

Table S1

| ORF no. | Gene | Product |
|------------------|--------------------|---|
| Group 1 | | |
| Cluster 1 | | |
| slr0335 | <i>apcE</i> | phycobilisome core-membrane linker polypeptide |
| slr1808 | <i>hemA</i> | glutamyl-tRNA reductase |
| slr2051 | <i>cpcG1</i> | phycobilisome rod-core linker polypeptide |
| sll0819 | <i>psaF</i> | photosystem I reaction center subunit III precursor (PSI-F) |
| sll1583 | <i>lig, ligA</i> | DNA ligase |
| slr0506 | <i>por, pcr</i> | light-dependent NADPH-protochlorophyllide oxidoreductase |
| slr0737 | <i>psaD</i> | photosystem I reaction center subunit II |
| slr1689 | <i>mutM, fpg</i> | formamidopyrimidine-DNA glycosylase |
| slr0244 | | hypothetical protein |
| slr2057 | <i>apqZ</i> | water channel protein |
| slr0993 | <i>nlpD</i> | lipoprotein NlpD |
| sll0319 | | periplasmic protein, function unknown |
| sll1069 | <i>fabF, fabJ</i> | 3-oxoacyl-[acyl-carrier-protein] synthase |
| sll1824 | <i>rplY, rpl25</i> | 50S ribosomal protein L25 |
| sll1823 | <i>purA, adeK</i> | adenylosuccinate synthetase |
| sll0807 | <i>rpe</i> | pentose-5-phosphate-3-epimerase |
| slr2058 | <i>topA</i> | DNA topoisomerase I |
| sll1070 | <i>tktA</i> | transketolase |
| sll1184 | <i>ho1</i> | heme oxygenase |
| ssr1375 | | hypothetical protein |
| slr0749 | <i>chlL, fixC</i> | Light-independent protochlorophyllide reductase subunit L |
| slr1853 | | hypothetical protein |
| sll1783 | | hypothetical protein |
| sll1784 | | periplasmic protein, function unknown |
| sll1785 | | periplasmic protein, function unknown |
| sll1091 | <i>chlP</i> | geranylgeranyl hydrogenase |
| slr1852 | | hypothetical protein |
| slr1854 | | hypothetical protein |
| slr1855 | | hypothetical protein |
| Cluster 2 | | |
| sll1463 | <i>ftsH</i> | cell division protein FtsH |
| sll1435 | <i>pet112</i> | glutamyl-tRNA(Gln) amidotransferase subunit B |
| slr1549 | <i>def, fms</i> | polypeptide deformylase |
| sll1767 | <i>rpsF, rps6</i> | 30S ribosomal protein S6 |
| sll1841 | <i>odhB, citM</i> | dihydrolipoamide acetyltransferase component (E2) of pyruvate dehydrogenase complex |
| sll1452 | <i>nrtC</i> | ABC-type nitrate/nitrite transport system ATP-binding protein |
| sll1453 | <i>nrtD</i> | ABC-type nitrate/nitrite transport system ATP-binding protein |
| sll1071 | | hypothetical protein |
| slr0009 | <i>rbcL</i> | ribulose-bisphosphate carboxylase large chain |

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| slr0012 | <i>rbcS</i> | ribulose-bisphosphate carboxylase small chain |
| slr0011 | <i>rbcX</i> | possible Rubisco chaperonin |
| sll1212 | <i>rfbD</i> | GDP-D-mannose dehydratase |
| sll1213 | | hypothetical protein |
| sll1951 | | hemolysin |
| slr1237 | <i>codA</i> | cytosine deaminase |
| sll0927 | <i>metX</i> | S-adenosylmethionine synthetase |
| sll1130 | | hypothetical protein |
| sll0541 | <i>desC, des9</i> | acyl-lipid desaturase (delta 9) |
| ssl2245 | | hypothetical protein |
| slr1367 | <i>glgP, glgY</i> | glycogen phosphorylase |
| sll1771 | <i>pphA</i> | PII phosphatase |
| slr1096 | <i>phdD, lpd</i> | dihydrolipoamide dehydrogenase |
| sll0469 | <i>prsA, prs</i> | ribose-phosphate pyrophosphokinase |
| slr0447 | <i>urtA, amiC</i> | periplasmic protein, ABC-type urea transport system substrate-binding protein |
| slr0348 | | LytB protein homolog |
| slr1020 | <i>sqdB</i> | sulfolipid biosynthesis protein SqdB |
| sll0329 | <i>gnd</i> | 6-phosphogluconate dehydrogenase, decarboxylating |
| sll0480 | | putative aminotransferase |
| sll1830 | | hypothetical protein |
| Cluster 3 | | |
| sll1441 | <i>desB</i> | acyl-lipid desaturase (omega-3) |
| sll0262 | <i>desD, des6</i> | acyl-lipid desaturase (delta 6) |
| slr0017 | <i>murA</i> | UDP-N-acetylglucosamine 1-carboxyvinyltransferase |
| slr1350 | <i>desA</i> | acyl-lipid desaturase (delta 12) |
| slr1702 | | hypothetical protein |
| slr0969 | <i>cbiH, cobJ</i> | Precorrin-3B C17-methyltransferase (Precorrin-3 methyltransferase, necessary for ring contraction in the conversion from precorrin-3B to precorrin-4) |
| sll0068 | | hypothetical protein |
| slr0018 | <i>fumC</i> | fumarate hydratase |
| slr0480 | <i>ycf46</i> | hypothetical protein |
| slr1874 | <i>ddlA</i> | D-alanine--D-alanine ligase |
| sll0236 | | hypothetical protein |
| slr0884 | <i>gapI</i> | glyceraldehyde 3-phosphate dehydrogenase 1 (NAD ⁺) |
| slr0351 | | hypothetical protein |
| slr0347 | | putative ABC-2 type transport system permease protein |
| sll0027 | <i>ndhD4</i> | NADH dehydrogenase I chain M, involved in constitutive low-affinity CO ₂ uptake |
| slr1166 | | UDP-glucose:tetrahydrobiopterin glucosyltransferase |
| sll1234 | <i>ahcY</i> | S-adenosylhomocysteine hydrolase |
| sll0487 | | hypothetical protein |
| sll0735 | | hypothetical protein |
| sll1528 | | hypothetical protein |
| sll1242 | | Hypothetical protein with similarity to BchE (Mg-protoporphyrin monomethyl ester oxidative cyclase) |
| sll0263 | | hypothetical protein |
| sll1530 | | hypothetical protein |

