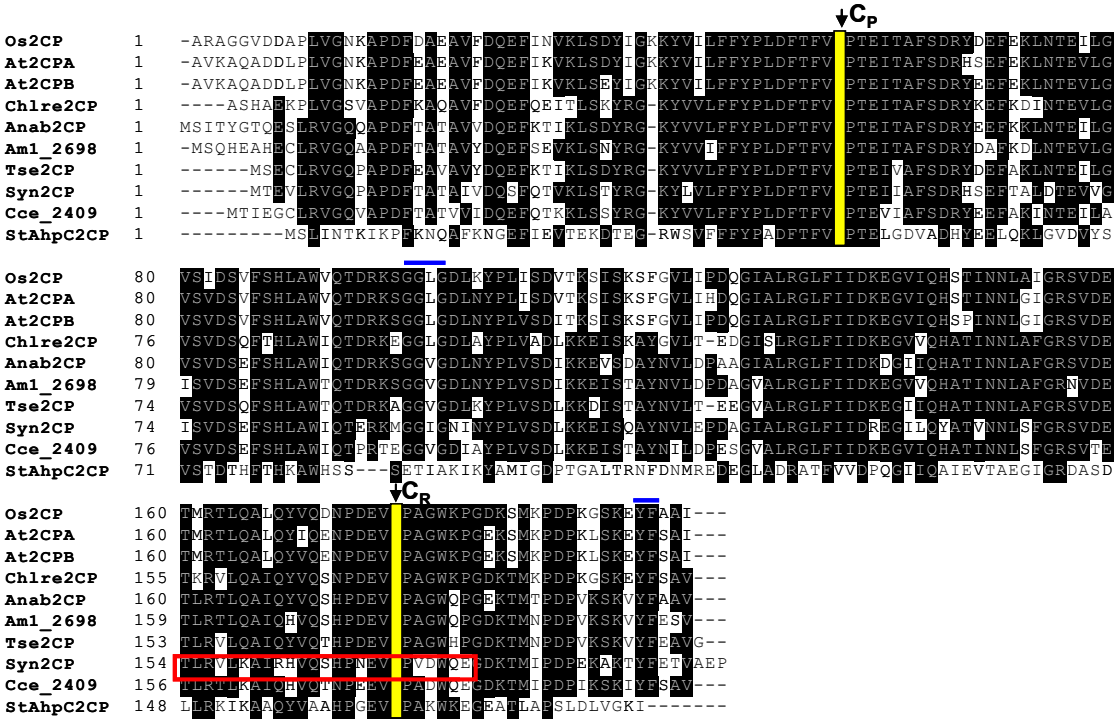
	GG(L/V/I)G				YF	
Species (NCBI Accesion number)	**G**	**G**	**L(V/I)**	**G**	**Y**	**F**
Mycobacterium tuberculosis (2BMX_C)						
Solibacter usitatus (ZP_00523582)						
Bradyrhizobium japonicum (NP_768417)						
Zymomonas mobilis (YP_163467)						
Candidatus Carsonella ruddii (AAK15374)						
Salmonella typhimurium (1KYG_E)						
Novosphingobium aromaticivorans (ZP_00303766)						
Bacillus subtilis (NP_391889)						
Burkholderia vietnamiensis (YP_001117079)						
Porphyromonas gingivalis (NP_904903))						
Treponema pallidum (NP_218950)						
Enterococus faecalis (NP_816369)						
Pyrococcus furiosus (NP_578451)						
Clostridium pasteurianum (P23161)	•	•	•	•		
***Gloeobacter violaceus* (NP_926104)**						
Symbiobacterium thermophilum (YP_074755)	•	•	•	•		
Entamoeba histolytica (XP_648522)	•	•	V	•	•	L
Theileria annulata (XP_954538))	•	•	V	S	•	L
Odontella sinensis (NP_043640)	•	•	•	E	•	•
Porphyra purpurea (NP_053882)	•	•	•	•	•	•
***Anabaena* sp. PCC 7120 (NP_488681)**	•	•	V	•	•	•
***Synechocystis* sp. PCC 6803 (NP_442066)**	•	•	I	•	•	•
Chlamydomonas reinhardtii (XP_001696611)	•	•	•	•	•	•
Arabidopsis thaliana (NP_187769)	•	•	•	•	•	•
Oryza sativa Japonica (NP_001047050)	•	•	•	•	•	•
Helicobacter pylori (NP_208354)	•	•	I	•	•	L
Photobacterium profundum SS9 (YP_130756)	•	•	I	•	•	L
Buchnera aphidicola (NP_240013)	•	•	I	•	•	L
Ehrlichia canis (ZP_00210629)	•	•	I	D	•	L
Rickettsia sibirica (ZP_00142102))	•	•	•	•	•	L
Rhodospirillum rubrum (ZP_00270495)	•	•	•	•	•	L
Plasmodium falciparum (NP_702257)	•	•	I	•	•	L
Chlamydophila pneumoniae (NP_300835)	•	•	I	E	•	•
Chlorobium tepidum (NP_662377)	•	•	I	Q	•	•
Cryptosporidium parvum (XP_665587)	•	•	I	•	•	L
Rhodopirellula baltica (NP_868257)	•	•	I	•	F	•
Trichomonas vaginalis (XP_001313356)	•	•	•	•	•	•
Dictyostelium discoideum (XP_644052)	•	•	•	•	•	•
Leptospira interrogans (YP_001188)	•	•	I	•	•	•
Homo sapiens (1QMV_A)	•	•	•	•	•	•
Danio rerio (NP_001013489)	•	•	•	•	F	•
Drosophila melanogaster (NP_477510)	•	•	•	•	•	•
Biomphalaria glabrata (AAK26236)	•	•	•	•	•	•
Trypanosoma cruzi (1UUL_J)	•	•	•	•	•	•
Caenorhabditis elegans (NP_497892)	•	•	•	•	•	•
Saccharomyces cerevisiae (NP_013684)	•	•	•	•	•	•
Schizosaccharomyces pombe (NP_588430)	•	•	•	•	•	•
Trypanosoma brucei (XP_847032)	•	•	•	•	•	•
Cryptococcus neoformas (XP_571871)	•	•	•	•	•	•

