

Figure S1. Tissue-specific expression profile of the genes that were screened through the RHE-Patmatch and root-specific microarray filters. The gene expression profile (heat map) was drawn by the Genevestigator program (www.genevestigator.com). Darker blue color indicates higher gene expression.

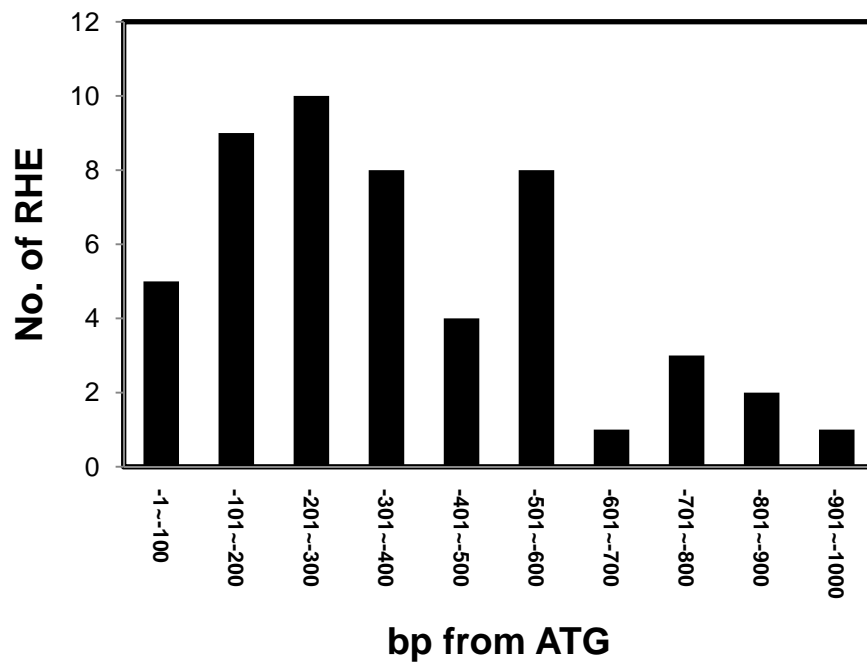


Figure S2. Distribution of RHE in the Promoters (upstream 1000 bp from ATG) of *Arabidopsis* Root Hair-specific Genes. A total of 51 RHEs from 29 root hair-specific genes was analyzed.

Filters:

- RHE-Patmatch (RHE)
- 3 Root hair mutant microarray (3RHmut)
- Root specific Genevestigator microarray (RS)

