

Table S2. 7TMR candidate proteins identified from the *Arabidopsis thaliana* genome. 189 proteins (or 162 proteins excluding predicted alternative splice forms) were obtained by combining the results of eight classifiers and two TM prediction methods. 156 proteins (listed with yellow background) were identified by taking the intersection of positives predicted by "6 classifiers" and "7-8 TM". Another 33 proteins (listed with white background) were identified by taking the intersection of positives predicted by "SAM2+GPCRHMM" and "5-10 TM". Proteins represented with more than one alternative transcripts are shown with italics.

"7TMR": Names of known 7TMR proteins.

"Gookin": Names of the 16 high-ranking GPCR proteins identified by Gookin et al. (2008).

"Phobius_SIG": Signal peptide prediction by Phobius (Y: yes, N: no).

"Phobius": Number of transmembrane regions predicted by Phobius.

"Phobius_Nterm": Location of N-terminus predicted by Phobius (IN: intracellular, OUT: extracellular).

"HMMTOP": Number of transmembrane regions predicted by HMMTOP.

"HMMTOP_Nterm": Location of N-terminus predicted by HMMTOP (IN: intracellular, OUT: extracellular).

"GPCRHMM": GPCR prediction by GPCRHHM (G: GPCR, N: non-GPCR).

SeqID	7TMR	Gookin	Length (aa)	Phobius_ SIG	Phobius_ Nterm	Phobius_ OP	HMMTOP OP	HMMTOP Nterm	GPCR HMM	Description
AT1G01070.2			318	N	8	IN	8	IN	N	Symbols: nodulin MtN21 family protein chr1:38898-40597 REVERSE
AT1G03070.1			247	N	7	OUT	7	OUT	N	Symbols: glutamate binding / chr1:730148-731379 FORWARD
AT1G08350.2			589	Y	9	OUT	10	IN	G	Symbols: endomembrane protein 70 family protein chr1:2632967-2635602 REVERSE
AT1G09860.1			383	N	10	IN	10	IN	G	Symbols: ATPUP16 ATPUP16 (Arabidopsis thaliana purine permease 16); purine transmembrane transporter chr1:3204138-3205289 REVERSE
AT1G10660.1			320	N	7	OUT	7	OUT	N	Symbols: similar to unknown protein [Arabidopsis thaliana] (TAIR:AT5G62960.1); similar to unnamed protein product [Vitis vinifera] (GB:CAO64308.1) chr1:3533010-3534782 FORWARD
AT1G10660.2			320	N	7	OUT	7	OUT	N	Symbols: similar to unknown protein [Arabidopsis thaliana] (TAIR:AT5G62960.1); similar to unnamed protein product [Vitis vinifera] (GB:CAO64308.1) chr1:3533010-3534782 FORWARD
AT1G10660.3			320	N	7	OUT	7	OUT	N	Symbols: similar to unknown protein [Arabidopsis thaliana] (TAIR:AT5G62960.1); similar to unnamed protein product [Vitis vinifera] (GB:CAO64308.1) chr1:3533010-3534782 FORWARD
AT1G10660.4			320	N	7	OUT	7	OUT	N	Symbols: similar to unknown protein [Arabidopsis thaliana] (TAIR:AT5G62960.1); similar to unnamed protein product [Vitis vinifera] (GB:CAO64308.1) chr1:3533010-3534782 FORWARD
AT1G10950.1			589	Y	9	OUT	9	OUT	G	Symbols: endomembrane protein 70, putative chr1:3659322-3663622 FORWARD
AT1G10980.1			516	Y	7	OUT	7	OUT	N	Symbols: similar to unknown protein [Arabidopsis thaliana] (TAIR:AT1G61670.1); similar to unnamed protein product [Vitis vinifera] (GB:CAO41520.1); contains InterPro domain Transmembrane receptor, eukaryota; (InterPro:IPR009637) chr1:3667531-3669821 REVERSE
AT1G11000.1	MLO4		573	N	7	OUT	7	OUT	N	Symbols: ATMLO4, MLO4 MLO4 (MILDEW RESISTANCE LOCUS O 4); calmodulin binding chr1:3671935-3675909 REVERSE
AT1G11200.1			295	N	7	OUT	7	OUT	N	Symbols: similar to unknown protein [Arabidopsis thaliana] (TAIR:AT4G21570.1); similar to hypothetical protein [Vitis vinifera] (GB:CAN61223.1); contains InterPro domain Protein of unknown function DUF300 (InterPro:IPR005178) chr1:3753896-3755459 FORWARD
AT1G11310.1	MLO2		573	N	7	OUT	8	IN	N	Symbols: ATMLO2, PMR2, MLO2 MLO2 (MILDEW RESISTANCE LOCUS O 2); calmodulin binding chr1:3800899-3803870 REVERSE
AT1G11310.2	MLO2		418	N	6	OUT	7	IN	R	Symbols: ATMLO2, PMR2, MLO2 MLO2 (MILDEW RESISTANCE LOCUS O 2) chr1:3801546-3803870 REVERSE