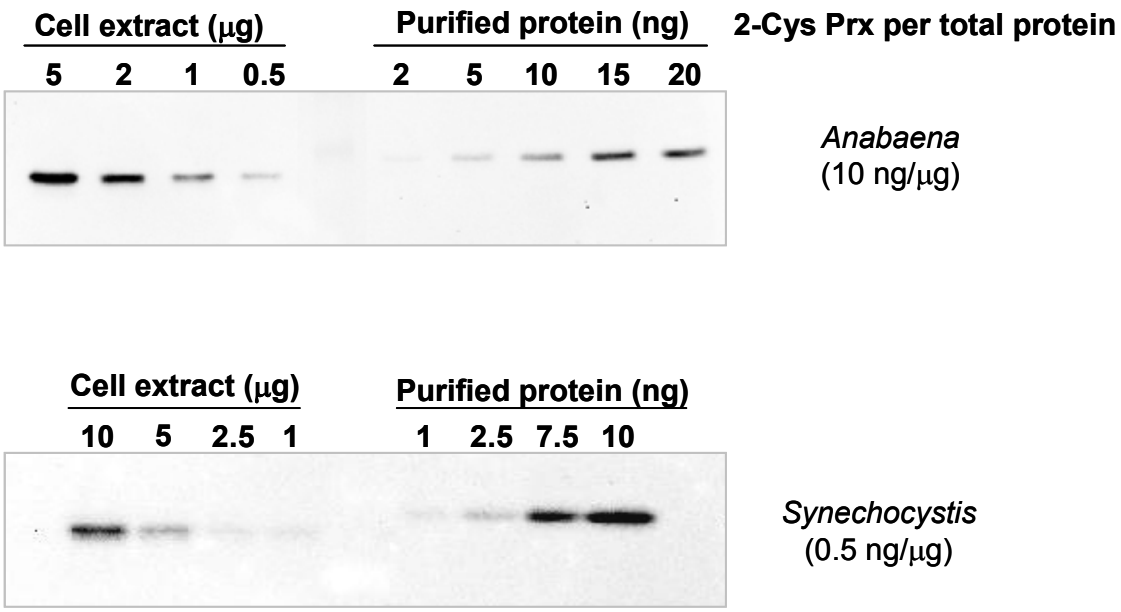
Suppl. Table 1. Analysis of the GG(L/V/I)G and YF motifs in 2-Cys Prx from different organisms. Blue, prokaryotes; Red, Eukaryotes. Dot indicates absolute conservation of residue. Cyanobacteria (in bold) are marked with asterisks.