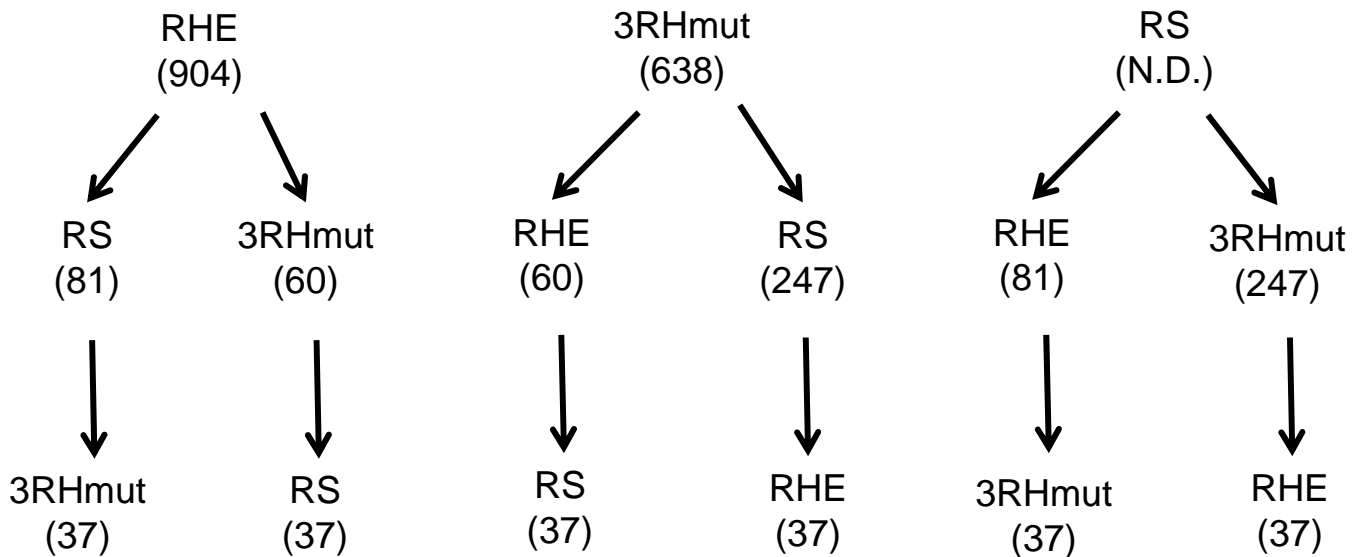


Figure S3. The summary of screening processes for putative root hair-specific genes using 3 different filters in different orders. Numbers in parentheses indicate the gene numbers after administration of the corresponding filtering step. The root specific gene number in the whole Arabidopsis gene set could not be determined because of technical limitation in the Genevestigator program. However, its filtration effect can be inferred when combined with other two filters.

