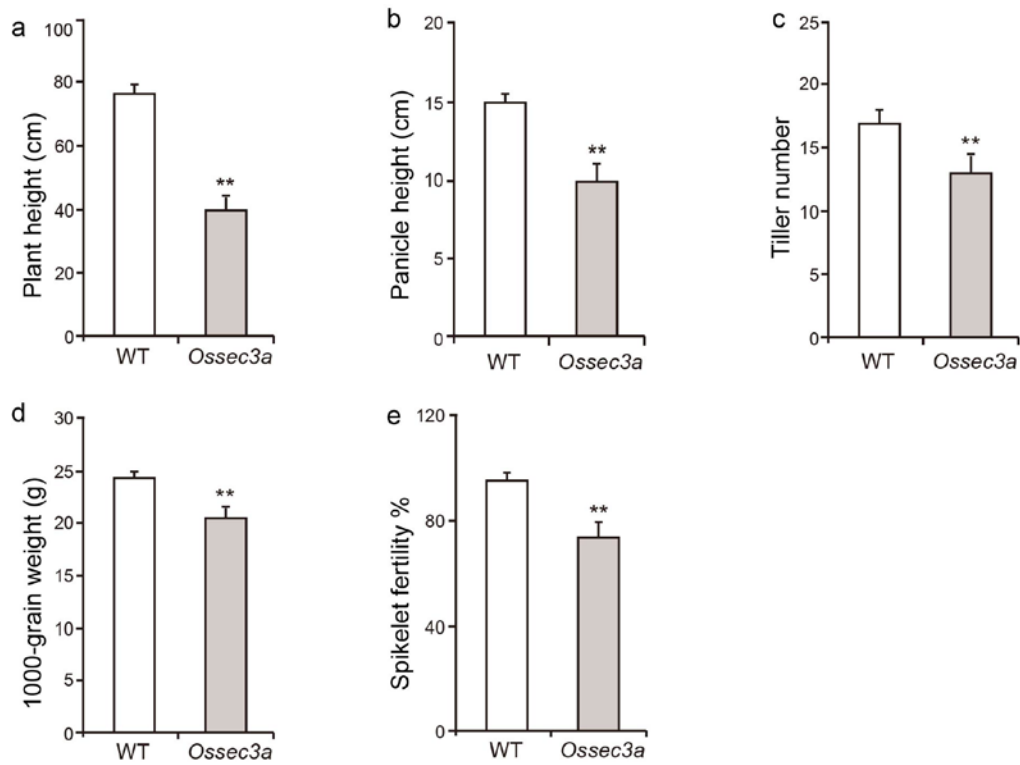


Supplementary Figure S3. qRT-PCR analysis of *OsSEC3A* in WT and *Ossec3a* plants (#5, #7, #11).

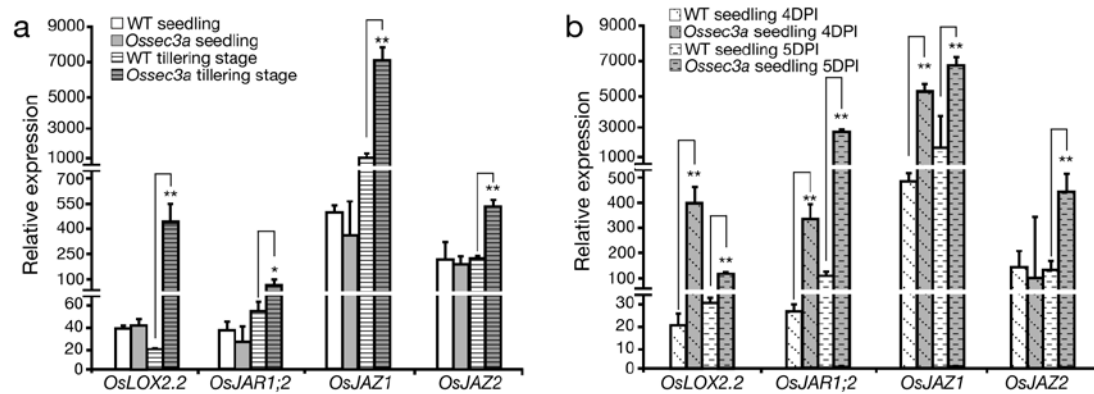


Supplementary Figure S4. Performance of whole plants (WT and transgenic lines) at different developmental stages.

