

Table S3. The effect of novobiocin on cold-induced gene expression.

ORF no.	Gene	Product	IF -NB	IF +NB
Genes whose cold inducibility was markedly reduced by novobiocin treatment				
slr1291	<i>ndhD2</i>	NADH dehydrogenase I	24.4 ± 1.5	12.5 ± 0.2
slr1544		Hypothetical protein	19.3 ± 1.0	5.8 ± 0.4
slr0083	<i>crhR</i>	ATP-dependent RNA helicase	14.0 ± 0.7	5.9 ± 0.5
<u>ssr2595</u>	<i>hliB</i>	High light inducible protein	8.0 ± 0.2	2.9 ± 0.3
ssl1633	<i>hliC</i>	CAB/ELIP/HLIP superfamily	6.4 ± 0.1	2.3 ± 0.2
sll1483		Periplasmic protein	6.4 ± 0.1	3.9 ± 0.1
slr1105	<i>fus</i>	Elongation factor EF-G	6.0 ± 0.2	1.4 ± 0.1
sll0517	<i>rbpA1</i>	Putative RNA binding protein	5.2 ± 0.4	1.6 ± 0.1
ssr2016		Hypothetical protein	4.9 ± 0.2	2.3 ± 0.1
slr0955		tRNA/rRNA methyltransferase	4.7 ± 0.1	2.2 ± 0.2
sll0384	<i>cbiQ</i>	ABC-type cobalt transport permease	4.6 ± 0.1	1.2 ± 0.1
slr0236		Hypothetical protein	4.6 ± 0.1	1.7 ± 0.1
slr0423	<i>rtpA</i>	Rare lipoprotein A	4.5 ± 0.3	0.7 ± 0.2
slr0400		Inorganic polyphosphate/ATP-NAD kinase	4.5 ± 0.2	2.5 ± 0.2
sll1911		Hypothetical protein	4.5 ± 0.3	1.6 ± 0.1
slr1254	<i>crtP</i>	Phytoene desaturase	4.4 ± 0.1	1.2 ± 0.1
slr0616		Hypothetical protein	4.4 ± 0.1	1.8 ± 0.1
sll0385	<i>cbiO</i>	Cobalt transport ATP-binding protein	4.2 ± 0.4	1.8 ± 0.2
slr1436		Hypothetical protein	4.1 ± 0.2	2.8 ± 0.2
slr1974		Putative GTP-binding protein	3.9 ± 0.1	1.6 ± 0.1
sll1770		ABC1-like	3.9 ± 0.1	1.7 ± 0.2
sll1772	<i>mutS</i>	DNA mismatch repair protein MutS	3.8 ± 0.3	1.3 ± 0.1
sll0815		Hypothetical protein	3.8 ± 0.1	1.4 ± 0.2
slr0401		Spermidine/putrescine binding protein	3.7 ± 0.6	2.0 ± 0.2
slr1747		Hypothetical protein	3.6 ± 0.1	1.4 ± 0.1
sll0185		Hypothetical protein	3.5 ± 0.2	0.5 ± 0.1
slr1992	<i>gpx2</i>	Glutathione NADPH peroxidase	3.4 ± 0.2	0.9 ± 0.1
slr1238	<i>gshB</i>	Glutathione synthetase	3.4 ± 0.1	1.9 ± 0.1
sll1441	<i>desB</i>	Acyl-lipid desaturase (omega-3)	3.6 ± 0.1	0.4 ± 0.1
Genes whose cold inducibility was enhanced by novobiocin treatment				
sll1862		Hypothetical protein	3.2 ± 0.1	31.9 ± 2.1
sll1863		Hypothetical protein	3.6 ± 0.2	25.7 ± 1.7
slr1392	<i>feoB</i>	Ferrous iron transport protein B	4.3 ± 0.2	21.5 ± 0.4
slr1185	<i>petC2</i>	Rieske iron sulfur protein	1.2 ± 0.1	17.0 ± 0.8
sll1541		Lignostilbene-alpha,beta-dioxygenase	6.5 ± 0.1	14.5 ± 1.0
<u>sll1696</u>		Hypothetical protein	1.7 ± 0.1	14.0 ± 0.7
sll0462		Hypothetical protein	2.4 ± 0.2	13.8 ± 0.5
slr1927		Hypothetical protein	5.3 ± 0.3	11.7 ± 2.0
slr0550	<i>dapA</i>	Dihydrodipicolinate synthase	2.5 ± 0.2	11.5 ± 0.3
slr1851		Hypothetical protein	0.8 ± 0.1	11.2 ± 0.6

slr0798	<i>ziaA</i>	Zinc-transporting P-type ATPase	2.4 ± 0.2	9.2 ± 0.4
sll0360		Hypothetical protein	2.9 ± 0.1	9.0 ± 0.8
sll2012	<i>sigD</i>	RNA polymerase sigma factor	4.1 ± 0.1	8.9 ± 0.5
sll0790	<i>hik31</i>	Two-component sensor histidine kinase	2.6 ± 0.4	8.8 ± 0.5
sll1786	<i>tatD</i>	Putative deoxyribonuclease, TatD	2.0 ± 0.2	8.6 ± 0.4
slr0549	<i>asd</i>	Aspartate semialdehyde dehydrogenase	2.3 ± 0.3	8.0 ± 0.4
sll1124	<i>hik3</i>	Two-component sensor histidine kinase	2.0 ± 0.1	5.9 ± 0.2
sll1694	<i>pilA1</i>	Cyanobacterial pilin	0.8 ± 0.1	4.1 ± 0.4

Cells, which had been grown under normal conditions and then incubated in the presence (50 µg ml⁻¹) or absence of novobiocin at 34°C for 30 min, were incubated at 24°C for 30 min. Each value indicates the ratio of the level of the transcript in cold-stressed cells in the presence of novobiocin to that in cold-stressed cells in the absence of novobiocin. The numbering of open reading frames (ORFs) corresponds to that in the database on the Cyanobase website (<http://bacteria.kazusa.or.jp/cyano/Synechocystis/>). This table lists the heat stress-inducible genes with induction factors higher than 3.0 in control cells (average of values from 2-3 independent experiments). The entire list can be accessed at http://www.genome.jp/kegg-bin/get_htext?htext=Exp_DB&hier=1. Genes that had been used as probes in Northern blotting are underlined. IF – induction factor; NB – novobiocin. The table represents the results of two independent experiments.