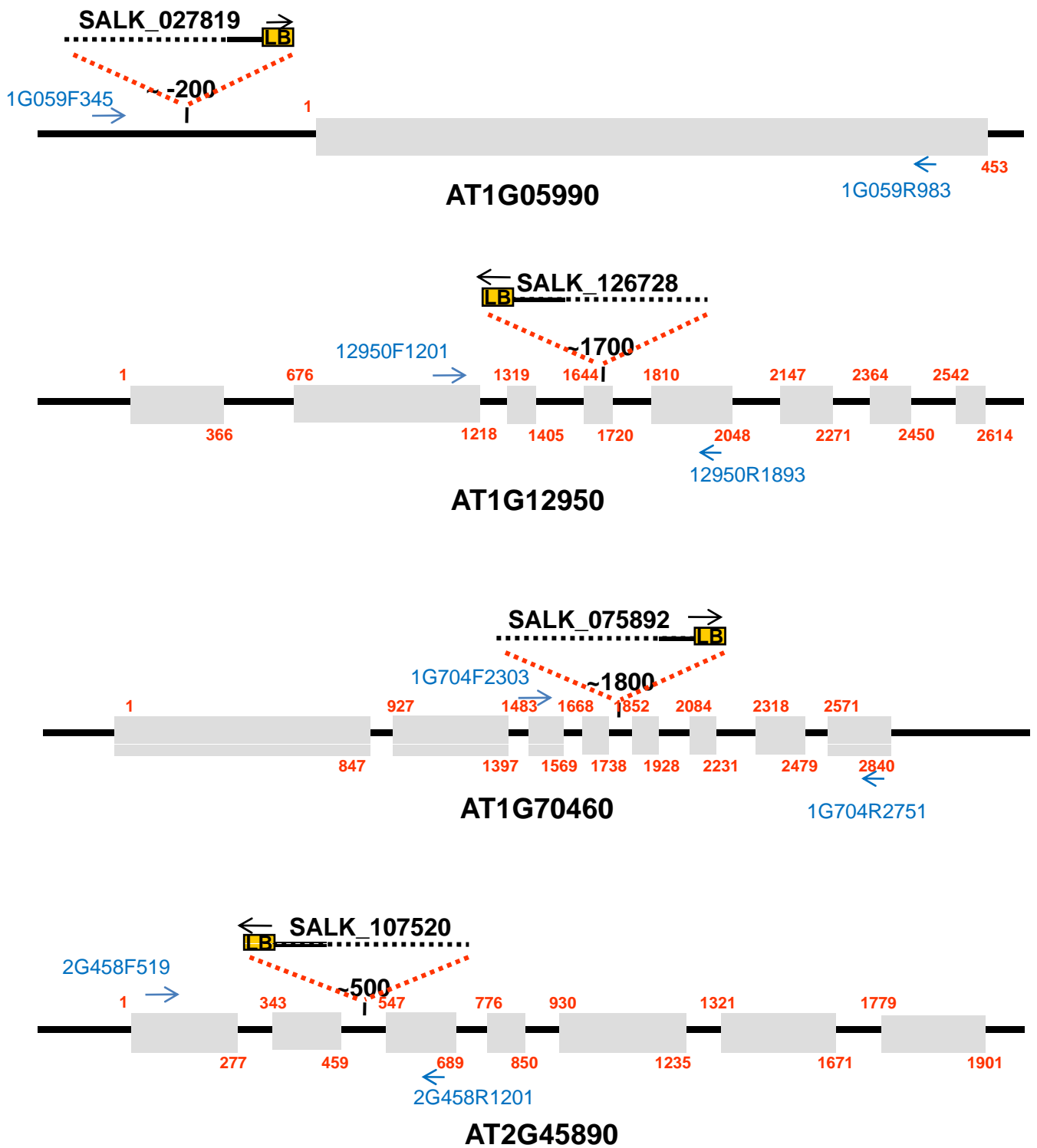


Figure S4. T-DNA insertion maps of 4 *RHS* genes whose loss-of-function mutations showed phenotypic effects on root hair growth. Gene-specific primers and LBb1 primer for the confirmation of T-DNA insertion are indicated for each map.

Table S2. Primers for Constructing *Promoter:GFP* Reporters

Gene	Primer name ¹	Primer sequence (5' to 3')
AT1G05990	1G05Hd81F	TTT CAA GCT TAT GCA ATT TTA TTT TTT TCC
	1G05Xb1186R	CTC TTC TAG AGT TGT AGT GTT GCG TG
AT1G12950	1G12Hd492F	CAA AAA GCT TTC GAT ATT CAT ATG CTC T
	1G12Xb1614R	GAC GTC TAG AGA AAG AGA AAG AGA GAA A
AT1G16440	1G16Xb276F	TCG ACT CTA GAC TAA ATC CAA GAA T
	1G16Xm1158R	GTT AAC CCG GGG ATT GCT GAT TAA CAG A
AT1G18940	1G18Xb404F	ATC ATC TAG ATG TTT CTA GGG TTT TAC C
	1G18Xm841R	TTT CCC CGG GAG AAG AAA AAG ACA GA
AT1G30850	1G30Xb1041F	GAT TCT AGA ACG CCA AAA AAG CAC AGA
	1G30Xm1688R	TTG TCC CGG GAA AAA AAA AGA TCA GAT T
AT1G34760	1G34Hd197F	TTA AAA GCT TCG TAA ACC CTA ATT TCA T
	1G34Xm1118R	GCT TCC CGG GTC TCT CTT CTC TCT
AT1G51880	1G51Hd243F	TAT CAA GCT TTG TTG TTT ATT ATA ATC GA
	1G51Xb962R	TTC TTC TAG ATT TGC AGT GAG TGC T
AT1G54970	1G54Hd404F	TTC GAA AGC TTC GTC TTC TCA GTG T
	1G54Xb1571R	GCC ATT CTA GAG CGC GTG GTT AGT GTT
AT1G63450	1G63Xb248F	CCT TAT CTA GAA TTT AAG TCC ATG A
	1G63Xm1660R	CAT TTC CCG GGT TGG TTG TTT TTT GGA T
AT1G69240	1G69Hd174F	ACA AAG CTT GAA AAA TGT ATT AAT CAT T
	1G69Xb1618R	TTT TTC TAG ATT TTT GGT TTT TCT TGT AA
AT1G70450	1G7045Hd896F	TAT TTA AGC TTT TCA ACT TCT AAT T
	1G7045Xm1843R	CAC ATC CCG GGA ATT GTT CCT GTT ATC C
AT1G70460	1G7046Hd696F	TTG GTA AGC TTA TTT GGA AGA AGT G
	1G7046Xb1615R	TTT TGT CTA GAT TGA ATT TGT TTC TGT
AT2G03720	2G03Hd275F	GAT CAA AGC TTG TGT CAT TTG ATT TT
	2G03Xb964R	CCA TCT CTA GAC TCC CAC TCT CAG CTT G
AT2G45890	2G45Hd137F	AGC TAA AGC TTG GCA CGA ACT ATG C
	2G45Xb1114R	ATC ACT CTA GAG TAT AAT GAT CAA TGT T
AT3G10710	3G10Xb730F	AGG GTC TAG AAG TTG TAC AAT GTA TAT C
	3G10Xm1489R	GTA TCC CGG GTC CCT CTT TTC TAA TTT T
AT3G12540	3G125HdF404	CAG AAA GCT TCG ACT TTC CGA TTG TG
	3G125XbR1260	ATT TTC TAG ACT TCT CTT TGA AGA CTT C
AT3G47740	3G47Xb268F	TCA ATC TAG AGA TCC AAT TCT TAA TGT G
	3G47Xm1528R	AAA GCC CGG GTA GCT TTC CCT TCT TTG T

