

Supplementary Table1: GO reports of identified target genes in *Arabidopsis thaliana* transcriptome

Target accession no.	Molecular function	Biological process	Cellular component
<b>AT5G04180.1</b>	DNA binding, DNA topoisomerase type II (ATP-hydrolyzing) activity; Carbonate dehydratase activity; ATP binding, zinc ion binding.	DNA topological change; Response to carbon dioxide	Chromosome; chloroplast stroma
<b>AT5G65630.1</b>	-	DNA mediated transformation	Nucleus
<b>AT3G61430.1</b>	Water channel activity	Water transport ; Response to water deprivation; Response to salt stress; Carbon dioxide transport; Transmembrane transport	Mitochondrion, vacuole, plasmodesma; Chloroplast envelope; Integral component of membrane; Anchored component of plasma membrane.
<b>AT1G18540.1</b>	RNA binding; Structural constituent of ribosome.	Ribosomal large subunit assembly; Cytoplasmic translation; Response to cytokinin.	Endoplasmic reticulum; Plasma membrane; Plasmodesma; Chloroplast; Cytosolic large ribosomal subunit
<b>AT1G76580.1</b>	DNA-binding transcription factor activity; Transcription regulatory region DNA binding ; Metal ion binding	Regulation of transcription, DNA-templated	Nucleus, plasma membrane ; Integral component of membrane.
<b>AT5G56750.1</b>	Protein binding;	Regulation of growth; Regulation of auxin polar transport	Cytoplasm; Integral component of membrane
<b>AT2G30320.1</b>	RNA binding; tRNA pseudouridine synthase activity	tRNA pseudouridine synthesis	-
<b>AT3G04470.1</b>	-	-	Plasma membrane; Integral component of membrane
<b>AT3G18620.1</b>	Protein-cysteine S-palmitoyltransferase activity	protein targeting to membrane; Peptidyl-L-cysteine S-palmitoylation;	vacuolar membrane; Endoplasmic reticulum, Golgi apparatus; Integral component of membrane
<b>AT5G67190.1</b>	DNA binding,; DNA-binding transcription factor activity	Regulation of transcription; DNA-templated; Ethylene-activated signaling pathway	Nucleus
<b>AT3G55820.1</b>	-	-	Integral component of membrane
<b>AT4G21240.1</b>	-	-	-
<b>AT1G12490.1</b>	-	Response to chitin	-
<b>AT4G39753.1</b>	-	-	-
<b>AT4G38710.1</b>	mRNA binding; Translation initiation factor activity; Protein homodimerization activity	Translational initiation	Nucleus
<b>AT4G26190.1</b>	Phosphoprotein phosphatase activity	Protein dephosphorylation	-
<b>AT1G03080.1</b>	Kinase activity; Actin filament binding	Phosphorylation	Plasma membrane
<b>AT4G36260.1</b>	DNA binding; protein binding; metal ion binding	Pollen development; auxin-activated Signalling pathway; Auxin biosynthetic process; Positive regulation of transcription, DNA-templated; Anther development	Nucleus;
<b>AT2G23290.1</b>	DNA-binding transcription factor activity; Protein binding Sequence-specific DNA binding; Transcriptions regulatory region DNA binding;	Regulation of transcription, DNA-templated; Response to ethylene; Response to abscisic acid; Response to salicylic acid; Response to jasmonic acid; Response to chitin;	Nucleus

		Positive regulation of auxin mediated signaling pathway; Glucosinolate metabolic process; Response to cadmium ion; Negative regulation of response to salt stress	
<b>AT5G27120.1</b>	snoRNA binding; biogenesis	Ribosome	Cytosol; Plasmodesma; box C/D snoRNP complex; Small-subunit processome
<b>AT4G13710.1</b>	Pectate lyase activity ; Metal ion binding	Pectin catabolic process	Integral component of membrane
<b>AT3G05170.1</b>	Phosphoglycerate mutase activity	Carbohydrate metabolic process	-
<b>AT4G31820.1</b>	-	Positive regulation of flower development; Inflorescence development; Basipetal auxin transport; Protein ubiquitination; Apical protein localization; Cotyledon development	Late endosome; Plasma membrane
<b>AT5G07820.1</b>	Calmodulin binding	-	-