(a) Analysis of root and root hair length in WT and *Ossec3a* plants grown in liquid medium under greenhouse conditions. For all experiments, the longest main roots were observed. (b) Phenotypes of WT and *Ossec3a* mutant plants at the tillering stage. (c) The WT full-length cDNA of *OsSEC3A* completely rescued plant stature. (d) *OsSEC3A*-RNAi transgenic lines mimicked the phenotype of *Ossec3a* mutant plants. Scale bars = 10 cm in (b, c, d). (e) qRT-PCR of *OsSEC3A* and other exocyst subunit genes in WT and *OsSEC3A*-RNAi plants. Data are presented as mean \pm standard error (n = 20). Significant differences were identified with Student's *t*-test (** $p < 0.01$).



Supplementary Figure S5. Agronomic traits (plant height, panicle length, tiller number, thousand-grain weight, and spikelet fertility) of wild-type and *Ossec3a* mutant plants. Data are presented as mean \pm standard error (n = 20). Significance was determined with Student's *t*-test (** $p < 0.01$).



Supplementary Figure S6. qRT-PCR of jasmonic acid (JA) synthesis-related genes (*OsLOX2.2*, *OsJAR1;2*) and signaling pathway genes (*OsJAZ1*, *OsJAZ2*) in WT and *Ossec3a* seedling or tillering plants without (a) and with (b) *Magnaporthe oryzae* inoculation. Values are presented as the mean \pm standard error of three independent experiments. Significant differences were determined with Student's *t*-test (* $0.01 < p < 0.05$; ** $p < 0.01$).