AT3G48940	3G48Hd589F	TTT CAA AGC TTA TTC ACA AAT GAC G
	3G48Xb1653R	TGG TTT CTA GAG TAT TAC GAT TGA TC
AT4G15740	4G15Hd390F	TAC ACA AGC TTA TCA ACA TCA TTG GA
	4G15Xb1487R	CAT CTT CTA GAG TTA CAA AAT TAT TGA
AT4G02270	4G02Hd1607F	GTA CTA AGC TTT TTC TTA CAA AAT T
	4G02Xb2309R	GCC ATT CTA GAT TTT TGC TTG CTT TGT T
AT4G22080	4G22Hd318F	ATG AAA GCT TAT AAA CGT CAA GAG TTT A
	4G22Xb1628R	TGG GTC TAG AGT TTG AGT AGG GAT C
AT4G25220	4G25Hd598F	CTG TAA GCT TTG ATC TCC AGT CGA ACA T
	4G25Xm1697R	AAG ACC CCG GGA ACC TGA AAA GCA GA
AT4G29180	4G29Xb235F	ATC TTC TAG ATC TTT TCA CTT CAA AAG GC
	4G29Xm920R	AAA GCC CGG GTC ATC ATC GTC AGA AA
AT4G37060	4G37Hd177F	TCT CAA GCT TTG ATA TAG GTA TGC AAA A
	4G37Xb1473R	TTA TTC TAG ATC AAT CTT CTT TTG AAC T
AT4G37070	4G37Xb214F	CAT CTT CTA GAA CAG GTG TTA CTT AG
	4G37Xm1445R	AGT TGC CCG GGC TTC TTT TGA GTT AAG A
AT4G38390	4G38Hd284F	AAA GAA AGC TTC GAG GAT GAT AAC T
	4G38Xb1476R	GCC ATT CTA GAG TTG TAT AAC GCA GAC
AT5G19560	5G19Hd513F	AAC ATA AGC TTC AAA TGA AGC AAT CG
	5G19Xb1794R	ATC TTT CTA GAA CTA AAA GAT CTT G
AT5G22410	5G22Hd148F	GAT CGA AGC TTA GAT TGT TGA TTC A
	5G22Xb1053R	CCA TTT CTA GAT GAA ATT TCT ATA TG
AT5G41280	5G41Hd158F	AAC TAA GCT TTC ATT GTT AAC TAA TAA AAC
	5G41Xb859R	GTT TCT AGA TCT TTT TAG AGG TTA TGA
AT5G67400	5G674HdF548	AAT CAA GCT TCA CGG CCT TCT GAA ATT
	5G674XbR1526	GCC ATC TAG ATG GAA ATT ACA AGT TTT TG

¹ Abbreviations of restriction enzyme sites in primers: Hd, HindIII; Xb, XbaI; Xm, XmaI