AT1G11450.1			260	N	7	OUT	7	OUT	N	Symbols: nodulin MtN21 family protein chr1:3854005-3855259 FORWARD
AT1G11450.2			301	N	8	IN	8	IN	N	Symbols: nodulin MtN21 family protein chr1:3853470-3855259 FORWARD
AT1G12730.2			390	N	8	OUT	8	OUT	N	Symbols: cell division cycle protein-related chr1:4335107-4337607 FORWARD
AT1G12750.1			307	N	7	IN	7	IN	N	Symbols: rhomboid family protein chr1:4345098-4346686 REVERSE
AT1G12750.2			307	N	7	IN	7	IN	N	Symbols: rhomboid family protein chr1:4345098-4346686 REVERSE
AT1G13560.1			389	N	8	IN	8	IN	N	Symbols: AAPT1 AAPT1 (AMINOALCOHOLPHOSPHOTRANSFERASE 1); phosphatidyltransferase chr1:4638831-4641688 REVERSE
AT1G13560.2			346	N	7	OUT	8	IN	N	Symbols: AAPT1 AAPT1 (AMINOALCOHOLPHOSPHOTRANSFERASE 1); phosphatidyltransferase chr1:4638831-4641560 REVERSE
AT1G14530.1	THH1		293	N	7	OUT	7	OUT	N	Symbols: (TOM THREE HOMOLOG); virion binding chr1:4971415-4973592 REVERSE
AT1G14530.2			293	N	7	OUT	7	OUT	N	Symbols: (TOM THREE HOMOLOG); virion binding chr1:4971415-4973592 REVERSE
AT1G14670.1			592	Y	9	OUT	9	OUT	G	Symbols: endomembrane protein 70, putative chr1:5037664-5040194 FORWARD
AT1G15110.2			453	N	8	OUT	8	OUT	N	Symbols: phosphatidyl serine synthase family protein chr1:5199589-5201983 FORWARD
AT1G16560.1			342	Y	7	OUT	7	OUT	N	Symbols: Per1-like family protein chr1:5668938-5670336 FORWARD
AT1G16560.2			342	Y	7	OUT	7	OUT	N	Symbols: Per1-like family protein chr1:5668938-5670336 FORWARD
AT1G16560.3			342	Y	7	OUT	7	OUT	N	Symbols: Per1-like family protein chr1:5668938-5670336 FORWARD
AT1G16560.4			287	N	7	OUT	7	OUT	N	Symbols: Per1-like family protein chr1:5669227-5670336 FORWARD
AT1G18180.1			305	N	7	OUT	8	OUT	N	Symbols: oxidoreductase, acting on the CH-CH group of donors chr1:6255896-6257730 FORWARD
AT1G18470.2			423	N	8	IN	8	IN	N	Symbols: zinc finger (C3HC4-type RING finger) family protein chr1:6356965-6360050 REVERSE
AT1G25500.3			430	N	8	OUT	8	OUT	N	Symbols: choline transporter-related chr1:8955424-8957281 REVERSE
AT1G26700.1	MLO14		554	N	7	OUT	7	OUT	N	Symbols: ATMLO14, MLO14 MLO14 (MILDEW RESISTANCE LOCUS O 14); calmodulin binding chr1:9228287-9232224 FORWARD
AT1G34500.1			341	N	8	IN	8	OUT	N	Symbols: membrane bound O-acyl transferase (MBOAT) family protein / wax synthase-related chr1:12611616-12612641 FORWARD
AT1G42560.1	MLO9		460	N	7	OUT	7	OUT	N	Symbols: MLO9, ATMLO9 ATMLO9/MLO9 (MILDEW RESISTANCE LOCUS O 9); calmodulin binding chr1:15982649-15985768 REVERSE
AT1G47603.1			393	N	10	IN	10	IN	G	Symbols: ATPUP19 ATPUP19 (Arabidopsis thaliana purine permease 19) chr1:17499279-17500550 REVERSE
AT1G48270.1	GCR1	GCR1	326	N	7	OUT	7	OUT	G	Symbols: GCR1 GCR1 (G-PROTEIN-COUPLED RECEPTOR 1) chr1:17831982-17833882 REVERSE
AT1G55130.1			637	Y	9	OUT	10	IN	G	Symbols: endomembrane protein 70, putative chr1:20573321-20575933 FORWARD
AT1G57680.1		Cand1	362	N	7	OUT	7	OUT	G	Symbols: similar to unnamed protein product [Vitis vinifera] (GB:CAO46875.1); contains InterPro domain Uncharacterised conserved protein UCP031277 (InterPro:IPR016971) chr1:21366414-21367502 REVERSE
AT1G57680.2			362	N	7	OUT	7	OUT	G	Symbols: similar to unnamed protein product [Vitis vinifera] (GB:CAO46875.1); contains InterPro domain Uncharacterised conserved protein UCP031277 (InterPro:IPR016971) chr1:21366414-21367502 REVERSE
AT1G57980.1			394	N	10	IN	10	IN	G	Symbols: purine permease-related chr1:21443109-21444397 REVERSE
AT1G61560.1	MLO6		583	N	7	OUT	9	OUT	R	Symbols: ATMLO6, MLO6 MLO6 (MILDEW RESISTANCE LOCUS O 6); calmodulin binding chr1:22712540-22715697 REVERSE

AT1G62430.1		421	N	7	OUT	8	OUT	N	Symbols: ATCD51 ATCD51 (CDP-diacylglycerol synthase 1); phosphatidate cytidyltransferase chr1:23109939-23112588 REVERSE
AT1G66770.1		261	N	7	OUT	7	OUT	N	Symbols: nodulin MtN3 family protein chr1:24910114-24910899 REVERSE
