

**Supplemental Table 2 All primers for this study**

Primer Name	Sequence(5'-3')	Purpose
ZTQ38F	TGCGAATGCTTGAATGGATC	Fine mapping of the PAA3 gene
ZTQ38R	CAAGGCTCACTTCTAGATCAAG	
CHR4-P118-3F	GGTAGCATCCATTTGCCGA	
CHR4-P118-3R	GTGACGGCTCGAACATCTG	
CHR4-P118-6F	CGGATTGAACTGTCCATGTTAAC	
CHR4-P118-6R	CCTTACAATGATGAATGGTC	
CHR4-P118-9F	GATATGATATGATCGAGCCGCTCG	
CHR4-P118-9R	CTGATGCAGCTTACATTGCTGG	
PAA3 -com-F(EcoR1)	ATGACCATGATTACGAATTCTGAGG TCATCCAATCAGACGCTGAC	
PAA3 -com-R(HindIII)	CGACGGCCAGTGCCAAGCTTCCATG CCGAGTGCAATGCTACT	
comF1	CACTATTACAATTCTAGCAACGACC	Identification of transgenic plants
GUSR1	CTGCCTGGCACAGCAATTG	
comF2	CAAATTCGGTGTGATCAATC	
comR2	GCCAGCGTACTGTATTGCGCTC	
PAA3 P-GUS-F( <i>EcoRI</i> )	ATGACCATGATTACGAATTCTGAGG TCATCCAATCAGACGCTGAC	Expression pattern analysis
PAA3 P-GUS-R( <i>NcoI</i> )	TACCCTCAGATCTACCATGGCGGTG GTGGTATTAGTAGTGGAGAGG	
SL- PAA3 -F ( <i>SpeI</i> )	GACAGCCCAGATCAACTAGTATGGG TGGGCTCGAGGAGAT	Subcellular localization
SL- PAA3 -R ( <i>SmaI</i> )	CTCACCATGGATCCCCGGGCACTG TGTAGTTCTGCTGGATCG	
YC- PAA3-F ( <i>BamHI</i> )	GAGCTCGGTACCCGGGATCCATGG GTGGGCTCGAGGAGATCA	
YC- PAA3-R ( <i>XbaI</i> )	TTGCTCACCATGTCGACTCTAGACA CTGTGTAGTTCTGCTGGAT	
q-PAA3 F	CAAGGACGCTTCACTTGAGGC	For qRT-PCR
q-PAA3 R	GCAATACCAATGTGCGCCTTC	
q-OsVPE2 F	CGGCTCCAACGGCTACTACAAC	
q-OsVPE2R	TCGGGACCCCAGCATAGACA	
q-OsVPE3 F	CGGTAACCTACAGGCACCAGGC	
q-OsVPE3 R	GTGACTTCGTCTCCAGTGTAATCC	
q-CATA F	CCACCGATTACCGCCACA	
q-CATA R	GCCTCGTCGTCCATCAAGC	
q-CATB F	ATCCCACGCAACTACAGG	
q-CATB R	CAAGGTGAGGCTTTCCAT	
q-CATC F	CCGCTTCTCCACCGTCAT	
q-CATC R	ACCAGGTCCCAGTTGCCC	
q-ACTIN F	TGGCATCTCTCAGCACATTCC	
q-ACTIN R	TGCACAATGGATGGGTCAGA	
qLOC_Os04g10160 F	GGTTCATCGACGCCATGAC	
qLOC_Os04g10160 R	GCCCTGATCTCTGATCCTGA	
qLOC_Os01g43750 F	CGAAGGCGAGAAGTGGGTC	
qLOC_Os01g43750 R	GAACCAAGGGACTCCATCCAC	
qLOC_Os11g29290 F	CCGTGATGGGGCTCATCC	
qLOC_Os11g29290 R	GTACCCGCATTTCGATCATC	
qLOC_Os02g36030 F	GTGCTCAACCTCGTCTCCAGC	
qLOC_Os02g36030 R	CGACGAGGTCTCCACGAG	
q-LOC_Os04g59190F	GCGCTCCAGCGTGAGATC	
q-LOC_Os04g59190R	CGCCACTCAAGTAAACCGA	

q-LOC_Os04g59150F	CTGAAGCTCATCGAGGACATC
q-LOC_Os04g59150R	GAGGCACGTCGAAGTAGGG
q-LOC_Os01g73200F	CCAGTTTCGCGTCTGAGG
q-LOC_Os01g73200R	GCGTCGAGCTTGAGCTTG
q-LOC_Os04g59260F	GTGCAAGCCGCTCTCCAG
q-LOC_Os04g59260R	CTGCTCCGAGTTGCTGCCTC