Cluster 4

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|---------|--------------------------|--|
| sll1605 | <i>fabZ, sefA</i> | (3R)-hydroxymyristoyl-[acyl carrier protein] dehydratase |
| slr0298 | <i>fraH</i> | heterocyst to vegetative cell connection protein |
| slr0063 | <i>pilB1, gspE1</i> | pilus biogenesis protein homologous to general secretion pathway protein E |
| sll1546 | <i>ppx</i> | exopolyphosphatase |
| slr1315 | | hypothetical protein |
| slr1289 | <i>icd</i> | isocitrate dehydrogenase (NADP) |
| sll0617 | <i>vipp1, im30</i> | plasma membrane protein essential for thylakoid formation |
| slr0163 | <i>pilC'</i> | a part of pilC, pilin biogenesis protein |
| sll0051 | | hypothetical protein |
| slr0288 | <i>glnN</i> | glutamate-ammonia ligase, glutamine synthetase type III |
| sll0947 | <i>lrtA</i> | light repressed protein A homolog |
| sll0108 | <i>amt1</i> | ammonium/methylammonium permease |
| slr0943 | <i>fda</i> | fructose-bisphosphate aldolase, class I |
| slr0942 | | aldehyde reductase |
| sll1021 | | hypothetical protein |
| smr0005 | <i>psaM</i> | photosystem I reaction center subunit XII |
| sll0022 | | hypothetical protein |
| ssr1425 | <i>ycf34</i> | Ycf34 |
| slr0284 | | hypothetical protein |
| sll1471 | <i>cpcG2</i> | phycobilisome rod-core linker polypeptide |
| slr0750 | <i>chlN</i> | light-independent protochlorophyllide reductase subunit N |
| sll0023 | | hypothetical protein |
| sll0180 | | putative HlyD family secretion protein |
| slr0752 | <i>eno</i> | enolase |
| slr2052 | | hypothetical protein |
| ssl0563 | <i>psaC</i> | photosystem I iron-sulfur center subunit VII |
| smr0006 | <i>psbF</i> | cytochrome b559 beta chain |
| slr1834 | <i>psaA</i> | photosystem I P700 chlorophyll a apoprotein subunit Ia |
| smr0007 | <i>psbL</i> | photosystem II PsbL protein |
| smr0001 | <i>psbT, psbTc, ycf8</i> | photosystem II PsbT protein |
| sll1555 | <i>hik42</i> | two-component hybrid histidine kinase |
| slr1828 | <i>petF, fdx</i> | ferredoxin, petF-like protein, no detectable expression |
| slr1363 | | hypothetical protein |
| slr0212 | <i>metH</i> | 5-methyltetrahydrofolate-homocysteine methyltransferase |
| slr1829 | <i>phaE</i> | putative poly(3-hydroxyalkanoate) synthase component |
| slr1052 | | hypothetical protein |
| slr1537 | | hypothetical protein |
| slr0949 | <i>natD</i> | ABC-type neutral amino acid transport system permease protein |
| sll1584 | | hypothetical protein, ferredoxin-like |
| ssl3093 | <i>cpcD</i> | phycobilisome small rod linker polypeptide |
| slr1835 | <i>psaB</i> | photosystem I P700 chlorophyll a apoprotein subunit Ib |
| sll0160 | | hypothetical protein |
| slr1104 | | hypothetical protein |
| slr1102 | | hypothetical protein |
| sll1987 | <i>cpx, katG</i> | catalase peroxidase, catalase hpi |

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|---------|-------------|--|
| sll0920 | <i>ppc</i> | phosphoenolpyruvate carboxylase |
| slr1655 | <i>psaL</i> | photosystem I reaction center subunit XI |
| slr0453 | | hypothetical protein |
| sll1553 | <i>pheT</i> | phenylalanyl-tRNA synthetase beta chain |
| ssl3451 | | hypothetical protein |
| sll1284 | | serine esterase |

Cluster 5

| | | |
|---------|--------------------|--|
| sll0145 | <i>frr, rrf</i> | ribosome releasing factor |
| sll1393 | <i>glgA</i> | glycogen (starch) synthase |
| sll0661 | <i>ycf35</i> | Ycf35 |
| sll0726 | <i>pgm</i> | phosphoglucomutase |
| sll0258 | <i>psbV</i> | cytochrome c550 |
| slr1239 | <i>pntA</i> | NAD(P) transhydrogenase subunit alpha |
| slr1364 | <i>bioB</i> | biotin synthetase |
| slr0261 | <i>ndhH</i> | NADH dehydrogenase I chain D |
| slr1945 | <i>yibO, pgm</i> | phosphoglycerate mutase |
| sll0680 | <i>pstS, phoS</i> | ABC-type phosphate transport system substrate-binding protein |
| sll1525 | <i>prk, ptk</i> | phosphoribulokinase |
| slr1643 | <i>petH</i> | ferredoxin--NADP+ oxidoreductase |
| slr1535 | | hypothetical protein |
| sll1317 | <i>petA</i> | apocytochrome f, component of cytochrome b6/f complex |
| sll1316 | <i>petC, petC1</i> | cytochrome b6-f complex iron-sulfur subunit (Rieske iron sulfur protein) |
| sll1766 | <i>aslB, astB</i> | arylsulfatase regulatory protein |
| sll1765 | | hypothetical protein |
| slr1437 | | hypothetical protein |
| sll1580 | <i>cpcC1</i> | phycobilisome rod linker polypeptide |
| sll1579 | <i>cpcC2</i> | phycobilisome rod linker polypeptide |
| slr0452 | <i>ilvD</i> | dihydroxyacid dehydratase |
| sll1298 | <i>clcD</i> | dienelactone hydrolase |
| slr1734 | <i>opcA</i> | glucose 6-phosphate dehydrogenase assembly protein |
| ssr3451 | <i>psbE</i> | cytochrome b559 alpha chain |
| slr0343 | <i>petD</i> | cytochrome b6-f complex subunit PetD |
| sll0427 | <i>psbO</i> | photosystem II manganese-stabilizing polypeptide |
| slr1022 | <i>argD, dtu</i> | acetylmethionine aminotransferase |
| sll1873 | | hypothetical protein |
| sll0995 | | hypothetical protein |
| slr1649 | | hypothetical protein |
| sll1578 | <i>cpcA</i> | phycocyanin alpha subunit |
| sll1577 | <i>cpcB</i> | phycocyanin beta subunit |
| sll1949 | | hypothetical protein |
| slr0226 | | hypothetical protein |
| sll0771 | <i>glcP, gtr</i> | glucose transport protein |
| sll1533 | <i>pilT2</i> | twitching mobility protein |
| sll1763 | | hypothetical protein |
| sll1356 | <i>glgP, glgY</i> | glycogen phosphorylase |