Table S3. Primers for Constructing *ProEXPA7:RHSs*

Gene	Primer name ¹	Primer sequence (5' to 3')
At1G05990	1G05S1116F	CTT CGT CGA CAC GCA ACA CTA CAA CTT
	1G05Xm653R	GGA TCC CGG GAC ACA AAA ATG CCA GA
At1G12950	1G12Av138F	TTG TCC TAG GAG AAT GGA GAA AGA TAA TG
	1G12M12801R	AAA GAC GCG TCA ATA TGT CTT GAA GTA A
At1G16440	1G161S1113F	CAG AGT CGA CTC TGT TAA TCA GCA ATC A
	1G16Xm1564R	AAG CCC CGG GAC GTT TCG TGT TAC AA
At1G30850	1G30S1131F	TTT CGT CGA CAA ATC TAG TTA TGC CTC CT
	1G30Kn1068R	TTT TGG TAC CCT TAT TCA AGC GTT TTG TG
At1G34760	1G34S1138F	GAA AGT CGA CGC TAT GGA GAA CGA GAG A
	1G34Kn1724R	GAA AGG TAC CAG GAA AGT GTA AAG CTT TG
At1G51880	1G51S1116F	CTG AGT CGA CGC ACT CAC TGC AAA AAA AG
	1G51Xm4051R	GAA GCC CGG GAG ATA TTC TCT CAA TTT AT
At1G54970	1G54S1120F	AAA AGT CGA CAC ACT AAC CAC GCG CTC C
	1G54Kn1434R	ATA TGG TAC CAT GCA AGA TCA TCA TCA T
At1G63450	1G63S1194F	AAA CGT CGA CAA AAG CTT GTA CAC AAA A
	1G63Xm2131R	AAT ACC CGG GCT ACA TTT GAA AAT TTG AC
At1G69240	1G69Sc123F	ACA AGA GCT CCC AAA AAA CCA AAA AAA AA
	1G69Pt2276R	TCC GCT GCA GTT TAC ATA ACC GGT AAC
AT1G70460	1G70S1138F	ACA AGT CGA CAA AAT GTC GGA CTC GCC AA
	1G70Kn3050R	ATG CGG TAC CAA GAG CTC AAG CAT GAG
AT2G45890	2G45Bm88F	ACA TGG ATC CTT ATA CAC AAT CGT GAT GG
	2G45Kn2051R	AAT CGG TAC CCA AAA GAA AAA ACT CAG T
At3G10710	3G10Bm137F	CGG AGG ATC CAA ATA TGT CCT CTC CTT
	3G10Kn2130R	ATT GGG TAC CTC GTT AAC GGA AAC GA
At3G48940	3G48S1133F	CGT AGT CGA CAA GAA ACC ATG ACT TTA G
	3G48Kn1492R	AAA TGG TAC CAC AAT GCA ACA TCA AAG A
At4G02270	4G02S1134F	GCA AGT CGA CAA AAA AAA TGG CTT TCT CA
	4G02Kn806R	TCC AGG TAC CTG TTA AAT TTC ATG TTC AT
At4G22080	4G22S1112F	TAG TGT CGA CCC CTA CTC AAA CCA TAA A
	4G22Xm2013R	CTA TCC CGG GAA TTA GAT GCA TCT CGT G
AT4G29180	4G29Av111F	TCT GCC TAG GAT GAG CTG AGC TTT ACA AA
	4G29Nc4082R	AAA CCC ATG GTG AAT CAA ACC TTG AGT TA
At4G37070	4G37Av98F	ACC AAA ACC TAG GTT TAT AAT CTT AAC TC
	4G37M12133R	TGG GAC GCG TAT TAT TAA TTT ATT TTA TT

At5G22410	5G22S1112F	CCC CGT CGA CTA GAA TTC ATA TAG AAA TT
	5G22Xm1533R	ATA TCC CGG GTA ACT TTA TTC AAC TGT T

¹ Abbreviations of restriction enzyme sites in primers: Av, AvrII; Bm, BamHI; Hd, HindIII; Kn, KpnI; Ml, MluI; Nc, NcoI; Pt, PstI; Sc, SacI; Sl, Sall; Xb, XbaI; Xm, XmaI