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OsSEC3A .....MARRSSADDAELRACACAAVAAS...GARG 26
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Pt XP_006375042.1 .....MARRSSADDELPSSCE...RAI...EGTK 23
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At NP_175187.3 .....MARRSSADDELPSSCE...RAI...EGTK 23
Hs Q9NV70 .....MTAKHAKLQDIF...TFN...DEAL 20
Sc P33332 MRRSSKSPFKRKSRSRETSRHDENTSFFHKRTISGSSAHSRNVSGGAVFSSAPFVSGGNVSHKRVNRSRASNSS...SNELAEQVTE...DRK...RINCCFSRP 97
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Sc P33332 DRYWEGFFRNNYITVVRITIEDSKFP.SSRHPRDSEKLENK...KPELLLSKRFNNAELIQIKHARENSDGSFQIGRTWQTELVVVRVDEDEISEGFILTMK 194
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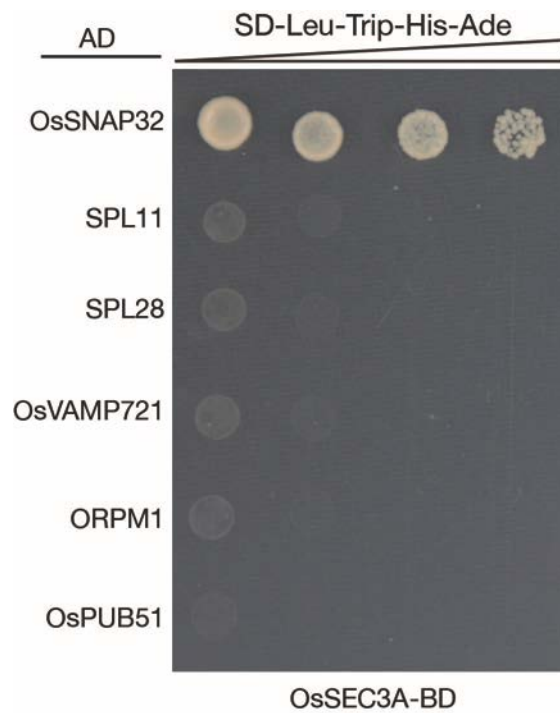
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At NP_175186.2 APPQWIMRNIDDRNRLFCILNMCHEILSYLPRVVGIDIVELALWAKRNTLTIENQSSITQDQGER.SVATQTERKVT.VIVENILVUSQAREEEDMEALL 214
At NP_175187.3 APPQWIMRNIDDRNRLFCILNMCHEILSYLPRVVGIDIVELALWAKRNTLTIENQSSITQDQGER.SVATQTERKVT.VIVENILVUSQAREEEDMEALL 214
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Sc P33332 ESNVFPVSTH...SVEYHAGM...SLNKA...FYSS...STLNEVNRKRYELECCQCCEP...ELRLLEEQK...QRENEKML...EERF...KRR...RQM...LEH...CR...EER 390
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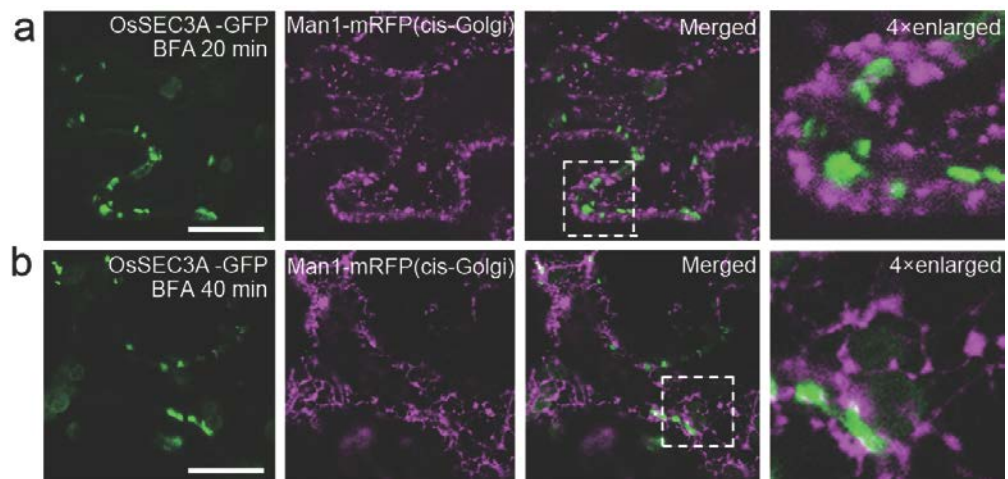
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Supplementary Figure S7. Evolutionary analysis of OsSEC3A.

Sequence alignment of OsSEC3A with the equivalent regions of its homologs in different species. Conserved arginine/lysine residues predicted to be important for phosphoinositide binding are highlighted in red. Identical amino acids and similar amino acids are shaded in black (100%), grey (>75%), green (50%), or yellow (33%). The following abbreviations were used: Zm, *Zea mays*; Si, *Setaria italic*; Sb, *Sorghum bicolor*; Os, *Oryza sativa*; Gm, *Glycine max*; Pt, *Populus trichocarpa*; At, *Arabidopsis thaliana*; Hs, *Homo sapiens*; Sc, *Saccharomyces cerevisiae*.



Supplementary Figure S8. Interaction of OsSEC3A with a group of known immunity-and defense-related protein factors. Y2H assay in *S. cerevisiae*. Full-length OsSEC3A was ligated into pGBKT7 to generate the OsSEC3A-BD plasmid. Several exocyst constructs were fused with AD.



Supplementary Figure S9. BFA treatment of leaf epidermal cells coexpressing OsSEC3A-GFP and Man1-mRF. Scale bars = 10 μ m.

Supplementary Table S1. Sequences of DNA oligonucleotides used in this study.