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| slr0162 | <i>pilC, gspF</i> | a part of pilC, required for twitching motility |
| sll1926 | <i>rpaC</i> | required for the state transition |
| sll0047 | <i>ycf12</i> | hypothetical protein |
| slr1964 | | hypothetical protein |
| sll1891 | | hypothetical protein |
| sll1534 | | probable glycosyltransferase |

Cluster 6

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|---------|----------------------------------|--|
| sll0336 | <i>accD, ycf11, zfpA</i> | acetyl-CoA carboxylase carboxyl transferase subunit beta |
| slr2001 | <i>cphB, pepE</i> | peptidase E (alpha-aspartyl dipeptidase) or cyanophycinase |
| sll1172 | <i>thrC</i> | threonine synthase |
| slr1139 | <i>trxA, trx</i> | thioredoxin |
| sll1633 | <i>ftsZ</i> | cell division protein FtsZ |
| sll0228 | <i>speB1, bcp</i> | agmatinase |
| slr1431 | | hypothetical protein |
| slr1531 | <i>ffh</i> | signal recognition particle protein |
| slr1106 | <i>phb</i> | prohibitin |
| slr0661 | <i>proC</i> | pyrroline-5-carboxylate reductase |
| sll1077 | <i>speB2, speB</i> | agmatine ureohydrolase |
| slr1644 | | hypothetical protein |
| sll1434 | <i>mrcA, ponA</i> | penicillin-binding protein 1B |
| sll1484 | <i>ndbC, ndh</i> | type II NADH dehydrogenase |
| slr0503 | <i>ycf66</i> | Hypothetical protein |
| slr1234 | | HIT family protein |
| sll1398 | <i>psb28, psbW, psb13, ycf79</i> | photosystem II reaction center 13 kDa protein |
| slr0976 | | hypothetical protein |
| slr0557 | <i>valS</i> | valyl-tRNA synthetase |
| sll1758 | | hypothetical protein |
| slr1579 | | hypothetical protein |
| slr1030 | <i>chlI</i> | Magnesium protoporphyrin IX chelatase subunit I |
| sll0195 | | putative ATP-dependent protease |
| sll0208 | | hypothetical protein |
| sll0891 | <i>citH, ldh</i> | malate dehydrogenase |
| slr1727 | | eukaryotic Na ⁺ /H ⁺ exchanger |
| sll1489 | <i>cpmA</i> | circadian phase modifier CpmA homolog |
| sll1666 | <i>dnaJ</i> | DnaJ-like protein |
| slr2047 | <i>phoH, psiH</i> | phosphate starvation-inducible protein |
| slr1226 | <i>purC</i> | phosphoribosyl aminidazole succinocarboxamide synthetase |
| sll0207 | <i>rfbA</i> | glucose-1-phosphate thymidyltransferase |
| sll0321 | | hypothetical protein |
| sll0183 | | hypothetical protein |
| slr1958 | | hypothetical protein |
| slr1434 | <i>pntB</i> | NAD(P) transhydrogenase subunit beta |
| sll0163 | | beta transducin-like protein |
| slr2035 | <i>proB</i> | glutamate 5-kinase |
| sll0524 | | hypothetical protein |