<b>AT4G32650.1</b>	Voltage-gated potassium channel activity; Protein binding	Response to nematode; Regulation of ion transmembrane transport; Potassium ion transmembrane transport	Endoplasmic reticulum; Plasma membrane, Integral component of membrane
<b>AT3G50730.1</b>	Protein serine/threonine kinase activity; Protein serine/threonine/tyrosine kinase activity; ATP binding;	Protein phosphorylation	
<b>AT3G52990.1</b>	Magnesium ion binding; Pyruvate kinase activity; Potassium ion binding; Kinase activity;	Glycolytic process; Cellular response to insulin stimulus; Response to cadmium ion	Cytosol; Membrane
<b>AT3G62560.1</b>	GTPase activity; GTP binding;	Regulation of COPII vesicle coating ;Positive regulation of protein exit from endoplasmic reticulum	Golgi apparatus; Cytosol; Plasma membrane; COPII vesicle coat; Endoplasmic reticulum exit site
<b>AT1G74180.1</b>	-	-	Plasma membrane; Chloroplast; Integral component of membrane
<b>AT5G08710.1</b>	-	Biological_process	-
<b>AT1G53860.1</b>	-	Biological_process	Cellular_component;
<b>AT5G43420.1</b>	-	Protein ubiquitination	Integral component of membrane; Transferase activity; Metal ion binding
<b>AT1G70200.1</b>	-	rRNA processing; Response to cold; Plastid translation	Chloroplast; rRNA binding
<b>AT3G56570.1</b>	protein-lysine N-methyltransferase activity	Peptidyl-lysine monomethylation	Nucleus
<b>AT5G60120.1</b>	DNA binding; DNA-binding transcription factor activity; Protein binding	Regulation of transcription, DNA-templated; Ethylene-activated signaling pathway	Nucleus
<b>AT1G71840.1</b>	Unfolded protein binding	Ribosomal large subunit biogenesis	Cytosol;
<b>AT1G26440.1</b>	Allantoin:proton symporter activity; ATP binding; Uracil:cation symporter activity; Xanthine transmembrane transporter activity	Allantoin transport; Uracil transmembrane transport	Integral component of membrane; Xanthine transport
<b>AT4G27240.1</b>	Nucleic acid binding; DNA-binding transcription factor activity	Regulation of transcription, DNA-templated	-
<b>AT3G14980.1</b>	Histone acetyltransferase activity; Metal ion binding; Double-stranded methylated DNA binding; Histone binding	Histone H3-K18 acetylation; Histone H3-K23 acetylation; Regulation of DNA methylation; Histone H3-K14	Nucleus; Plasmodesma;

		acetylation; RNA-directed DNA methylation	
<b>AT3G04620.1</b>	Nucleic acid binding	Pollen sperm cell differentiation	-
<b>AT4G21320.1</b>	Serine-type endopeptidase activity	Proteolysis; Pollen tube growth; Heat acclimation; Posttranscriptional regulation of gene expression	Extracellular space
<b>AT4G17150.1</b>	Hydrolase activity	-	-
<b>AT4G33980.1</b>	-	Response to cold; Regulation of circadian rhythm; Photoperiodism, flowering; Response to karrikin	Nucleus
<b>AT4G38410.1</b>	-	Response to water deprivation; Cold acclimation; Response to abscisic acid	Cytosol, Membrane
<b>AT5G55040.1</b>	DNA binding;	-	Integral component of membrane
<b>AT2G28090.1</b>	Metal ion binding	Metal ion transport	
<b>AT2G22430.1</b>	DNA-binding transcription factor activity; Protein binding; Sequence-specific DNA binding	Response to water deprivation; Negative regulation of abscisic acid-activated signaling pathway; Positive regulation of transcription, DNA-templated	Nucleus
<b>AT4G28890.1</b>	Ubiquitin-protein transferase activity; Metal ion binding	Protein ubiquitination	Integral component of membrane
<b>AT2G18510.1</b>	mRNA binding	Positive regulation of mRNA splicing, via spliceosome	U12-type spliceosomal complex; Nucleolus
<b>AT2G38610.1</b>	mRNA binding;	-	Nucleus; Cytosol; Integral component of membrane
<b>AT5G23340.1</b>	-	-	-
<b>AT5G42850.1</b>	Protein-disulfide reductase activity;	Oxidation-reduction process	Cytosol; Cell redox homeostasis;