AT1G67570.1		456	N	8	IN	8	IN	N	Symbols: similar to unknown protein [Arabidopsis thaliana] (TAIR:AT1G50630.1); similar to unnamed protein product [Vitis vinifera] (GB:CAO46672.1) chr1:25328981-25330601 FORWARD
AT1G68820.1		468	Y	7	OUT	7	IN	N	Symbols: membrane protein, putative chr1:25869515-25872463 FORWARD
AT1G69430.1		350	N	7	IN	6	IN	G	Symbols: similar to unknown protein [Arabidopsis thaliana] (TAIR:AT1G26650.1); similar to unnamed protein product [Vitis vinifera] (GB:CAO68474.1) chr1:26101688-26102740 FORWARD
AT1G72590.1		320	N	7	OUT	7	OUT	N	Symbols: 3-oxo-5-alpha-steroid 4-dehydrogenase family protein / steroid 5-alpha-reductase family protein chr1:27339263-27340651 FORWARD
AT1G73650.2		291	N	7	OUT	8	OUT	N	Symbols: oxidoreductase, acting on the CH-CH group of donors chr1:27692210-27693826 REVERSE
AT1G75000.1		281	N	7	OUT	7	OUT	N	Symbols: GNS1/SUR4 membrane family protein chr1:28167311-28168247 FORWARD
AT1G75470.1		381	N	10	IN	10	IN	G	Symbols: ATPUP15 ATPUP15 (Arabidopsis thaliana purine permease 15); purine transmembrane transporter chr1:28333733-28334961 FORWARD
AT1G77860.1		351	N	7	IN	7	IN	N	Symbols: KOM KOM (KOMPEITO) chr1:29287537-29289352 REVERSE
AT2G01070.1		496	Y	7	OUT	7	OUT	N	Symbols: similar to unknown protein [Arabidopsis thaliana] (TAIR:AT1G72480.1); similar to Os11g0546100 [Oryza sativa (japonica cultivar-group)] (GB:NP_001068063.1); similar to unnamed protein product [Vitis vinifera] (GB:CAO24763.1); similar to hypothetical protein OsJ_032883 [Oryza sativa (japonica cultivar-group)] (GB:EAZ18674.1); contains InterPro domain Transmembrane receptor, eukaryota; (InterPro:IPR009637) chr2:75596-77625 FORWARD
AT2G01070.2		452	Y	7	OUT	8	IN	N	Symbols: similar to unknown protein [Arabidopsis thaliana] (TAIR:AT1G72480.1); similar to unnamed protein product [Vitis vinifera] (GB:CAO24763.1); contains InterPro domain Transmembrane receptor, eukaryota; (InterPro:IPR009637) chr2:75596-77300 FORWARD
AT2G01970.1		592	Y	9	OUT	9	OUT	G	Symbols: endomembrane protein 70, putative chr2:452196-454818 REVERSE
AT2G02180.1	TOM3	303	N	7	OUT	7	OUT	N	Symbols: TOM3 TOM3 (tobamovirus multiplication protein 3) chr2:560975-562960 FORWARD
AT2G03120.1		344	N	8	IN	8	IN	N	Symbols: signal peptide peptidase family protein chr2:937551-940080 FORWARD
AT2G13650.2		284	N	8	IN	8	IN	N	Symbols: GONST1 GONST1 (GOLGI NUCLEOTIDE SUGAR TRANSPORTER 1) chr2:5695067-5697385 REVERSE
AT2G16530.1		343	N	7	OUT	7	OUT	N	Symbols: 3-oxo-5-alpha-steroid 4-dehydrogenase family protein / steroid 5-alpha-reductase family protein chr2:7170358-7172146 REVERSE
AT2G16530.2		342	N	7	OUT	7	OUT	N	Symbols: 3-oxo-5-alpha-steroid 4-dehydrogenase family protein / steroid 5-alpha-reductase family protein chr2:7170358-7172146 REVERSE
AT2G17430.1	MLO7	542	Y	7	OUT	10	IN	R	Symbols: ATMLO7, MLO7 ATMLO7/MLO7 (MILDEW RESISTANCE LOCUS O 7); calmodulin binding chr2:7575100-7577840 FORWARD
AT2G17480.1	MLO8	593	Y	7	OUT	10	IN	R	Symbols: ATMLO8, MLO8 ATMLO8 (MILDEW RESISTANCE LOCUS O 8); calmodulin binding chr2:757641-7600850 REVERSE
AT2G20650.1		559	N	8	IN	7	IN	N	Symbols: zinc finger (C3HC4-type RING finger) family protein chr2:8911035-8914098 REVERSE
AT2G20650.2		559	N	8	IN	7	IN	N	Symbols: zinc finger (C3HC4-type RING finger) family protein chr2:8911035-8914098 REVERSE
AT2G21080.1		414	N	7	IN	7	IN	N	Symbols: similar to extracellular ligand-gated ion channel [Arabidopsis thaliana] (TAIR:AT3G20300.1); similar to unknown protein [Arabidopsis thaliana] (TAIR:AT1G50630.1); similar to unnamed protein product [Vitis vinifera] (GB:CAO43972.1) chr2:9050788-9052194 FORWARD
AT2G24150.1	HHP3	344	N	7	IN	8	OUT	N	Symbols: HHP3 HHP3 (heptahelical protein 3); receptor chr2:10272712-10274425 REVERSE
AT2G25540.1		1065	N	8	OUT	8	OUT	R	Symbols: CESA10 CESA10 (CELLULOSE SYNTHASE 10); transferase, transferring glycosyl groups chr2:10874148-10879155 REVERSE