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| slr1227 | <i>IAP75</i> | chloroplast import-associated channel IAP75 |
| slr0528 | <i>murE</i> | UDP-MurNac-tripeptide synthetase |
| slr0280 | | hypothetical protein |
| sll0513 | | hypothetical protein |
| slr0721 | <i>me</i> | malic enzyme |
| sll0915 | <i>pqqE</i> | periplasmic protease |
| slr0021 | <i>sppA2</i> | protease IV |
| sll1545 | <i>gstI</i> | glutathione S-transferase |
| sll1858 | | hypothetical protein |
| ssl2823 | | Sec-independent protein translocase component, homolog of TatA/TatE/Hcf106 |
| sll1883 | <i>argJ</i> | glutamate N-acetyltransferase / amino-acid N-acetyltransferase |
| slr1533 | | hypothetical protein |
| slr0710 | <i>gdhA</i> | NADP-specific glutamate dehydrogenase |
| sll1628 | | hypothetical protein |
| slr0758 | <i>kaiC1</i> | circadian clock protein KaiC homolog |
| slr2048 | | periplasmic protein |
| slr1901 | | putative ABC-2 type transport system ATP-binding protein |
| sll1341 | <i>bfr</i> | bacterioferritin |
| slr0257 | <i>ctpB</i> | periplasmic carboxyl-terminal protease |
| sll1498 | <i>carA, pyrA</i> | carbamoyl-phosphate synthase small chain |
| sll1461 | | hypothetical protein |
| slr0370 | <i>gabD</i> | succinate-semialdehyde dehydrogenase (NADP+) |
| sll0643 | <i>ureG</i> | urease accessory protein G |
| sll0194 | <i>tatC, ycf43</i> | Sec-independent protein translocase component TatC |
| slr1583 | | hypothetical protein |
| slr1223 | <i>sula, rcp</i> | cell division inhibitor |
| slr0377 | | hypothetical protein |
| slr2005 | | periplasmic protein, function unknown |
| sll0928 | <i>apcD</i> | allophycocyanin-B |
| slr1418 | <i>pyrD</i> | dihydroorotate oxidase |
| slr1837 | <i>rre16</i> | two-component response regulator (OmpR subfamily) Manganese sensing response regulator |
| slr0322 | <i>cheA, hik43</i> | a part of two-component hybrid histidine kinase, homologous to chemotaxis protein CheA |
| slr1563 | | hypothetical protein |
| slr0739 | <i>crtE</i> | geranylgeranyl pyrophosphate synthase |
| sll0749 | | hypothetical protein |
| slr0445 | | hypothetical protein |
| sll1813 | <i>rplO, rpl15</i> | 50S ribosomal protein L15 |
| slr0609 | | 47 kD protein |
| ssr2062 | | hypothetical protein |
| sll1679 | <i>hhoA</i> | periplasmic protease HhoA |
| sll0761 | | hypothetical protein |
| sll0314 | | periplasmic protein, function unknown |
| sll0217 | | potential FMN-protein |
| Cluster7 | | |
| slr0164 | <i>clpP4, clpR</i> | ATP-dependent Clp protease, Clp-like subunit, the predicted protein for this gene lacks the active site motifs characteristic of ClpP proteases |

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| ssl0020 | <i>petF, fed1</i> | ferredoxin I, essential for growth, expression is induced by light |
| sll0158 | <i>glgB</i> | 1,4-alpha-glucan branching enzyme |
| sll1043 | <i>pnp</i> | polyribonucleotide nucleotidyltransferase |
| slr0827 | <i>alr, dal</i> | alanine racemase |
| slr0925 | <i>ssb</i> | single-stranded DNA-binding protein |
| slr0906 | <i>psbB</i> | photosystem II core light harvesting protein |
| slr0118 | <i>thiC</i> | thiamin biosynthesis protein ThiC |
| slr1984 | <i>nbp1, rps1b</i> | nucleic acid-binding protein, 30S ribosomal protein S1 homolog |
| slr1330 | <i>atpE, atpC</i> | ATP synthase epsilon chain of CF(1) |
| slr1438 | | hypothetical protein |
| sll1536 | <i>moeB, chlN</i> | molybdopterin biosynthesis MoeB protein |
| sll0209 | | hypothetical protein |
| sll1074 | <i>leuS</i> | leucyl-tRNA synthetase |
| sll1676 | <i>malQ</i> | 4-alpha-glucanotransferase |
| sll0026 | <i>ndhF4</i> | NADH dehydrogenase I chain L, involved in constitutive low-affinity CO2 uptake |
| sll0518 | | hypothetical protein |
| slr1619 | | hypothetical protein |
| sll1667 | <i>mom72</i> | periplasmic protein, similar to mitochondrial outer membrane 72K protein |
| slr0984 | <i>rfbG</i> | CDP-glucose 4,6-dehydratase |
| slr0657 | <i>lysC</i> | aspartate kinase |
| sll1035 | <i>upp, uraP</i> | uracil phosphoribosyltransferase |
| slr0444 | <i>aroA</i> | 3-phosphoshikimate 1-carboxyvinyltransferase |
| sll1440 | <i>pdxH</i> | pyridoxamine 5-phosphate oxidase |
| sll0945 | <i>glgA</i> | glycogen synthase |
| slr0783 | <i>tpiA, tpi</i> | triosephosphate isomerase |
| slr1624 | | hypothetical protein |
| slr0502 | <i>cobW</i> | cobaramin synthesis protein CobW |
| sll2001 | <i>lap</i> | leucine aminopeptidase |
| sll1275 | <i>pyk2</i> | pyruvate kinase 2 |
| sll0144 | <i>pyrH, smbA</i> | uridine monophosphate kinase |
| sll1294 | | homologous to methyl-accepting chemotaxis protein (MCP) |
| sll0268 | | hypothetical protein |
| slr1097 | | hypothetical protein |
| sll1561 | <i>putA</i> | delta-1-pyrroline-5-carboxylate dehydrogenase |
| sll1524 | | hypothetical protein |
| slr0947 | <i>rpaB, ycf27, rre26</i> | response regulator for energy transfer from phycobilisomes to photosystems, two-component response regulator (OmpR subfamily) |
| slr0982 | <i>rfbB</i> | putative O-antigen export system ATP-binding protein, ABC-2 type transporter ATP-binding protein |
| sll0998 | | transcriptional regulator, LysR family protein, closely related to RbcR |
| slr1887 | <i>hemC</i> | porphobilinogen deaminase (hydroxymethylbilane synthase, preuroporphyrinogen synthase) |
| sll0519 | <i>ndhA</i> | NADH dehydrogenase I chain H |
| slr1138 | <i>ctaEI, ctaE, coxC</i> | cytochrome c oxidase subunit III |
| sll0226 | <i>ycf4</i> | involved in accumulation of photosystem I complex |
| slr1756 | <i>glnA</i> | glutamate--ammonia ligase, glutamine synthetase type I |
| sll0564 | | hypothetical protein |
| sll0408 | | hypothetical protein |