<b>AT3G22380.1</b>	-	Starch metabolic process; Response to oxidative stress; Response to water deprivation; Response to abscisic acid; Developmental process; Regulation of circadian rhythm	Nucleus;
<b>AT2G11030.1</b>	-	-	Integral component of membrane
<b>AT5G58620.1</b>	DNA binding; DNA-binding transcription factor activity	Regulation of transcription, DNA-templated; Metal ion binding	-
<b>AT2G02480.1</b>	DNA clamp loader activity; DNA-directed DNA polymerase activity; ATP binding;;	DNA-dependent DNA replication; Trichome branching; DNA biosynthetic process	Nucleus; DNA replication factor C complex; Plasma membrane; DNA polymerase III complex
<b>AT1G12930.1</b>	-	Protein import into nucleus	Nucleus; Cytoplasm;
<b>AT5G57180.1</b>	Protein binding;	Regulation of transcription, DNA-templated; Protein targeting to chloroplast	Nucleus; Chloroplast;
<b>AT3G42670.1</b>	Helicase activity; ATP binding	positive regulation of RNA interference	Nucleoplasm; Nucleolus;
<b>AT5G65900.1</b>	F:RNA binding; F:helicase activity; F:ATP binding	-	-
<b>AT5G45000.1</b>	-	Signal transduction	Integral component of membrane
<b>AT2G38090.1</b>	DNA binding; DNA-binding transcription factor activity; Regulation of transcription, DNA-templated	-	Nucleus
<b>AT5G62620.1</b>	Carbohydrate binding; Hydroxyproline O-galactosyltransferase activity	Arabinogalactan protein metabolic process; Protein O-linked glycosylation via hydroxyproline; Mucilage biosynthetic process involved in seed coat development;	Golgi membrane; Endoplasmic reticulum; C:chloroplast; Integral component of membrane

		Negative regulation of leaf senescence	
<b>AT5G05930.1</b>	Molecular_function;	Biological_process	-
<b>AT4G36180.1</b>	Protein serine/threonine kinase activity; Protein binding; ATP binding	Protein phosphorylation	Plasma membrane; Integral component of membrane
<b>AT2G44180.1</b>	Metalloaminopeptidase activity	Protein processing; N-terminal protein amino acid modification; Protein initiator methionine removal	Cytoplasm; Metal ion binding
<b>AT1G13590.1</b>	Growth factor activity	Multicellular organism development; Cell population proliferation; Regulation of signaling receptor activity; Cell differentiation	Extracellular matrix
<b>AT1G54130.1</b>	ATP binding; GTP binding; GTP diphosphokinase activity; Kinase activity	Response to wounding; Response to abscisic acid; Leaf senescence; Guanosine tetraphosphate biosynthetic process; Photosynthesis; Phosphorylation	Chloroplast;
<b>AT1G43770.1</b>	Metal ion binding	-	-
<b>AT1G78000.1</b>	Protein binding; Secondary active sulfate transmembrane transporter activity; Symporter activity; Anion:anion antiporter activity	Cellular response to sulfate starvation; Sulfate transmembrane transport	Integral component of plasma membrane
<b>AT1G13420.1</b>	Brassinosteroid sulfotransferase activity; Flavonoid sulfotransferase activity	Response to cytokinin; Flavonoid metabolic process; Brassinosteroid metabolic process;	Cytoplasm
<b>AT4G28080.1</b>	-	Cell cycle; Multicellular organism development; Rresponse to abscisic acid	Cytoplasm
<b>AT2G26240.1</b>	-	-	Mitochondrion; Integral component of membrane
<b>AT5G52380.1</b>	Nucleic acid binding; Actin binding; Zinc ion binding	Actin filament depolymerization	Actin cytoskeleton;
<b>AT1G78310.1</b>	Protein binding;	Cellular sodium ion homeostasis; Cellular potassium ion homeostasis; Negative regulation of DNA-binding transcription factor activity; Negative regulation of response to salt stress	Nucleus
<b>AT4G29950.1</b>	GTPase activator activity; Rab GTPase binding	Activation of GTPase activity	Cell; Intracellular protein transport
<b>AT3G43590.1</b>	Nucleic acid binding; Zinc ion binding	-	-
<b>AT2G44080.1</b>	-	Multicellular organism development; Response to brassinosteroid; Multidimensional cell growth; Positive regulation of organ growth	Nucleus; Endoplasmic reticulum; Integral component of membrane