AT2G29050.1		389	N	7	IN	7	IN	N	Symbols: ATRBL1 ATRBL1 (ARABIDOPSIS THALIANA RHOMBOID-LIKE 1) chr2:12485322-12487198 FORWARD
AT2G29050.2		346	N	7	IN	7	IN	N	Symbols: ATRBL1 ATRBL1 (ARABIDOPSIS THALIANA RHOMBOID-LIKE 1) chr2:12485322-12486730 FORWARD
AT2G29650.2		398	N	8	IN	8	IN	N	Symbols: inorganic phosphate transporter, putative chr2:12681336-12683080 REVERSE
AT2G31440.1		250	N	7	OUT	7	OUT	N	Symbols: protein binding chr2:13406386-13408048 REVERSE
AT2G32540.1		755	N	8	OUT	7	IN	N	Symbols: CSLB04, ATCSLB4, ATCSLB04 ATCSLB04 (Cellulose synthase-like B4); transferase/ transferase, transferring glycosyl groups chr2:13821763-13825366 FORWARD
AT2G32620.1		757	N	8	OUT	8	OUT	N	Symbols: CSLB02, ATCSLB2, ATCSLB02 ATCSLB02 (Cellulose synthase-like B2); transferase/ transferase, transferring glycosyl groups chr2:13847821-13851401 FORWARD
AT2G33670.1	MLO5	501	N	7	OUT	7	OUT	N	Symbols: ATMLO5, MLO5 MLO5 (MILDEW RESISTANCE LOCUS O 5); calmodulin binding chr2:14252214-14254955 FORWARD
AT2G34980.1		303	N	8	IN	8	IN	N	Symbols: SETH1 SETH1; transferase chr2:14756046-14756957 FORWARD
AT2G36305.1		311	N	8	OUT	8	OUT	N	Symbols: prenyl-dependent CAAX protease chr2:15221686-15223528 FORWARD
AT2G39060.1		258	N	7	OUT	7	OUT	N	Symbols: nodulin MtN3 family protein chr2:16313896-16315284 REVERSE
AT2G39200.1	MLO12	576	N	7	OUT	9	OUT	R	Symbols: ATMLO12, MLO12 MLO12 (MILDEW RESISTANCE LOCUS O 12); calmodulin binding chr2:16363333-16366875 REVERSE
AT2G41050.1		376	N	7	OUT	7	OUT	N	Symbols: PQ-loop repeat family protein / transmembrane family protein chr2:17130466-17132700 REVERSE
AT2G41610.1		310	N	7	OUT	7	OUT	N	Symbols: similar to unnamed protein product [Vitis vinifera] (GB:CAO24352.1) chr2:17354259-17355191 FORWARD
AT2G41705.1		461	N	9	IN	9	IN	G	Symbols: camphor resistance CrcB family protein chr2:17405161-17406988 FORWARD
AT2G43070.1		540	Y	9	OUT	10	IN	G	Symbols: protease-associated (PA) domain-containing protein chr2:17918310-17921853 REVERSE
AT2G44110.1	MLO15	496	N	7	OUT	7	OUT	N	Symbols: ATMLO15, MLO15 MLO15 (MILDEW RESISTANCE LOCUS O 15); calmodulin binding chr2:18252565-18255392 REVERSE
AT2G44110.2	MLO15	497	N	7	OUT	7	OUT	N	Symbols: ATMLO15, MLO15 MLO15 (MILDEW RESISTANCE LOCUS O 15); calmodulin binding chr2:18252565-18255392 REVERSE
AT2G46060.1		807	Y	7	OUT	7	OUT	N	Symbols: transmembrane protein-related chr2:18948428-18952073 REVERSE
AT2G46890.1		322	N	8	IN	8	IN	N	Symbols: oxidoreductase, acting on the CH-CH group of donors chr2:19273948-19275203 REVERSE
AT2G47115.1		300	N	7	OUT	7	OUT	N	Symbols: similar to unknown protein [Arabidopsis thaliana] (TAIR:AT1G10660.3); similar to unknown protein [Arabidopsis thaliana] (TAIR:AT1G10660.4); similar to unnamed protein product [Vitis vinifera] (GB:CAO40183.1) chr2:19352446-19353934 REVERSE
AT2G47760.3		380	N	8	IN	7	IN	N	Symbols: ALG3 family protein chr2:19573003-19575291 REVERSE
AT3G01550.1		383	N	7	OUT	7	OUT	N	Symbols: triose phosphate/phosphate translocator, putative chr3:216954-218863 REVERSE
AT3G05010.1	Cand2	300	N	7	OUT	7	OUT	G	Symbols: transmembrane protein, putative chr3:1389609-1391468 FORWARD
AT3G05940.1	Cand10	422	N	7	OUT	7	OUT	N	Symbols: similar to unknown protein [Arabidopsis thaliana] (TAIR:AT5G26740.3); similar to unknown protein [Arabidopsis thaliana] (TAIR:AT5G26740.1); similar to unknown protein [Arabidopsis thaliana] (TAIR:AT5G26740.2); similar to unknown [Populus trichocarpa] (GB:ABK95399.1); contains InterPro domain Protein of unknown function DUF300 (InterPro:IPR005178) chr3:1777598-1779654 REVERSE
AT3G06460.1		298	N	7	OUT	7	OUT	N	Symbols: GNS1/SUR4 membrane family protein chr3:1982687-1983583 FORWARD
AT3G06470.1		278	N	7	OUT	7	OUT	N	Symbols: GNS1/SUR4 membrane family protein chr3:1984212-1985048 FORWARD