Strain	NTRC	Srx	2-Cys Prx	Catalase
Anabaena sp. PCC 7120	●	●	●	
Anabaena variabilis ATCC 29413	●	●	●	
Nostoc punctiforme ATCC29133	●	●	●	
Microcystis aeruginosa NIES-843	●	●	●	
Synechococcus elongatus PCC 7942	●	●	●	●
Synechococcus elongatus PCC 6301	●	●	●	
Acaryochloris marina MBIC11017	●	●	●	●
Synechococcus sp. JA-3-3Ab	●	●	●	
Synechococcus sp. JA-2-3B'a(2-13)	●	●	●	
Thermosynechococcus elongatus BP-1	●	●	●	
Synechococcus sp.CC9311	●	●	●	
Synechococcus sp.WH7803	●	●	●	●
Synechococcus sp.WH8102	●		●	
Synechococcus sp.CC9902	●		●	
Synechococcus sp.CC9605	●		●	●
Synechococcus sp.RCC307	●		●	●
Prochlorococcus marinus SS120	●		●	
Prochlorococcus marinus str. NATL2A	●		●	
Prochlorococcus marinus str. NATL1A	●		●	
Prochlorococcus marinus str. MIT9211	●		●	
Prochlorococcus marinus str. MIT9515	●		●	
Prochlorococcus marinus str. MIT9301	●		●	
Prochlorococcus marinus MED4	●		●	
Prochlorococcus marinus str. AS9601	●		●	
Prochlorococcus marinus str. MIT9215	●		●	
Prochlorococcus marinus str. MIT9312			●	
Prochlorococcus marinus str. MIT9313			●	
Prochlorococcus marinus str. MIT9303			●	
Synechocystis sp. PCC 6803			●	●
Gloeobacter violaceus PCC 7421			●	●
Synechococcus sp. PCC 7002			●	●
Cyanothece sp. ATCC 29133			●	

Suppl. Table 2. Distribution of genes encoding NTRC, Srx, 2-Cys Prx and catalase in cyanobacteria. Open reading frames (ORFs) are according to the Cyanobase (http://genome.kazusa.or.jp/cyanobase).



Suppl. Fig. 1. Sequence comparison of 2-Cys Prx from cyanobacteria and plants. The peroxidatic (Cp) and resolving (C_R) cysteines are marked with arrows and high-lighted in yellow. The GG(L/V/I)G and YF motifs are marked with a blue line and the region with low conservation in *Synechocystis* sp. PCC 6803 is marked in red. Plant and algal sequences show mature proteins without chloroplast transit peptides. The species represented are *Oryza sativa* (Os), *Arabidopsis thaliana* (At), *Chlamydomonas reinhardtii* (Chlre), *Anabaena* sp. PCC 7120 (Anab), *Acaryochloris marina* MBIC11017 (Am1), *Thermosynechococcus elongatus* BP-1 (Tse), *Synechocystis* sp. PCC 6803 (Syn) and *Cyanothece* sp. ATCC 29133 (Cce). The 2-Cys Prx sequence from the non-photosynthetic bacterium *Staphylococcus aureus* (StAhpC2CP) was also included.



Suppl. Fig. 2. Quantitative Western blot analysis of the content of 2-Cys Prx in cyanobacteria. Increasing amounts of protein extracts, as indicated, from *Anabaena* or *Synechocystis* cultures, and purified proteins were subjected to SDS-PAGE and Western blot using an anti-2-Cys Prx antibody raised against the rice enzyme (for *Anabaena*) or against the *Synechocystis* enzyme (for *Synechocystis*).