Primer Name	Sequence
OsSEC3A-Pro-F	CCATGATTACGAATTCCAAGTTTTAGGCA TGGTGTCA
OsSEC3A-Pro-R	CTCAGATCTACCATGGTTGGGGAAGAGG GATGAGTT
OsSEC3A-MBP-F	CGACGGATCCGAATTCATGGCGAAGTCG AGCGCG
OsSEC3A-MBP-R	TACCTGCAGGGAATTCCTAGAAGTTAGC AAGGACATC
OsSEC3A ^N (a.a. 1–450) -MBP-F	CGACGGATCCGAATTCATGGCGAAGTCG AGCGCG
OsSEC3A ^N (a.a. 1–450) -MBP-R	TACCTGCAGGGAATTCCTAACAGCTCTTG TCCAGACTC
OsSEC3A ^C (a.a. 310–888) -MBP-F	CGACGGATCCGAATTCAAAGGACTCGTT GAAGAACT
OsSEC3A ^C (a.a.310–888) -MBP-R	TACCTGCAGGGAATTCCTAGAAGTTAGC AAGGACAT
qOsCATA-F	CAACCGCAACGTCGACAACCTTCTT
qOsCATA-R	TTCACCGGCAGCATCAGGTAGTTT
qOsGSTF10-F	GCTTCTGTGCTCGAAGCCTA
qOsGSTF10-R	AGCAGACGGCATCTTCAGAG
qOsGSTU6-F	TACATCGACGAGGTGTTCCC
qOsGSTU6-R	TGCCTCTGAACACCGGAATC
qOsAOX1a-F	CTTCGCATCGGACATCCATTA
qOsAOX1a-R	TCCTCGGCAGTAGACAAACATC
qOsAOX1b-F	CCTGCTCAGTTCATCACCATCA
qOsAOX1b-R	GCATAAAACGGAGTGACAATAGC
qPO-C1-F	TAGAGGCCGTGTGCAATCAG
qPO-C1-R	GCTTGCACCTGTAGAGTCCC
qEDS1-F	CATTCCAAGAACGAGGACACTG
qEDS1-r	CAAGACTCAAGGCTAGAACCGA
qPAD4-F	AGGGGTTCTTGAGGCTGTGC

qPAD4-R	GCTGAGCTTGACGATGATGTG
qPAL-F	GCACATCTTGAGGGAAGCT
qPAL-R	GCGCGGATAACCTCAATTTG
qPR1a-F	AGGGCGACTGCAAGCTGGTC
qPR1a-R	ACCACTGCTTCTCCGACACCC
qNPR1-F	GCTGGTGCTCGACTACCTCTACA
qNPR1-R	CAAGGACATCAAGGAGACGC
qPBZ1-F	TGATGGCTCCGGCCTGCGTC
qPBZ1-R	GGTCTTGTATGTGCTTCCCAC
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OsLOX2.2-R	GAGTGGCCGGGTCATTGTCG
OsJAR1;2-F	GGATTGTTGATGGCGATACCT
OsJAR1;2-R	TGCCACCTTTCGTTATGACTTG
OsJAZ1-F	CTGGGACGCTGAAAGACACG
OsJAZ1-R	AACCTCTGCAGCGACACCTT
OsJAZ2-F	CCCCGCTGACCATCTTCTACGA
OsJAZ2-R	GCCTTCTTGTATGGTTCGCTCGT
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qOsSEC3B-R	GTCTTTCTGAATGGCAACTT
qOsSEC5F-F	CGTGGGAACATTAGAAAAGG
qOsSEC5R-R	CCTCCATTGACTTGTAAGC
OsSEC3A-GFP-F	GCCCAGATCAACTAGTATGGCGAAGTCG AGCGC
OsSEC3A-GFP-R	TGCTCACCATGGATCCGAAGTTAGCAAG GACATC
1305OsSEC3A-GFP-F	CGGAGCTAGCTCTAGAATGGCGAAGTCG AGCGC