AT3G09570.1		439	Y	7	OUT	7	OUT	G	Symbols: similar to unknown protein [Arabidopsis thaliana] (TAIR:AT5G18520.1); similar to unnamed protein product [Vitis vinifera] (GB:CAO18079.1); contains InterPro domain Transmembrane receptor, eukaryota; (InterPro:IPR009637) chr3:2940529-2941848 FORWARD
AT3G10980.1		557	N	6	IN	6	IN	G	Symbols: similar to unknown protein [Arabidopsis thaliana] (TAIR:AT5G05350.1); similar to unnamed protein product [Vitis vinifera] (GB:CAO41459.1); contains InterPro domain Protein of unknown function Cys-rich (InterPro:IPR006461) chr3:3438815-3440507 FORWARD
AT3G14770.1		236	N	7	OUT	7	OUT	N	Symbols: nodulin MtN3 family protein chr3:4957794-4959209 REVERSE

AT3G16690.1		230	N	7	OUT	7	OUT	N	Symbols: nodulin MtN3 family protein chr3:5684569-5686431 REVERSE
AT3G21580.2		384	N	7	IN	8	OUT	N	Symbols: cobalt ion transmembrane transporter chr3:7602015-7603727 REVERSE
AT3G25805.1		335	N	7	IN	7	IN	N	Symbols: similar to unnamed protein product [Vitis vinifera] (GB:CAO42121.1) chr3:9427591-9429406 REVERSE
AT3G26090.1	AtRGS1 AtRGS1	459	N	7	OUT	7	OUT	N	Symbols: ATRGS1, RGS1 RGS1 (REGULATOR OF G-PROTEIN SIGNALING 1) chr3:9534120-9536647 FORWARD
AT3G27770.1		315	N	7	OUT	7	OUT	N	Symbols: similar to unknown protein [Arabidopsis thaliana] (TAIR:AT5G62960.1); similar to unnamed protein product [Vitis vinifera] (GB:CAO14740.1) chr3:10287055-10288711 REVERSE
AT3G27770.2		272	N	7	OUT	7	OUT	N	Symbols: similar to unknown protein [Arabidopsis thaliana] (TAIR:AT5G62960.1); similar to unnamed protein product [Vitis vinifera] (GB:CAO14740.1) chr3:10287055-10288698 REVERSE
AT3G28007.1		251	N	7	OUT	7	OUT	N	Symbols: nodulin MtN3 family protein chr3:10409480-10410870 REVERSE
AT3G45290.1	MLO3	508	N	7	OUT	8	OUT	N	Symbols: ATMLO3, MLO3 MLO3 (MILDEW RESISTANCE LOCUS O 3); calmodulin binding chr3:16628571-16632337 FORWARD
AT3G48740.1		289	N	7	OUT	7	OUT	N	Symbols: nodulin MtN3 family protein chr3:18063799-18065648 REVERSE
AT3G49840.1		457	N	7	OUT	8	IN	N	Symbols: proline-rich family protein chr3:18495536-18497672 FORWARD
AT3G53780.2		394	N	7	IN	7	IN	N	Symbols: rhomboid family protein chr3:19935707-19937626 REVERSE
AT3G54730.1		387	N	7	IN	7	IN	N	Symbols: similar to ATOFP9/OPF9 (Arabidopsis thaliana ovate family protein 9) [Arabidopsis thaliana] (TAIR:AT4G04030.1) chr3:20270237-20271400 FORWARD
AT3G59090.1	Cand3	367	N	7	OUT	7	OUT	G	Symbols: similar to TOM1 (TOBAMOVIRUS MULTIPLICATION 1) [Arabidopsis thaliana] (TAIR:AT4G21790.1); similar to unnamed protein product [Vitis vinifera] (GB:CAO66926.1) chr3:21850311-21853325 FORWARD
AT3G59090.2	Cand4	373	N	7	OUT	7	OUT	G	Symbols: similar to TOM1 (TOBAMOVIRUS MULTIPLICATION 1) [Arabidopsis thaliana] (TAIR:AT4G21790.1); similar to unnamed protein product [Vitis vinifera] (GB:CAO66926.1) chr3:21850311-21853426 FORWARD
AT3G59090.3	Cand5	361	N	7	OUT	7	OUT	G	Symbols: similar to TOM1 (TOBAMOVIRUS MULTIPLICATION 1) [Arabidopsis thaliana] (TAIR:AT4G21790.1); similar to unnamed protein product [Vitis vinifera] (GB:CAO66926.1) chr3:21850357-21853325 FORWARD
AT3G60590.3		404	N	7	OUT	7	IN	N	Symbols: similar to unknown protein [Arabidopsis thaliana] (TAIR:AT1G48460.1); similar to unknown [Populus trichocarpa x Populus deltoides] (GB:ABK96523.1) chr3:22409203-22410728 FORWARD
AT3G63310.1		239	N	7	OUT	7	OUT	N	Symbols: glutamate binding / chr3:23398913-23399857 REVERSE
AT4G01320.1		424	N	7	OUT	7	OUT	N	Symbols: STE24, ATSTE24 ATSTE24 chr4:545905-549002 FORWARD
AT4G01430.2		252	N	7	OUT	7	IN	N	Symbols: nodulin MtN21 family protein chr4:585707-587691 FORWARD
AT4G02600.1	MLO1	526	N	7	OUT	9	OUT	R	Symbols: MLO1, ATMLO1 ATMLO1/MLO1 (MILDEW RESISTANCE LOCUS O 1); calmodulin binding chr4:1144141-1147156 FORWARD
AT4G02600.2	MLO1	526	N	7	OUT	9	OUT	R	Symbols: MLO1, ATMLO1 ATMLO1/MLO1 (MILDEW RESISTANCE LOCUS O 1); calmodulin binding chr4:1144141-1147156 FORWARD
