

## **Supplemental Material to:**

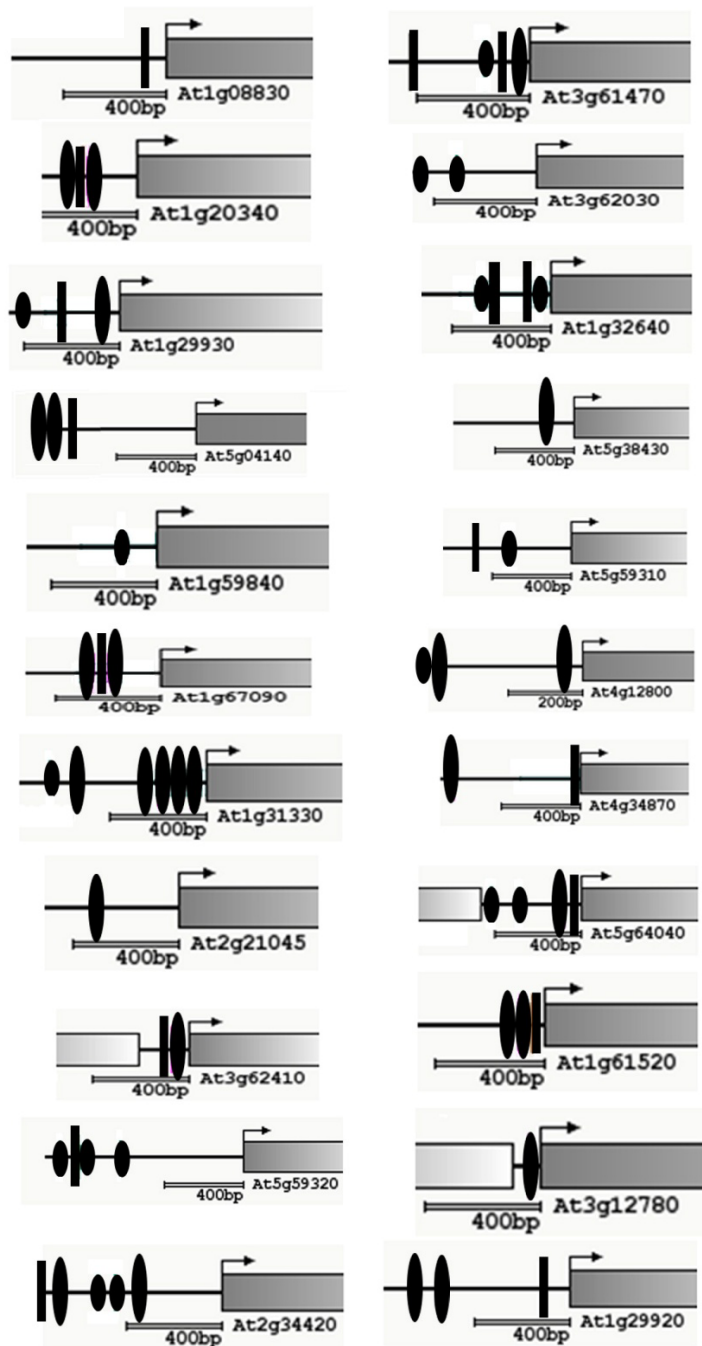
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**Arabidopsis scaffold protein RACK1A interacts  
with diverse environmental stress  
and photosynthesis related proteins**

**Plant Signaling & Behavior 2013; 8(5)  
<http://dx.doi.org/10.4161/psb.24012>**

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# Supplemental Fig.1



**Supplementary Table 1:** Complete list of Arabidopsis RACK1A interacting proteins identified through the use of RACK1A as bait screening an inflorescence cDNA library (Please see the Material and Methods section in the original text). A total 97 identified interacting proteins are categorized into different functional group based on the references found in the PubMed database. In cases where no known function is available, the references are omitted from those entries.