1305OsSEC3A-GFP-R	TCGAGACGTCTCTAGAGAAGTTAGCAAG GACATC
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OsSEC3A-Crispr-1R	GCATAGCTCTAAAACCTAGGATCATTCGA AATATGCCACGGATCATCT
OsSEC3A-Crispr-2F	AGATGATCCGTGGCAGTTTGCAGCATCAT TAACGTTTTAGAGCTATGC
OsSEC3A-Crispr-2R	GCATAGCTCTAAAACGTTAATGATGCTGC AAACTGCCACGGATCATCT
1390OsSEC3A-CDS-F	TCTGCACTAGGTACCTGCAGATGGCGAA GTCGAGCGC
1390OsSEC3A-CDS-R	GGGGATCCGTGACCTGCAGCTAGAAGT TAGCAAGGACATC
OsSEC3A-RNAi1-F	TTACTTCTGCACTAGGTACCTGGGCATAG GTGAAGCAGAT
OsSEC3A-RNAi1-R	TAGAGCTCAGGCCTGGTACCCGCAAGCG ATCAAGCAACTT
OsSEC3A-RNAi2-F	GAATTCCCGGGGATCCTGGGCATAGGTG AAGCAGAT
OsSEC3A-RNAi2-R	CGTAGTCGACGGATCCCGCAAGCGATCA AGCAACTT
OsSEC3A-BD-F	GAATTCCCGGGGATCCGTATGGCGAAGT CGAGCGC
OsSEC3A-BD-R	GCAGGTCGACGGATCCCTAGAAGTTAGC AAGGACATC
OsSEC3A (a.a. 1–160)-BD-F	GAATTCCCGGGGATCCGTATGGCGAAGT CGAGCGCG
OsSEC3A (a.a. 1–160)-BD-R	GCAGGTCGACGGATCCCTACACAAAATC AATTCAA
OsSEC3A (a.a. 190–510)-BD-F	GAATTCCCGGGGATCCGTCAAAGTGA GGAAAGTAAC
OsSEC3A (a.a. 190–510)-BD-R	GCAGGTCGACGGATCCCTAAGATACTGT TGAAGTGTCAGC
OsSEC3A _c (a.a. 521–888)-BD-F	GAATTCCCGGGGATCCGTATCCCACTTCT TGTGGATGA
OsSEC3A _c (a.a. 521–888)-BD-R	GCAGGTCGACGGATCCCTAGAAGTTAGC AAGGACATCT
OsSNAP32-AD-F	GGAGGCCAGTGAATTCATGAGCGGGAGG

	AGATCGTT
OsSNAP32-AD-R	CACCCGGGTGGAATTCTTATTTCCAAGC AGACGGCG
OsPUB51-AD-F	GGAGGCCAGTGAATTCATGGAGATCGAG GAGGCGGG
OsPUB51-AD-R	CACCCGGGTGGAATTCCTAACTCTTTGTT CTCCAGTC
OsRPM1-AD-F	GGAGGCCAGTGAATTCATGCATACTGAG GTAGGGATCA
OsRPM1-AD-R	CACCCGGGTGGAATTCTCATATGGCGGC CGTTCTTT
SPL11-AD-F	GGAGGCCAGTGAATTCATGGCCGGCGAC CGAG
SPL11-AD-R	CACCCGGGTGGAATTCTCATAACAACATA GGGTATTGAG
SPL28-AD-F	GGAGGCCAGTGAATTCATGGCGGGCG CGGTGTCGGC GCT
SPL28-AD-R	CACCCGGGTGGAATTCTCATATAAGTCTC AGTTCGTAT
OsVAMP721-AD-F	CATCGATACGGGATCCATATGGGGCAGC AGTCGCTGAT
OsVAMP721-AD-R	CGAGCTCGATGGATCCTCACTTGCACTT GAAGCCAT
OsExo70A1-AD-F	CATCGATACGGGATCCATATGGAGACCCT TGCGCAGC
OsExo70A1-AD-R	CGAGCTCGATGGATCCTCAAGTACGCTC TTGTTTTT
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OsExo70E1-AD-F	CATCGATACGGGATCCATATGATGGCTGC TGAGTTAATT
OsExo70E1-AD-R	CGAGCTCGATGGATCCCTACAATGTTTTT TGAGCTCCT

OsSEC5-AD-F	CATCGATACGGGATCCATATGGCGAGCG ACAGCGACGT
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OsSEC6-AD-F	CATCGATACGGGATCCATATGGAGGATCT GGGCATCGA
OsSEC6-AD-R	CGAGCTCGATGGATCCTTACTGTCCAAG CTTGCTCCAT
OsSEC8-AD-F	GGAGGCCAGTGAATTCATGAGCCGCACC GGCGGCCG
OsSEC8-AD-R	CACCCGGGTGGAATTCTTAATGGCCAA AATCTGAGAG
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