AT4G02690.1		248	N	7	OUT	7	OUT	N	Symbols: glutamate binding / chr4:1186023-1187534 FORWARD
AT4G03820.2		453	N	8	IN	8	IN	N	Symbols: similar to unknown protein [Arabidopsis thaliana] (TAIR:AT4G22270.1); similar to unnamed protein product [Vitis vinifera] (GB:CAO23242.1) chr4:1772161-1774378 REVERSE
AT4G08290.2		282	N	8	IN	8	IN	N	Symbols: nodulin MtN21 family protein chr4:5239085-5240395 FORWARD
AT4G08700.1		361	N	10	IN	10	IN	G	Symbols: ATPUP13 ATPUP13 (Arabidopsis thaliana purine permease 13); purine transmembrane transporter chr4:5565995-5567283 REVERSE
AT4G10850.1		258	N	7	OUT	7	OUT	N	Symbols: nodulin MtN3 family protein chr4:6675064-6676714 FORWARD
AT4G13345.1		394	N	10	OUT	10	OUT	G	Symbols: MEE55 MEE55 (maternal effect embryo arrest 55) chr4:7767288-7769422 FORWARD
AT4G13345.2		394	N	10	OUT	10	OUT	G	Symbols: MEE55 MEE55 (maternal effect embryo arrest 55) chr4:7767288-7769422 FORWARD
AT4G14730.1		235	N	7	IN	7	IN	N	Symbols: transmembrane protein-related chr4:8448602-8449996 FORWARD
AT4G15290.1		757	N	7	OUT	7	IN	N	Symbols: CSLB05, ATCSLB5, ATCSLB05 ATCSLB05 (Cellulose synthase-like B5); transferase/ transferase, transferring glycosyl groups chr4:8721693-8726599 REVERSE
AT4G15470.1		256	N	7	IN	7	IN	N	Symbols: Identical to Protein FBL4 (FBL4) [Arabidopsis Thaliana] (GB:Q94A20;GB:Q23399;GB:Q940C4); similar to glutamate binding / [Arabidopsis thaliana] (TAIR:AT1G03070.1); similar to unknown [Populus trichocarpa] (GB:ABK94990.1); contains InterPro domain Protein of unknown function UPF0005 (InterPro:IPR006214) chr4:8843659-8845503 FORWARD
AT4G15920.1		241	N	7	OUT	7	OUT	N	Symbols: nodulin MtN3 family protein chr4:9030756-9033357 REVERSE
AT4G17250.1		416	N	7	OUT	8	OUT	N	Symbols: similar to unknown protein [Arabidopsis thaliana] (TAIR:AT5G47580.1); similar to hypothetical protein 40.t00008 [Brassica oleracea] (GB:ABD65133.1) chr4:9671116-9672366 FORWARD
AT4G17580.1		247	N	7	OUT	7	OUT	N	Symbols: Bax inhibitor-1 family protein / BI-1 family protein chr4:9789802-9791158 REVERSE
AT4G18195.1		394	N	10	IN	10	IN	G	Symbols: ATPUP8, AT4G18200 AT4G18200/ATPUP8 (Arabidopsis thaliana purine permease 8); purine transmembrane transporter chr4:10069729-10070985 FORWARD
AT4G18197.1		390	N	10	IN	10	IN	G	Symbols: ATPUP7, AT4G18200, PEX17 AT4G18200/ATPUP7/PEX17 (ARABIDOPSIS THALIANA PURINE PERMEASE 7); purine transmembrane transporter chr4:10071786-10073040 FORWARD
AT4G18205.1		377	N	10	IN	10	IN	G	Symbols: AT4G18200 AT4G18200 chr4:10073861-10075076 FORWARD
AT4G18220.1		344	N	9	OUT	9	OUT	G	Symbols: purine permease family protein chr4:10078779-10080120 FORWARD
AT4G20100.1		288	N	7	OUT	7	OUT	N	Symbols: PQ-loop repeat family protein / transmembrane family protein chr4:10874009-10874875 REVERSE
AT4G21790.1	TOM1	291	N	8	IN	7	OUT	G	Symbols: TOM1 TOM1 (TOBAMOVIRUS MULTIPLICATION 1) chr4:11569936-11572175 FORWARD
AT4G22340.1		423	N	7	OUT	8	OUT	N	Symbols: phosphatidate cytidyltransferase, putative / CDP-diglyceride synthetase, putative chr4:11800162-11802561 REVERSE
AT4G22340.3		447	N	7	OUT	8	OUT	N	Symbols: phosphatidate cytidyltransferase, putative / CDP-diglyceride synthetase, putative chr4:11800162-11802633 REVERSE
AT4G23070.1		313	N	7	OUT	7	OUT	N	Symbols: rhomboid family protein chr4:12090701-12092088 REVERSE
AT4G24250.1	MLO13	478	N	7	OUT	7	OUT	N	Symbols: ATMLO13, MLO13 MLO13 (MILDEW RESISTANCE LOCUS O 13); calmodulin binding chr4:12575018-12577527 REVERSE
AT4G25010.1		281	N	7	OUT	7	OUT	N	Symbols: nodulin MtN3 family protein chr4:12854640-12856361 REVERSE
AT4G25750.1		577	N	7	OUT	8	IN	N	Symbols: ABC transporter family protein chr4:13110636-13112369 REVERSE
AT4G26770.1		471	N	8	IN	8	OUT	N	Symbols: phosphatidate cytidyltransferase, putative / CDP-diglyceride synthetase, putative chr4:13482586-13484703 FORWARD
AT4G28370.1		562	N	8	IN	7	IN	N	Symbols: zinc ion binding chr4:14035022-14039128 FORWARD