<b>AT5G40890.1</b>	Voltage-gated chloride channel activity; Protein binding; Nitrate:proton symporter activity	Response to nitrate; Nitrate transport; Regulation of ion transmembrane transport; Chloride transmembrane transport; Proton transmembrane	Plant-type vacuole membrane; Transport C:chloride channel complex
<b>AT4G23750.1</b>	DNA-binding transcription factor activity; Identical protein binding; Sequence-specific DNA binding	Regulation of transcription, DNA-templated; Cytokinin-activated signaling pathway; Ethylene-activated signaling pathway; Root development; Cotyledon development	Nucleus; Cytoplasm;

<b>AT4G29920.1</b>	Hydrolase activity;	Phloem transport; Protein metabolic process; Carbohydrate homeostasis	Nucleus; Chloroplast
<b>AT1G21390.1</b>	Molecular_function	-	-
<b>AT1G09650.1</b>	-	Response to chitin	-
<b>AT1G22300.1</b>	ATP binding; Protein domain specific binding	Response to abscisic acid; Brassinosteroid mediated signaling pathway	Nucleus; Mitochondrion; Cytosol; Plasma membrane; Plasmodesma
<b>AT4G01210.1</b>	ATP binding; Phosphatidylinositol phosphate kinase activity	Phosphatidylinositol phosphorylation	Endosome; Trans-Golgi network; Integral component of membrane
<b>AT2G37650.1</b>	DNA-binding transcription factor activity ; Sequence-specific DNA binding	Regulation of transcription, DNA-templated	Nucleus
<b>AT2G37470.1</b>	DNA binding; Protein heterodimerization activity	-	Nucleosome; Nucleus
<b>AT1G80580.1</b>	DNA binding; DNA-binding transcription factor activity	Ethylene-activated signaling pathway	Nucleus; Regulation of transcription, DNA-templated
<b>AT1G68790.1</b>	-	Nucleus organization;	Nuclear lamina; Nucleoplasm; Nucleolus; Cytoplasm; Plasmodesma; Nuclear membrane
<b>AT4G19380.1</b>	Long-chain-alcohol oxidase activity; Flavin adenine dinucleotide binding	Oxidation-reduction process	Integral component of membrane
<b>AT1G26270.1</b>	1-phosphatidylinositol 4-kinase activity; ATP binding; Protein histidine kinase binding;	Phosphatidylinositol phosphorylation	-
<b>AT1G66660.1</b>	Zinc ion binding; E3 Ubiquitin protein ligase activity	Ubiquitin-dependent protein catabolic process; Multicellular organism development; Protein ubiquitination	Nucleus; Cytoplasm;
<b>AT1G32361.1</b>	Transferase activity; Metal ion binding	Protein ubiquitination	Integral component of membrane;
<b>AT4G02050.1</b>	Carbohydrate: proton symporter activity; Arabinose transmembrane transporter activity	Integral component of plasma membrane; Endomembrane system; Pollen tube	L-arabinose transmembrane transport; Proton transmembrane transport
<b>AT2G33770.1</b>	Protein binding; ATP binding; Endoplasmic reticulum membrane; Ligase activity; Ubiquitin conjugating enzyme activity	Golgi membrane;	Cellular response to phosphate starvation; Protein ubiquitination; Cellular protein catabolic process; Phosphate ion homeostasis; Regulation of phosphate transmembrane transport
<b>AT3G54700.1</b>	Inorganic phosphate transmembrane transporter activity; Symporter activity; Arsenate ion transmembrane transporter activity	Plasma membrane; Integral component of membrane	Phosphate ion transport; Arsenate ion transmembrane transport
<b>AT4G00170.1</b>	-	Extracellular region; Endoplasmic reticulum membrane; Integral component of membrane	-
<b>AT4G05591.1</b>	-	Chloroplast; Membrane	-
<b>AT1G21270.1</b>	Protein serine/threonine kinase activity; Calcium ion binding; ATP binding; Polysaccharide binding	Plasma membrane Integral component of membrane	Protein phosphorylation; Oligosaccharide metabolic process; Response to salicylic acid; Unidimensional cell growth; Cellular water homeostasis
<b>AT1G31540.1</b>	ADP binding	Plasmodesma	Signal transduction