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| sll1899 | <i>ctaB</i> | protoheme IX farnesyltransferase |
| slr1281 | <i>ndhJ</i> | NADH dehydrogenase I chain C |
| slr1165 | <i>met3, sopT</i> | sulfate adenylyltransferase |
| sll0320 | <i>rnd</i> | ribonuclease D |
| sll1872 | <i>lytR</i> | membrane bound protein LytR |
| slr0625 | | hypothetical protein |
| slr1279 | <i>ndhC</i> | NADH dehydrogenase I chain A |
| sll0522 | <i>ndhE</i> | NADH dehydrogenase I chain K |
| slr0241 | | hypothetical protein |
| sll1181 | <i>hlyD</i> | HlyD family secretion protein |
| sll1721 | <i>pdhB</i> | pyruvate dehydrogenase E1 component, beta subunit |
| slr2025 | | hypothetical protein |
| sll1180 | <i>hlyB</i> | MDR (multidrug resistance) family ABC transporter, similar to type I secretion pathway protein HlyB |
| sll1446 | | hypothetical protein |
| slr0185 | <i>umpS</i> | orotate phosphoribosyltransferase |
| sll0760 | <i>ycf38</i> | ABC-2 type transport system permease protein |
| slr0658 | | hypothetical protein |
| sll1581 | <i>gumB</i> | GumB protein |
| sll1485 | | hypothetical protein |
| slr0051 | <i>ecaB, icfA</i> | periplasmic beta-type carbonic anhydrase |
| sll0867 | | hypothetical protein |
| slr1994 | <i>phaB, fabG2</i> | 3-oxoacyl-[acyl-carrier protein] reductase 2 |
| sll1760 | <i>thrB</i> | homoserine kinase |
| sll1486 | | hypothetical protein |
| sll1571 | | hypothetical protein |
| slr1051 | <i>envM, fabI</i> | enoyl-[acyl-carrier-protein] reductase |
| slr1724 | | hypothetical protein |
| slr1993 | <i>phaA, thl, thi</i> | acetyl coenzyme A acetyltransferase (thiolase) |
| slr0617 | | hypothetical protein |
| sll1495 | | hypothetical protein |
| sll0368 | <i>pyrR</i> | pyrimidine operon regulatory protein PyrR |
| sll1502 | <i>gltB</i> | NADH-dependent glutamate synthase large subunit |
| slr0106 | | hypothetical protein |
| ss13383 | | hypothetical protein |
| sgl0002 | | hypothetical protein |
| sll1011 | | hypothetical protein |
| sll1689 | <i>sigE, rpoD</i> | RNA polymerase sigma factor, group 2, nitrogen-regulated |
| slr1213 | <i>rre14</i> | two-component response regulator (AraC subfamily) |
| sll0426 | | hypothetical protein |
| slr1998 | | hypothetical protein |
| sll1692 | | hypothetical protein |
| sll0083 | <i>gmhA</i> | phosphoheptose isomerase |
| sll1314 | <i>dctP</i> | periplasmic protein, putative C4-dicarboxylase binding protein, putative ABC transporter substrate-binding protein |
| sll0543 | | (deleted) |
| sll1874 | <i>AT103</i> | phytochrome-regulated gene |

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| slr1133 | <i>argH</i> | L-argininosuccinate lyase |
| slr1857 | <i>glgX</i> | glycogen operon protein GlgX |
| slr2130 | <i>aroB</i> | 3-dehydroquinate synthase |
| slr0168 | | hypothetical protein |
| sll0576 | | HrEpiB |
| sll0230 | | hypothetical protein |
| slr0380 | | hypothetical protein |
| sll0370 | <i>carB, pyrA</i> | carbamoyl-phosphate synthase large chain |
| sll1456 | | hypothetical protein |
| slr1780 | <i>ycf54</i> | hypothetical protein |
| slr0240 | | hypothetical protein |
| slr1601 | | hypothetical protein |
| sll1307 | | periplasmic protein, function unknown |
| sll1343 | <i>ape2, pepN</i> | aminopeptidase |
| sll1226 | <i>hoxH</i> | hydrogenase subunit of the bidirectional hydrogenase |
| sll0684 | <i>pstB, phoT</i> | ABC-type phosphate transport system ATP-binding protein |
| ssr2315 | | (deleted) |
| slr0369 | <i>envD</i> | acriflavin resistance protein |
| slr0233 | <i>trxM</i> | thioredoxin M |
| ssl3382 | | hypothetical protein |
| slr1216 | <i>mgtE</i> | Mg ²⁺ transporter |
| slr0345 | | hypothetical protein |
| slr2079 | | glutaminase |
| slr1736 | | homogentisate phytyltransferase |
| sll1092 | | hypothetical protein |
| slr0358 | | hypothetical protein |
| sll0682 | <i>pstA, phoT</i> | ABC-type phosphate transport system permease protein |
| sll1344 | | hypothetical protein |
| sll0372 | | hypothetical protein |
| sll1837 | | periplasmic protein, function unknown |
| sll0681 | <i>pstC, phoW</i> | ABC-type phosphate transport system permease protein |
| slr0645 | | hypothetical protein |
| sll1973 | | hypothetical protein |
| slr0121 | | putative beta-lactamase |
| slr1796 | | hypothetical protein |
| slr1610 | | hypothetical protein |
| slr1966 | | hypothetical protein |
| sll0542 | <i>acs</i> | acetyl-coenzyme A synthetase |
| slr0876 | | hypothetical protein |
| slr1164 | <i>nrdA, dnaF</i> | ribonucleoside-diphosphate reductase alpha chain |
| slr1744 | <i>amiA</i> | N-acetylmuramoyl-L-alanine amidase, periplasmic protein |
| slr0483 | | hypothetical protein |
| slr2070 | | hypothetical protein |
| slr1270 | | periplasmic protein |
| slr0809 | <i>rfbB</i> | dTDP-glucose 4-6-dehydratase |
| sll0318 | | hypothetical protein |

| | | |
|---------|-------------------|--|
| slr1266 | | hypothetical protein |
| sll1939 | | hypothetical protein |
| slr0606 | | hypothetical protein |
| slr1940 | | periplasmic protein, function unknown |
| sll1488 | | hypothetical protein |
| sll1675 | | hypothetical protein |
| sll0455 | <i>thrA, hom</i> | homoserine dehydrogenase |
| slr0431 | | hypothetical protein |
| slr1570 | | hypothetical protein |
| slr1564 | <i>sigF, rpoF</i> | RNA polymerase sigma factor, alternative sigma (group 3) |
| ssl2138 | | hypothetical protein |
| slr0680 | | hypothetical protein |
| sll0772 | | probable porin |

