

## **Supplementary Material**

**Table 1: List of genes transcriptionally up-regulated after cGMP treatment**

<b>Locus:</b>	<b>p-value:</b>	<b>Annotation:</b>
At2g36570	5.63	Leucine-rich repeat transmem. protein kinase
At1g33440	4.22	Nitrate transporter,NPL1
At1g75380	3.66	Wound-responsive protein
At4g13770	3.54	Cytochrome p450 protein
At5g13900	3.46	Putative protein
At5g38480	3.43	14-3-3 protein, GF14 psi(grf3/RCI1)\
At1g79770	3.38	Expressed protein
At3g59930	3.33	Putative protein
At2g02650	3.29	Putative reverse transcriptase
At5g64750	3.28	Putative protein
At2g38800	3.26	Calmodulin binding protein
At5g35420	3.17	Putative protein
At5g20090	3.15	Putative protein
At4g23170	3.15	Putative protein
At2g15780	3.09	Expressed protein
At5g01360	3.05	Putative protein
At1g35230	3.05	Arabino-galactan protein(AGP5)
At5g22520	3.05	Unknown protein
At1g76640	3.05	Putative calmodulin
At1g80180	3.02	Expressed protein
At5g40260	2.95	Putative protein
At5g45340	2.95	Cytochrome p450 family
At5g46740	2.90	Ubiquitin-specific protease 21(UBP21)
At5g10380	2.85	Putative protein
At3g24280	2.84	Hypothetical protein
At2g22860	2.81	Unknown protein
At5g24270	2.75	Calcium sensor homolog
At5g45950	2.68	GDSL-motif lipase/hydrolase-like protein
At5g36240	2.67	Putative protein

At2g26020	2.64	Plant defensin protein,putative(PDF1.2b)
At3g43970	2.63	Putative protein
At5g11210	2.62	Putative protein
At4g18160	2.56	Outward-rectifying potassium channel-like KCO6
At2g05760	2.55	Putative membrane transporter
At3g25600	2.48	Calmodulin,putative
At5g55290	2.44	Expressed protein
At2g31910	2.43	Putative Na <sup>+</sup> /H <sup>+</sup> antiporter
At1g27730	2.42	Salt-tolerance zinc finger protein
At4g30660	2.38	Stress responsive protein homolog
At4g18940	2.34	Hypothetical protein
At1g48610	2.33	Regulatory protein HAL3B
At4g37270	2.28	Cu <sup>2+</sup> -transporting ATPase-like protein
At3g10600	2.27	Putative amino acid transporter
At1g05200	2.23	Putative ligand-gated ion channel protein
At5g51050	2.10	Calcium-binding transporter-like protein
At2g46450	2.07	Cyclic nucleotide-regulated ion channel
At4g18290	2.00	Potassium channel protein KAT2
At3g62270	1.95	Putative protein
At5g06530	1.93	ABC transporter family protein
At5g08680	1.88	Similar to H <sup>+</sup> -transporting ATP synthase beta-chain
At2g23980	1.83	Cyclic nucleotide-regulated ion channel (CNGC6)
At1g17950	1.83	Myb family transcription factor
At1g27000	1.52	bZIP family transcription factor
At2g28180	1.46	Hypothetical protein
At4g15230	1.41	ABC transporter-like protein
At2g40860	1.30	Protein phosphatase 2C (PP2C)
At5g22910	1.25	Na <sup>+</sup> /H <sup>+</sup> antiporter-like protein
At5g13660	1.16	Unknown protein
At5g01180	0.94	Oligo-peptide transporter-like protein

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**Table 2: Genes co-expressed with CHX8 (At2g28180) (top 50)**

<b>Locus:</b>	<b>r-value:</b>	<b>Annotation:</b>
At4g39180	0.999611	SEC14 cytosolic factor, putative/phosphoglyceride transfer prot.
At5g55980	0.99954	Serine-rich protein-related
At2g44560	0.999449	Glycosyl hydrolase family 9 protein
At1g30710	0.000238	FAD-binding domain-containing protein
At5g20390	0.99876	Beta-1,3-glucanase, putative
At1g01980	0.998179	FAD-binding domain-containing protein
At5g42490	0.99785	Kinesin motor family protein contains Pfam domain
At1g17540	0.997425	Protein kinase-related similar to serine/threonine protein kinase Fen
At5g40155	0.996863	Expressed protein
At2g19040	0.996836	Rapid alkalization factor (RALF) family protein
At2g19050	0.996567	GDSL-motif lipase/hydrolase family protein
At4g39610	0.996507	Expressed protein containing Pfam profile
At1g24110	0.995247	Peroxidase, putative similar to peroxidase ATP26a
At5g25430	0.994728	Anion exchange protein family
At1g67623	0.994507	F-box family protein hypothetical protein
At2g03840	0.994268	Senescence-associated family protein
At2g21990	0.994207	Expressed protein contains Pfam profile
At2g41860	0.993456	Calcium-dependent protein kinase, putative/CDPK
At4g02650	0.993276	Epsin N-terminal homology (ENTH) domain-containing protein
At1g66210	0.992323	Subtilase family protein contains
At1g61860	0.992184	Protein kinase
At5g12180	0.991681	Calcium-dependent protein kinase, putative/CDPK
At2g05850	0.991363	Serine carboxypeptidase S10 family protein
At2g40990	0.99117	Zinc family (DHHC type) family protein contains Pfam
At1g50610	0.991135	Leucine-rich repeat transmembrane protein kinase
At4g33850	0.990955	Glycosyl hydrolase family 10 protein