**Supplementary Figure 1:** Promoter regions of genes encoding RACK1A interacting proteins show distinct binding site motifs involved in the dehydration and light regulated pathways. The transcription factor binding site enrichment tool Athena [21] , was used to identify statistically over-represented Transcription Factor binding sites occurring in the selected set of 27 RACK1A interacting protein promoter sites. ABRE-like binding site motif ((C/G/T)ACGTG(G/T)(A/C)) known to occur in proteins that responses to dehydration and low temperature is found in 15 promoters with a p-value of  $<10^{-4}$  and shown in the figure as a dark vertical line. The Ibox promoter motif (GATAAG) [23] which is found in the promoters of light regulated genes has been found in all of the 16 RACK1A interacting photosynthetic genes and is represented by the long elliptical dark shapes. The high statistical p-value of  $<0.0040$  indicates the findings as significant. The MYB2AT site (TAACTG) known to be involved in the regulation of genes that are responsive to water-stress is present in 11 of the stress related proteins that interact with RACK1A protein. The statistical p-value for the result is 0.0137 and the site is represented by shorter elliptical dark shape [24] . The reference numbers refer to the references in the original text.

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## Stress related proteins

LOCUS NAME	NAME OF THE PROTEIN	FUNCTION	REFERENCE
AT2G10940	Bifunctional inhibitor/lipid-transfer protein/seed storage 2S	Albumin-like protein -antifungal activity	[1]
AT1G18210	Putative calcium-binding protein CML27	Stress response	[2]
AT3G12780	Phosphoglycerate kinase 1	Oxidative stress response	[3]
AT5G59310	Non-specific lipid-transfer protein 4	Stress response	[4]
AT4G00870	Transcription factor bHLH14	Stress response	[5]
AT1G32640	Transcription factor MYC2	Stress response	[6]
AT4G34870	Peptidyl-prolyl cis-trans isomerase CYP18-4	Stress response	[7]
AT2G47590	Photolyase/blue-light receptor 2,PHR3	Osmotic stress	[8]
AT3G56940	Magnesium-protoporphyrin IX monomethyl ester [oxidative] cyclase,CRD1	Stress ,photosynthesis	[9]
AT3G07900	O-fucosyltransferase-like protein	heat stress	[10]
At2g01140	Fructose-bisphosphate aldolase, class I [	Stress response	[11]
At5g59320	Lipid transfer protein 3	Stress response	[4]
At1g52420	glycosyl transferase, putative; 4406-2038	Stress response	[12]
At1g07790	histone H2B	Stress response	[13]
AT5G48180	nitrile specifier protein 5	Stress response	[14]
At5g52430	ABA induced Hydroxy proline rich glycoprotein	Water stress response	[15]
At2g14890	Arabinogalactan Protein 9 (AGP9)	Salt stress	[16]
AT1G78370	glutathione S-transferase TAU 20	Stress response	[17]
At1g78380	glutathione S-transferase TAU 19	Stress response	[17]
AT1G08830	Copper/Zinc Superoxide Dismutase 1, CSD1	Oxidative stress response	[63]

## Photosynthesis related proteins

LOCUS NAME	NAME OF THE PROTEIN	FUNCTION	REFERENCE
AT3G61470	LHCA2, Photosystem I Light Harvesting Complex Gene 2	Photosynthesis	[18]
At1g61520	LHCA3, Photosystem I Light Harvesting Complex Gene 3	Photosynthesis	[18]
At3g62410	CP12, CP12 Domain Containing Protein 1 (Chloroplast stroma)	Photosynthesis	[19]
AT5G64040	Photosystem I reaction center subunit N, PSAN	Photosynthesis	[20]
AT2G21045	Rhodanese-like domain-containing protein	Photosynthesis	[21]
AT5G38430	Ribulose bisphosphate carboxylase small chain 1B	Photosynthesis	[22]
AT1G31330	Photosystem I reaction center subunit III,PSAF	Photosynthesis	[23]
AT1G59840	Cofactor assembly of complex C	Photosynthesis	[24]
At4g12800	Photosystem I reaction center subunit XI	Photosynthesis	[23]
AT1G29930	Chlorophyll a/b binding protein1 (CAB1)	Photosynthesis	[25]
AT1G55670	photosystem I reaction center subunit v	Photosynthesis	[26]
AT1G55670	photosystem I subunit G; PSAG; PSI-G	Photosynthesis	[27]
AT1G29910	light-harvesting chlorophyll B-binding protein 3	Photosynthesis	[28]
At2g34430	photosystem II light harvesting complex protein	Photosynthesis	[29]