Cluster 8

| | | |
|---------|--------------------------------|---|
| slr1055 | <i>chlH, bchH</i> | Magnesium protoporphyrin IX chelatase subunit H |
| slr0220 | <i>glyS</i> | glycyl-tRNA synthetase beta chain |
| slr0659 | <i>prlC, opdA</i> | oligopeptidase A |
| ssl2084 | <i>acpP, acp</i> | acyl carrier protein |
| slr1136 | <i>ctaCI, ctaC, coxB</i> | cytochrome c oxidase subunit II |
| sll1444 | <i>leuD</i> | 3-isopropylmalate dehydratase small subunit |
| slr1137 | <i>ctaDI, ctaD, coxI, coxA</i> | cytochrome c oxidase subunit I |
| slr1423 | <i>murC</i> | UDP-N-acetylmuramate-alanine ligase |
| sll0223 | <i>ndhB</i> | NADH dehydrogenase I chain N |
| slr1623 | | hypothetical protein |
| sll1713 | <i>hisC</i> | histidinol-phosphate aminotransferase |
| sll1712 | | DNA binding protein HU |
| sll1832 | | hypothetical protein |
| slr1275 | <i>pilN</i> | required for motility |
| slr1276 | <i>pilO</i> | required for motility |
| slr0536 | <i>hemE</i> | uroporphyrinogen decarboxylase |
| slr0342 | <i>petB</i> | cytochrome b6 |
| sll0272 | | hypothetical protein |
| sll1908 | <i>serA</i> | phosphoglycerate dehydrogenase |
| slr0213 | <i>guaA</i> | GMP synthase (glutamine-hydrolysing) |
| sll0421 | <i>purB</i> | adenylosuccinate lyase |
| slr0338 | | hypothetical protein |
| slr0909 | | hypothetical protein |
| slr1842 | <i>cysK</i> | cysteine synthase |
| slr2073 | <i>ycf50</i> | hypothetical protein |
| slr0823 | <i>ycf3</i> | hypothetical protein |
| sll0588 | | hypothetical protein |
| slr0769 | | hypothetical protein |
| sll1283 | <i>spoIID</i> | sporulation protein SpoIID |
| slr1843 | <i>zwf</i> | glucose-6-phosphate 1-dehydrogenase |
| sll1677 | | spore maturation protein B |

| | | |
|---------|--------------------|--|
| sll1270 | <i>glnHP, bgtB</i> | ABC-type basic amino acids and glutamine transport system substrate-binding/permease protein |
| slr0653 | <i>sigA, rpoDI</i> | RNA polymerase sigma factor |
| slr1506 | | hypothetical protein |
| slr1329 | <i>atpB, atpD</i> | ATP synthase beta chain of CF(1) |
| slr1124 | <i>gpmB</i> | phosphoglycerate mutase |
| slr0049 | | hypothetical protein |
| slr1240 | | hypothetical protein |
| sll0220 | <i>glmS</i> | glucosamine--fructose-6-phosphate aminotransferase |
| slr2049 | <i>ycf58</i> | hypothetical protein |
| slr0346 | <i>rnc</i> | ribonuclease III |
| slr0784 | | hypothetical protein |
| slr0775 | <i>secF</i> | protein-export membrane protein SecF |
| slr0331 | <i>ndhD1</i> | NADH dehydrogenase I chain M, involved in photosystem-1 cyclic electron flow |
| sll1443 | <i>pyrG</i> | CTP synthase |
| slr1900 | | hypothetical protein |
| sll1535 | <i>rfbP</i> | galactosyl-1-phosphate transferase |
| slr0907 | | hypothetical protein |
| sll1942 | | hypothetical protein |
| sll1342 | <i>gap2</i> | glyceraldehyde 3-phosphate dehydrogenase (NADP+) |
| slr1280 | <i>ndhK, psbG1</i> | NADH dehydrogenase I chain B |
| sll0521 | <i>ndhG</i> | NADH dehydrogenase I chain J |
| sll0520 | <i>ndhI</i> | NADH dehydrogenase I chain I |
| sll0222 | <i>phoA</i> | alkaline phosphatase |
| slr0886 | <i>fabG1</i> | 3-oxoacyl-[acyl-carrier protein] reductase 1 |
| sll1267 | | hypothetical protein |
| sll1961 | | hypothetical protein |
| sll1835 | | periplasmic protein, function unknown |
| slr1272 | | S-layer homology domain containing protein |
| sll0227 | <i>ppiB</i> | peptidyl-prolyl cis-trans isomerase B, periplasmic protein. |
| sll1432 | <i>hypB</i> | putative hydrogenase expression/formation protein HypB |
| sll0626 | <i>lim17</i> | LIM17 |
| slr0776 | <i>lpxD</i> | UDP-3-O-[3-hydroxymyristoyl] glucosamine N-acyltransferase |
| slr0665 | <i>acnB</i> | aconitate hydratase |
| sll0202 | <i>gldA</i> | glucose inhibited division protein A |
| sll1479 | | 6-phosphogluconolactonase |
| slr1560 | <i>hisZ, hisS2</i> | ATP phosphoribosyltransferase regulatory subunit |
| sll0662 | | 4Fe-4S type iron-sulfur protein |
| sll1691 | | hypothetical protein |
| slr1869 | | hypothetical protein |
| slr1890 | <i>bfr</i> | bacterioferritin |
| sll1825 | | aklaviketone reductase |
| sll0293 | | hypothetical protein |
| sll0823 | <i>sdhB</i> | succinate dehydrogenase iron-sulfur protein |
| slr0774 | <i>secD</i> | protein-export membrane protein SecD |
| slr1267 | <i>mrdB, rodA</i> | probable cell division protein |

| | | |
|---------|--|--|
| sll0625 | | hypothetical protein |
| sll1377 | | hypothetical protein |
| sll1898 | | hypothetical protein |
| slr0821 | | hypothetical protein |
| sll0224 | | putative polar amino acid transport system substrate-binding protein |
| sll1658 | | hypothetical protein |
| slr1912 | | putative PP2C-type protein phosphatase |
| sll1380 | | periplasmic protein, function unknown |