AT4G30850.1	HHP2	358	N	8	OUT	7	IN	N	Symbols: HHP2 HHP2 (HEPTAHELICAL TRANSMEMBRANE PROTEIN2) chr4:15020546-15022284 REVERSE
AT4G30850.2	HHP2	358	N	8	OUT	7	IN	N	Symbols: HHP2 HHP2 (HEPTAHELICAL TRANSMEMBRANE PROTEIN2) chr4:15020546-15022284 REVERSE
AT4G32650.2		597	N	7	IN	7	IN	N	Symbols: KAT3, ATKC1 ATKC1 (ARABIDOPSIS THALIANA K+ RECTIFYING CHANNEL 1); cyclic nucleotide binding / inward rectifier potassium channel chr4:15751533-15754802 REVERSE
AT4G36830.1		289	N	7	OUT	7	OUT	N	Symbols: GNS1/SUR4 membrane family protein chr4:17349515-17350384 FORWARD
AT4G36850.1		374	N	7	OUT	7	OUT	N	Symbols: PQ-loop repeat family protein / transmembrane family protein chr4:17353418-17355824 REVERSE
AT4G37680.1	HHP4	385	N	7	IN	7	IN	N	Symbols: HHP4 HHP4 (heptahelical protein 4); receptor chr4:17701225-17702562 FORWARD

AT5G01240.2		408	N	10	OUT	10	OUT	G	Symbols: amino acid permease, putative chr5:98662-101492 FORWARD
AT5G02630.1	Cand6	428	Y	7	OUT	8	OUT	G	Symbols: similar to unknown protein [Arabidopsis thaliana] (TAIR:AT5G18520.1); similar to unknown protein [Arabidopsis thaliana] (TAIR:AT3G09570.1); similar to unnamed protein product [Vitis vinifera] (GB:CAO18079.1); contains InterPro domain Transmembrane receptor, eukaryota; (InterPro:IPR009637) chr5:591796-593082 FORWARD
AT5G05350.1		526	N	7	OUT	6	IN	G	Symbols: similar to unknown protein [Arabidopsis thaliana] (TAIR:AT3G10980.1); similar to unnamed protein product [Vitis vinifera] (GB:CAO41459.1); contains InterPro domain Protein of unknown function Cys-rich (InterPro:IPR006461) chr5:1585758-1587338 FORWARD
AT5G07250.1		346	N	7	IN	7	IN	N	Symbols: rhomboid family protein chr5:2274438-2275936 REVERSE
AT5G07630.1		401	N	8	IN	8	IN	N	Symbols: nuclear division RFT family protein chr5:2412033-2414524 FORWARD
AT5G08090.1		322	N	8	IN	7	IN	N	Symbols: unknown protein chr5:2591712-2592900 FORWARD
AT5G11870.1		262	N	7	OUT	8	IN	N	Symbols: similar to SAG18 (SENESCENCE ASSOCIATED GENE 18) [Arabidopsis thaliana] (TAIR:AT1G71190.1); similar to unnamed protein product [Vitis vinifera] (GB:CAO43822.1) chr5:3825721-3827242 FORWARD
AT5G11960.1		344	N	8	IN	8	IN	N	Symbols: similar to hypothetical protein [Vitis vinifera] (GB:CAN81798.1); contains InterPro domain Protein of unknown function DUF6, transmembrane; (InterPro:IPR000620) chr5:3858853-3861463 REVERSE
AT5G13170.1		292	N	7	OUT	7	OUT	N	Symbols: nodulin MtN3 family protein chr5:4181334-4183174 REVERSE
AT5G15240.2		313	N	7	IN	8	OUT	N	Symbols: amino acid transporter family protein chr5:4947765-4950214 FORWARD
AT5G18520.1	Cand7	440	Y	7	OUT	8	IN	G	Symbols: similar to unknown protein [Arabidopsis thaliana] (TAIR:AT3G09570.1); similar to unnamed protein product [Vitis vinifera] (GB:CAO18079.1); contains InterPro domain Transmembrane receptor, eukaryota; (InterPro:IPR009637) chr5:6145029-6146351 FORWARD
AT5G19870.1		276	N	7	OUT	7	OUT	N	Symbols: similar to unknown protein [Arabidopsis thaliana] (TAIR:AT3G55230.1); similar to unnamed protein product [Vitis vinifera] (GB:CAO63741.1); contains InterPro domain Protein of unknown function DUF716 (InterPro:IPR006904) chr5:6716184-6717014 REVERSE
AT5G20270.1	HHP1	332	N	7	IN	7	IN	N	Symbols: HHP1 HHP1 (HEPTAHELICAL TRANSMEMBRANE PROTEIN1) chr5:6841027-6842658 REVERSE
AT5G23660.1		285	N	7	OUT	7	OUT	N	Symbols: MTN3 MTN3 (ARABIDOPSIS HOMOLOG OF MEDICAGO TRUNCATULA MTN3) chr5:7971939-7973799 REVERSE
AT5G23990.1		657	N	8	IN	7	OUT	N	Symbols: ATFR05, FRO5 ATFR05/FRO5 (FERRIC REDUCTION OXIDASE 5); ferric-chelate reductase chr5:8105568-8108593 REVERSE
AT5G26740.1	Cand9	422	N	7	OUT	7	OUT	N	Symbols: similar to unknown protein [Arabidopsis thaliana] (TAIR:AT3G05940.1); similar to unknown [Populus trichocarpa] (GB:ABK95399.1); contains InterPro domain Protein of unknown function DUF300 (InterPro:IPR005178) chr5:9292439-9294410 FORWARD