## Ribosomal proteins

LOCUS NAME	NAME OF THE PROTEIN	FUNCTION	REFERENCE
At4g09800	Ribosomal RPS18C	Ribosomal protein	[30]
At3g27830	RPL12-A	Ribosomal protein	[31]
At1g15930	RPS12A	40S ribosomal protein S12	[32]
AT2G19730	60S ribosomal protein L28-1	Ribosomal protein	[33]
AT4G15000	60S ribosomal protein L27-3	Ribosomal protein	[34]

AT4G39200	40S ribosomal protein S25-4	Ribosomal protein	[35]
AT2G44120	60S ribosomal protein L7-3	Ribosomal protein	[36]
AT3G23390	60S ribosomal protein L36a	Ribosomal protein	[36]
AT4G34620	small subunit ribosomal protein 16, SSR16	Ribosomal protein	[37]
AT5G06360	Ribosomal protein S8e family protein	Ribosomal protein	[38]
AT5G02960	40S ribosomal protein S23-2	Ribosomal protein	[32]
AT1G09590	60S ribosomal protein L21-1	Ribosomal protein	[36]
AT3G06700	60S ribosomal protein L29-1	Ribosomal protein	[36]

#### Other proteins

LOCUS NAME	NAME OF THE PROTEIN	FUNCTION	REFERENCE
AT5G23740	RPS11-beta	Unknown	Not available
At2g46000	Unknown	Unknown	Not available
AT5G11500	Unknown protein with Domain of unknown function (DUF814)	Unknown	Not available
At1g20220	Alba DNA/RNA binding protein (NP 564108.1)	Unknown	[39]
AT2G43560	Peptidylprolyl isomerase	Transcriptional regulation	[40]
AT3G07565	Uncharacterized protein	Unknown	Not available
AT3G01530	myb domain protein 57	Pigment	[41]
AT3G62030	Prolyl cis-trans isomerase CYP20-3	Ubiquitination	[42]
AT2G04900	Uncharacterized protein	Unknown	Not available
AT3G18780	Actin 2,ACT2	Root hair development	[43]
AT1G23100	GroES-like protein	Protein folding	[44]
AT2G44500	Axi 1 protein-like protein	Auxin action	[45]
AT4G28030	GCN5-related N-acetyltransferase (GNAT) family protein	Histone acetyltransferases	[46]
At3g52300	ATP synthase subunit d	ATP synthesis	[47]
AT5G24780	Vegetative storage protein 1	Defense against herbivorous insects.	[48]
At5g35360	Biotin carboxyl carrier protein precursor-like	Fatty acid biosynthesis	[49]
at1g59840	HYPOTHETICAL PROTEIN	Unknown	Not available
AT5G04750	Putative F1F0-ATPase inhibitor protein	ATPase inhibitor	[50]
At2g18510	Spliceosome associated protein	Splicing	[51]
At1g09250	Hypothetical protein	Unknown	Not available
AT5G20630	Germin like proteins (ABP1 or AtGER3)	Defense resistance against fungal pathogens	[52]
AT5G44340	tubulin beta-4 chain	structural protein	[53]
At4g20890	tubulin beta-9 chain	structural protein	[53]
At1g20010	tubulin beta-5 chain	structural protein	[53]
At5g44340	tubulin beta	structural protein	[53]
At5g23860	tubulin beta-8 chain	structural protein	[53]
At1g08590	leucine-rich repeat transmembrane protein kinase family prot	Modulator of growth factor	[54]
At1g08590	leucine-rich repeat protein kinase-like protein	defense	[55]
At3g18780	actin 2	Cell ultra structural protein	[56]
At1g49240	actin 8	Cell ultra structural protein	[56]
At3g08690	ubiquitin-conjugating enzyme E2 11	Ubiquitination	[57]
At5g53300	ubiquitin-conjugating enzyme E2 10	Ubiquitination	[57]
At1g64230	ubiquitin-conjugating enzyme E2 28	Ubiquitination	[57]
At4g27960	SUMO-conjugating enzyme UBC9	Sumoylation	[58]
At2g16870	TIR-NBS-LRR class disease resistance protein	defense	[59]
At2g30105	ubiquitin-like domain-containing protein	lipid droplet homeostasis.	[60]
At1g60950	ferredoxin-2	iron sulfur cluster biogenesis	[61]
At2g18090	SWIB/MDM2 domain-containing protein	chromatin remodeling	[62]