Cluster 9

| | | |
|---------|----------------------|---|
| sml0008 | <i>psaJ</i> | photosystem I reaction center subunit IX |
| ssr0390 | <i>psaK, psaK1</i> | photosystem I reaction center subunit X |
| slr2067 | <i>apcA</i> | allophycocyanin alpha subunit |
| slr1986 | <i>apcB</i> | allophycocyanin beta subunit |
| sll1214 | <i>PNIL34, AT103</i> | phytochrome-regulated gene |
| slr0738 | <i>trpE</i> | anthranilate synthase alpha-subunit |
| slr1459 | <i>apcF</i> | phycobilisome core component |
| slr0772 | <i>chlB</i> | light-independent protochlorophyllide reductase subunit B |
| sll1762 | | periplasmic protein, putative polar amino acid transport system substrate-binding protein |
| sll1994 | <i>hemB</i> | porphobilinogen synthase (5-aminolevulinate dehydratase) |
| slr0623 | <i>trxA</i> | thioredoxin |
| slr0161 | <i>pilT1</i> | twitching motility protein |
| sll1665 | | hypothetical protein |
| sll1845 | | hypothetical protein |
| ssl1263 | | hypothetical protein |
| slr1934 | | pyruvate dehydrogenase E1 component, alpha subunit |
| slr1622 | <i>ppa, ipyR</i> | inorganic pyrophosphatase |
| slr1746 | <i>murI, dga</i> | glutamate racemase |
| slr1277 | <i>pilQ, gspD</i> | pilus assembly protein homologous to general secretion pathway protein D |
| sll1306 | | periplasmic protein, function unknown |
| sll1304 | | hypothetical protein |
| sll1305 | | hypothetical protein |
| slr1273 | | hypothetical protein |
| slr1856 | | phosphoprotein substrate of icfG gene cluster |

Cluster 10

| | | |
|---------|--------------------------|--|
| slr1176 | <i>glgC, agp</i> | glucose-1-phosphate adenylyltransferase |
| slr0804 | <i>dacB</i> | D-alanyl-D-alanine carboxypeptidase |
| slr1884 | <i>trpS</i> | tryptophanyl-tRNA synthetase |
| slr2094 | <i>fbpI, glpX</i> | fructose-1,6-/sedoheptulose-1,7-bisphosphatase, GlpX protein putative homolog of plant HCF136, which is essential for stability or assembly of photosystem II |
| slr2034 | <i>ycf48</i> | |
| sll1878 | <i>futC</i> | ABC-type iron transport system ATP-binding protein |
| sll0623 | | hypothetical protein |
| slr1319 | <i>fecB</i> | ABC-type iron(III) dicitrate transport system substrate-binding protein |
| sll1697 | | hypothetical protein |
| slr0565 | | hypothetical protein |
| sll0018 | <i>cbbA, cfxA, fbaA,</i> | fructose-bisphosphate aldolase, class II |

fda

| | | |
|---------|--------------------------|--|
| sll1150 | | hypothetical protein |
| slr0376 | | hypothetical protein |
| sll1338 | | hypothetical protein |
| slr1557 | | hypothetical protein |
| ssl1690 | | hypothetical protein |
| slr0676 | <i>cysC</i> | adenylylsulfate 3-phosphotransferase |
| slr0662 | <i>speA</i> | arginine decarboxylase |
| sll1526 | | hypothetical protein |
| slr0848 | | hypothetical protein |
| slr0434 | <i>efp</i> | elongation factor EF-P |
| slr2033 | <i>rubA</i> | membrane-associated rubredoxin |
| sll0550 | | flavoprotein |
| slr1847 | | hypothetical protein |
| sll0373 | <i>proA</i> | glutamate-5-semialdehyde dehydrogenase |
| slr2024 | <i>rre13</i> | two-component response regulator (CheY subfamily) |
| sll0296 | | hypothetical protein |
| sll1329 | | monophosphatase |
| sll1468 | <i>crtR, bhy</i> | beta-carotene hydroxylase |
| slr1708 | | lysostaphin |
| slr0081 | <i>phoB, hisB, rre29</i> | phosphate-sensing response regulator,two-component response regulator (OmpR subfamily) |
| slr1263 | | hypothetical protein |
| slr1274 | <i>pilM</i> | pilus assembly protein, membrane protein, required for motility |
| slr1306 | | hypothetical protein |
| slr0420 | | hypothetical protein |
| slr0467 | <i>nata</i> | ABC-type neutral amino acid transport system ATP-binding protein |
| ssr2554 | | hypothetical protein |
| slr0537 | | hypothetical protein |
| sll1750 | <i>ureC</i> | urease alpha subunit |
| slr1507 | | hypothetical protein |
| slr1125 | | zeaxanthin glucosyl transferase, hypothetical protein |
| ssr3383 | <i>apcC</i> | phycobilisome small core linker polypeptide |
| slr0888 | | hypothetical protein |
| sll1185 | <i>hemF</i> | coproporphyrinogen III oxidase, aerobic (oxygen-dependent) |
| slr0708 | | periplasmic protein, function unknown |
| ssl2384 | | hypothetical protein |
| slr1173 | | hypothetical protein |
| slr1841 | | probable porin |
| sll1358 | | putative oxalate decarboxylase, periplasmic protein |
| slr0144 | | hypothetical protein |
| slr0147 | | hypothetical protein |
| slr0373 | | hypothetical protein |
| slr0374 | | putative cell division cycle protein |
| slr1634 | | hypothetical protein |

