

Glutaredoxin GRXS13 plays a key role in protection to photooxidative stress in Arabidopsis

Daniel Laporte, Ema Olate, Paula Salinas, Marcela Salazar, Xavier Jordana and Loreto Holuigue

Supplementary Material

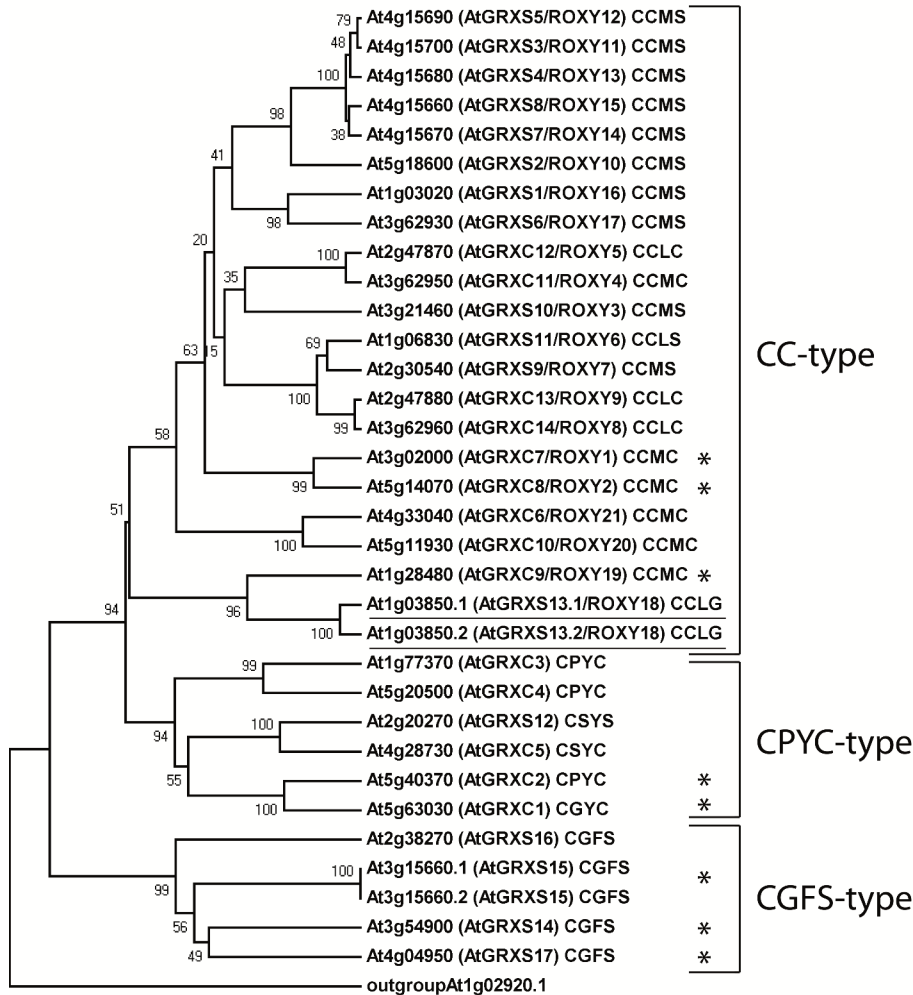


Figure S1. Phylogenetic relationship and classification of the 31 GRXs from Arabidopsis. The hierarchical cluster analysis of the 31 GRXs predicted in Arabidopsis was performed with the full-length deduced protein sequences obtained from TAIR (www.arabidopsis.org) using the CLUSTAL W software for sequence alignment (<http://www.ebi.ac.uk/Tools/clustalw2/index.html>). Cladogram was built according to the maximum parsimony algorithm with a bootstrap of 500 iterations. The Arabidopsis thioredoxin gene At1g02920.1 was used as an external group. Clusters of CC-type, CPYC-type and CGFS-type GRX are separated by square brackets. The Arabidopsis Genome Initiative code, the assigned names (between brackets) and the four active-site aminoacids, are indicated for each gene. GRX genes are named according to GRXS/GRXC classification and to ROXY classification for the CC-type (Li et al., 2009). *GRXS13.1* and *GRXS13.2* variant genes are underlined and glutaredoxins previously characterized by genetic approaches are indicated by an asterisk (*).

Target Gene	Forward Primer	Reverse Primer
At1g03850.1 (<i>GRXS13.1</i>)	CCTCCGCTCAAATCTTACGG	CTTTTCGTAACCTAGTCGG
At1g03850.2 (<i>GRXS13.2</i>)	CAGTGGTGGTTGAGATTGGTGAAG	AGTGCCTACTCTTAGACAAGCTGG
At4g24550 (<i>Clathrin</i>)	AGCACCGGGTTCTAACTCAA	AATACGCGCTGAGTTCCTT
At5g06290 (<i>YLS8</i>)	TTACTGTTTCGGTTGTTCTCCATT	CACTGAATCATGTTCGAAGCAAGT
At4g05320 (<i>UBQ10</i>)	GGCCTTGATAATCCCTGATGAATAAG	AAAGAGATAACAGGAACGGAAACATAG
At1g02840 (<i>GRXC9</i>)	CCTACATAAACCGCCGGT	GAGGCTGCTTCTTGGACTION
At1g02930 (<i>GST-1</i>)	TAATAAAAAGTGGCGACC	ACATTCAAATCAAACACTCG

Table S1. Primers used to quantify transcripts from the indicated genes by qRT-PCR.

Gene variant	ESTs	FL-cDNAs
At1g03850.1	EBENXNS02JCUQX RAFL14-01-M01 (3`) RAFL14-01-M01 (5`)	U22510
At1g03850.2	06c01 (3`) 07E02 (3`) 1025557 (5`) 271253 (3`) 271253 (5`) 27F7 (3`) 39H8 (3`) EB3RODY01AW7JM EB3RODY01DG3Y4 EB3RODY01DVA3R EB3RODY01E2936 EB3RODY02HOI1F EBENXNS02H8O7Y EBENXNS02JP95O EBENXNS02JS5FE MPIZP200III83Q (5`) RAFL04-13-K21 (3`) RAFL04-13-K21 (5`) RAFL15-03-F10 (3`) RAFL15-03-F10 (5`) RAFL16-63-C05 (3`) RAFL19-43-J01 (3`)	R09778 U09778 AY086732 GSLTPGH52ZE12

Table S2. Evidence of expression for *GRXS13* gene variants in Arabidopsis databases. ESTs and FL-cDNAs associated to *GRXS13* gene (At1g03850) were obtained from TAIR database (<http://www.arabidopsis.org/cgi-bin/gbrowse/arabidopsis/>) and analyzed for variant correspondence. Twenty two out of the 25 ESTs (88%) and 4 out of the 5 FL-cDNAs (80%) corresponded to the *GRXS13.2*(At1g03850.2) variant.