AT5G26740.2		422	N	7	OUT	7	OUT	N	Symbols: similar to unknown protein [Arabidopsis thaliana] (TAIR:AT3G05940.1); similar to unknown [Populus trichocarpa] (GB:ABK95399.1); contains InterPro domain Protein of unknown function DUF300 (InterPro:IPR005178) chr5:9292439-9294410 FORWARD
AT5G26740.3		422	N	7	OUT	7	OUT	N	Symbols: similar to unknown protein [Arabidopsis thaliana] (TAIR:AT3G05940.1); similar to unknown [Populus trichocarpa] (GB:ABK95399.1); contains InterPro domain Protein of unknown function DUF300 (InterPro:IPR005178) chr5:9292439-9294410 FORWARD
AT5G27210.1	Cand8	297	N	7	OUT	7	OUT	G	Symbols: similar to transmembrane protein, putative [Arabidopsis thaliana] (TAIR:AT3G05010.1); similar to unnamed protein product [Vitis vinifera] (GB:CAO15118.1) chr5:9572336-9574078 REVERSE
AT5G33320.1		408	N	8	IN	7	IN	N	Symbols: PPT, ARAPPT, CUE1 CUE1 (CAB UNDEREXPRESSED 1); antiporter/ triose-phosphate transmembrane transporter chr5:12606180-12608638 FORWARD
AT5G35460.1		381	N	8	IN	8	IN	N	Symbols: similar to unknown [Populus trichocarpa] (GB:ABK95300.1); contains domain Acetyl-CoA synthetase-like (SSF56801) chr5:13689828-13691776 FORWARD
AT5G37310.1		593	Y	9	OUT	9	OUT	G	Symbols: transporter chr5:14790066-14793323 REVERSE
AT5G42090.1		439	Y	7	OUT	7	OUT	G	Symbols: similar to unknown protein [Arabidopsis thaliana] (TAIR:AT3G09570.1); similar to unnamed protein product [Vitis vinifera] (GB:CAO62906.1); contains InterPro domain Transmembrane receptor, eukaryota; (InterPro:IPR009637) chr5:16844058-16845377 FORWARD
AT5G45105.1		315	Y	7	OUT	8	IN	N	Symbols: ZIP8 ZIP8 (ZINC TRANSPORTER 8 PRECURSOR); cation transmembrane transporter chr5:18240680-18242173 REVERSE
AT5G47900.2		359	N	7	IN	7	IN	N	Symbols: similar to unknown protein [Arabidopsis thaliana] (TAIR:AT5G27730.1); similar to unnamed protein product [Vitis vinifera] (GB:CAO68737.1) chr5:19409634-19411387 FORWARD
AT5G50375.1		280	N	7	IN	7	IN	N	Symbols: CPI1 CPI1 (CYCLOPROPYL ISOMERASE) chr5:20529082-20531157 FORWARD
AT5G50790.1		289	N	7	OUT	7	OUT	N	Symbols: nodulin MtN3 family protein chr5:20673687-20675053 REVERSE
AT5G50800.1		294	N	7	OUT	7	OUT	N	Symbols: nodulin MtN3 family protein chr5:20682506-20684366 REVERSE
AT5G53190.1		263	N	7	OUT	7	OUT	N	Symbols: nodulin MtN3 family protein chr5:21589643-21591510 REVERSE
AT5G53760.1	MLO11	573	N	7	OUT	7	OUT	N	Symbols: ATMLO11, MLO11 MLO11 (MILDEW RESISTANCE LOCUS O 11); calmodulin binding chr5:21840281-21843515 FORWARD
AT5G53760.2	MLO11	573	N	7	OUT	7	OUT	N	Symbols: ATMLO11, MLO11 MLO11 (MILDEW RESISTANCE LOCUS O 11); calmodulin binding chr5:21840281-21843515 FORWARD
AT5G55370.1		343	N	8	IN	8	OUT	N	Symbols: long-chain-alcohol O-fatty-acyltransferase family protein / wax synthase family protein chr5:22462311-22463342 REVERSE
AT5G57100.1		390	N	10	IN	10	IN	G	Symbols: transporter-related chr5:23123789-23125666 REVERSE
AT5G59500.1		396	N	8	IN	7	IN	N	Symbols: protein-S-isoprenylcysteine O-methyltransferase chr5:24003250-24004440 FORWARD
AT5G62850.1		240	N	7	OUT	7	OUT	N	Symbols: ATVE1 ATVE1 (VEGETATIVE CELL EXPRESSED1) chr5:25247430-25248753 REVERSE
AT5G62960.1		347	N	7	OUT	7	OUT	N	Symbols: similar to unknown protein [Arabidopsis thaliana] (TAIR:AT1G10660.3); similar to unknown protein [Arabidopsis thaliana] (TAIR:AT1G10660.4); similar to unnamed protein product [Vitis vinifera] (GB:CAO64308.1) chr5:25286670-25288759 FORWARD
AT5G65000.2		260	Y	7	OUT	8	IN	N	Symbols: nucleotide-sugar transporter family protein chr5:25982722-25984533 REVERSE
AT5G65970.1	MLO10	569	Y	7	OUT	9	OUT	R	Symbols: ATMLO10, MLO10 MLO10 (MILDEW RESISTANCE LOCUS O 10); calmodulin binding chr5:26404735-26407633 REVERSE
ATCG01040.1		328	N	8	OUT	8	OUT	N	Symbols: YCF5 hypothetical protein chrC:114461-115447 FORWARD