At1g77240	0.990926	AMP-binding protein
At2g44540	0.99092	Glycosyl hydrolase family 9 protein
At3g02555	0.990629	Expressed protein
At3g09530	0.99056	Exocyst subunit EXO70 family protein
At1g23350	0.990476	Invertase/pectin methylesterase inhibitor family protein
At1g01460	0.990377	Phosphatidylinositol-4-phosphate 5-kinase family protein
At5g39420	0.9903	Protein kinase family protein
At5g12180	0.990157	Calcium-dependent protein kinase
At1g67670	0.990113	Hypothetical protein
At5g55680	0.990039	Glycine-rich protein
At2g47340	0.989901	Invertase/pectin methylesterase inhibitor family protein
At3g09760	0.989717	Zinc finger (C3HC4-type ring finger) family protein
At1g01310	0.989562	Allergen V5/Tpx-1-related family protein
At2g46360	0.989527	Expressed protein
At2g25370	0.989503	Zinc-finger protein related
At2g37070	0.9892	Expressed protein
At2g26850	0.988757	F-box family protein
At1g44160	0.988731	DNAJ chaperone C-terminal domain containing protein
At2g45310	0.988633	NAD-dependent epimerase/dehydratase family protein
At2g46300	0.98861	Expressed protein
At5g28680	0.988043	Protein kinase family protein
At3g56600	0.987218	Phosphatidylinositol 3- and 4-kinase family protein
At5g39400	0.987091	Pollen-specific phosphatase
At4g16745	0.986402	Exostosin family protein
At2g09910	0.986306	Hypothetical protein

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**Table 3: Promoter analysis of CHX8 and co-expressed genes**

<b>TF sites</b>	<b>P value</b>	<b>#P</b>	<b>#S</b>
CARGCW8GAT	$<10^{-3}$	70	252
MYB1AT	$<10^{-5}$	92	232
MYB2AT	$<10^{-3}$	38	50
CArG promoter motif	0.0191	12	26
ARF binding site motif	0.0111	42	59
CCA1 binding site motif	0.0033	36	45
GAREAT	0.0373	57	97
Ibox promoter motif	0.0318	42	58
T-box promoter motif	0.0059	59	88
LEAFYATAG	0.0359	14	16

#P: number of genes containing TF sites

#S: number of TF site occurrence within gene promoters

**'Data not shown tables':**

**Table 1 .Swiss-Prot keyword search**

SwissProt keywords: 381

Number of genes with annotation in list1: 17

Number of genes with annotation in list2: 2750

Swiss-Prot keyword	List 1		List 2		Significance
	No. genes	%	No. genes	%	Adj. p value
Ionic Channel	6	32.29	46	1.67	8.17E-04
Ion Transport	8	47.09	126	4.58	8.17E-04
Membrane	14	82.35	794	28.87	7.94E-03
Transmembrane	12	70.59	651	23.67	1.85E-02
Transport	10	58.82	477	17.35	3.62E-02

% = percentage of annotated genes associated with the Swiss-prot keywords.

**Adjusted p-value** = Family Wise Error Rate (FWER)

**Table 2: FatiGOplus analysis of cGMP down-regulated genes**

**A. Gene Ontology :**

Summary input data: Biological process terms: 1918

Genes in list1 used in analysis 60 No. genes with annotation in list1: 38

Genes in list2 used in analysis 24109 No. genes with annotation in list2: 10643

GO term	Level	List 1		List 2		Significance
		No. genes	%	No. genes	%	Adj. p value
Ion Transport	5	10	27.27	334	3.65	2.06E-03
Vesicle organization and biogenesis	5	2	6.06	0	0	7.83E-03
Cation Transport	6	9	32.14	282	3.67	9.33E-04
Membrane Budding	6	2	7.14	0	0	7.83E-03
Monovalent Inorganic Cation Transport	7	5	28.57	107	182	2.06E-03

**No. genes** = number of genes in the specified list associated with the GO term at the indicated level.

**%** = the percentage of genes in a list with annotation at the indicated level which are associated with a particular GO term.