Table S4. Primers for Genotyping and RT-PCR Analysis of T-DNA Insertion Mutants

Gene	Primer name	Primer sequence (5' to 3')
AT1G05990	1G059F685	AGG GAT TTA CAT CCC GGA CAA G
	1G059R1060	AAA TAA AAC CAT ATT AAT TAG CTA CAA AG
AT1G12950	12950F1201	TTC TGC TGC CAT GCT CTG GTG A
	12950R1893	GCT GTC GAC AAT ATC ACA GCC ACA
AT1G18940	1G189F696	GAG GAC CTT GGG TGG TGA TT
	1G189R1239	ATA CAA GAC AAG CAC AGT GGA TG
AT1G30850	1G308F550	CGA TAA TGA GTG GCA AGG TTT
	1G308R1274	TTC ACC GCA ACG TCG TGT TA
AT1G51880	5G518F524	GGT GCA GTC CTC GAG ATG ATT CA
	5G518R1338	GGA GTA CAC ATT CTG ACC ACC ATT
AT1G70460	1G704F2303	GGG AAG GGA AGG CCA GTA CTT GAA T
	1G704R2751	ATG TAC AGT GGA GAC TAC TCT GTC C
AT2G03720	2G037F637	CAA GCT GAG AGT GGG AGG AAA
	2G037R1278	CCT TTC TCC TCC GCC GTT T
At2G45890	2G458F519	AGT TCT TCG AAT TCC GAC CAA A
	2G458R1201	CTC AAC GTT AGT ACC AAG AGA TCT
AT5G19560	5G195F1323	AGG GGA GAC CTC TGC GTT A
	5G195R2185	CTG ATC CTT GAA GTT GTC CAA A
AT5G67400	5G674F585	ACA ACC ACT GCT CAA CTC AAA
	5G674R1598	TCA ACG GCG TGT GTG AGG TT
At ACTIN	At-actin2F	GTG TGT CTT GTC TTA TCT GGT TCG
	At-actin2R	AAT AGC TGC ATT GTC ACC CGA TAC T
T-DNA border	LBb1	GCG TGG ACC GCT TGC TGC AAC T

Table S5. Primers for RT-PCR Analysis of RHSox Transformants

Gene	Primer name	Primer sequence (5' to 3')
AT1G05990	1G05S1116F	CTT CGT CGA CAC GCA ACA CTA CAA CTT
	1G05Xm653R	GGA TCC CGG GAC ACA AAA ATG CCA GA
AT1G12950	1G12FSq1012	GGC CAT GGC AGG GAT TT
	1G12R1893	GCT GTC GAC AAT ATC ACA GCC ACA
AT1G16440	1G161S1113F	CAG AGT CGA CTC TGT TAA TCA GCA ATC A
	1G16Xm1564R	AAG CCC CGG GAC GTT TCG TGT TAC AA
AT1G70460	1G70S1138F	ACA AGT CGA CAA AAT GTC GGA CTC GCC AA
	1G70Kn3050R	ATG CGG TAC CAA GAG CTC AAG CAT GAG
AT2G45890	2G45Bm88F	ACA TGG ATC CTT ATA CAC AAT CGT GAT GG
	2G45Kn2051R	AAT CGG TAC CCA AAA GAA AAA ACT CAG T
AT4G29180	4G29Av111F	TCT GCC TAG GAT GAG CTG AGC TTT ACA AA
	4G29Nc4082R	AAA CCC ATG GTG AAT CAA ACC TTG AGT TA
AT5G22410	5G22S1112F	CCC CGT CGA CTA GAA TTC ATA TAG AAA TT
	5G22Xm1533R	ATA TCC CGG GTA ACT TTA TTC AAC TGT T
At ACTIN	At-actin2F	GTG TGT CTT GTC TTA TCT GGT TCG
	At-actin2R	AAT AGC TGC ATT GTC ACC CGA TAC T
At EXPA7	E7RTFW2165	GTA TCA TCC CAG TTG CAT ACC GAA
	E7RTRV2609	GTT TGG TAG GGC AAA AGC CTA G