Group 2

Cluster 11

| | | |
|---------|------------------------|--|
| slr1254 | <i>crtP, pds, crtD</i> | phytoene dehydrogenase, phytoene desaturase |
| sll1799 | <i>rplC, rpl3</i> | 50S ribosomal protein L3 |
| sll1801 | <i>rplW, rpl23</i> | 50S ribosomal protein L23 |
| sll1800 | <i>rplD, rpl4</i> | 50S ribosomal protein L4 |
| sll1802 | <i>rplB, rpl2</i> | 50S ribosomal protein L2 |
| ssl3432 | <i>rpsS, rps19</i> | 30S ribosomal protein S19 |
| sll1805 | <i>rplP, rpl16</i> | 50S ribosomal protein L16 |
| ssl3436 | <i>rpmC, rpl29</i> | 50S ribosomal protein L29 |
| sll1806 | <i>rplN, rpl14</i> | 50S ribosomal protein L14 |
| ssl3437 | <i>rpsQ, rps17</i> | 30S ribosomal protein S17 |
| sll1808 | <i>rplE, rpl5</i> | 50S ribosomal protein L5 |
| sll1809 | <i>rpsH, rps8</i> | 30S ribosomal protein S8 |
| sll1804 | <i>rpsC, rps3</i> | 30S ribosomal protein S3 |
| slr1992 | <i>gpx2</i> | glutathione peroxidase-like NADPH peroxidase, glutathione peroxidase |
| slr0293 | <i>gcvP</i> | glycine dehydrogenase |
| slr1255 | <i>crtB, pys</i> | phytoene synthase |
| slr0476 | | hypothetical protein |
| ssl0564 | <i>ompR</i> | transcriptional regulatory protein |
| slr0423 | <i>rlpA</i> | rare lipoprotein A |
| sll1147 | | glutathione S-transferase |
| sll0898 | | hypothetical protein |
| sll0549 | | hypothetical protein |
| sll1742 | <i>nusG</i> | transcription antitermination protein NusG |
| sll1743 | <i>rplK, rpl11</i> | 50S ribosomal protein L11 |
| sll1450 | <i>nrtA</i> | ABC-type nitrate/nitrite transport system substrate-binding protein |
| sml0006 | <i>rpmJ, rpl36</i> | 50S ribosomal protein L36 |
| sll1819 | <i>rplQ, rpl17</i> | 50S ribosomal protein L17 |
| ssl3445 | <i>rpmE, rpl31</i> | 50S ribosomal protein L31 |
| slr1265 | <i>rpoC1</i> | RNA polymerase gamma-subunit |
| sll1818 | <i>rpoA</i> | DNA-directed RNA polymerase alpha chain |
| sll1817 | <i>rpsK, rps11</i> | 30S ribosomal protein S11 |
| sll1816 | <i>rpsM, rps13</i> | 30S ribosomal protein S13 |
| sll1820 | <i>truA, hisT</i> | pseudouridine synthase 1 |
| sll0767 | <i>rplT, rpl20</i> | 50S ribosomal protein L20 |
| ssl1426 | <i>rpmI, rpl35</i> | 50S ribosomal protein L35 |
| sll1821 | <i>rplM, rpl13</i> | 50S ribosomal protein L13 |
| sll1822 | <i>rpsI, rps9</i> | 30S ribosomal protein S9 |
| sll1740 | <i>rplS, rpl19</i> | 50S ribosomal protein L19 |
| ssl3335 | <i>secE</i> | preprotein translocase SecE subunit |
| slr1356 | <i>rps1, rps1a</i> | 30S ribosomal protein S1 |
| slr1703 | <i>serS</i> | seryl-tRNA synthetase |
| slr1105 | <i>fus</i> | elongation factor EF-G |
| sll0517 | <i>rbp1, rbpA</i> | putative RNA binding protein |

| | | |
|-------------------|--------------------|--|
| sll1770 | | ABC1-like |
| slr0236 | | hypothetical protein |
| slr0744 | <i>infB</i> | translation initiation factor IF-2 |
| slr0743 | <i>nusA</i> | N utilization substance protein |
| slr0228 | <i>ftsH</i> | cell division protein FtsH homolog, involved in photosystem I biogenesis |
| sll0704 | <i>nifS2</i> | NifS protein, facilitates iron-sulfur cluster assembly |
| slr0742 | | hypothetical protein |
| sll1464 | | hypothetical protein |
| sll1910 | <i>zam</i> | acetazolamide conferring resistance protein |
| slr0713 | <i>tgt</i> | tRNA-guanine transglycosylase |
| sll1769 | | hypothetical protein |
| ssr2061 | <i>grxC</i> | glutaredoxin 3 |
| slr1476 | <i>pyrB</i> | aspartate carbamoyltransferase catalytic chain |
| sll1815 | <i>adk</i> | adenylate kinase |
| sll1451 | <i>nrtB</i> | ABC-type nitrate/nitrite transport system permease protein |
| sll0555 | | putative methionine aminopeptidase C |
| sll1812 | <i>rpsE, rps5</i> | 30S ribosomal protein S5 |
| sll1814 | <i>secY</i> | preprotein translocase SecY subunit |
| sll1079 | <i>hypB</i> | putative hydrogenase expression/formation protein HypB |
| slr0193 | <i>rbp3</i> | putative RNA-binding protein |
| slr0171 | <i>ycf37</i> | ycf37 gene product |
| sll0757 | <i>purF</i> | amidophosphoribosyltransferase |
| sll1063 | | hypothetical protein |
| ssr2611 | | hypothetical protein |
| sll0002 | <i>ponA</i> | penicillin-binding protein 1A |
| slr2102 | <i>ftsY</i> | cell division protein FtsY |
| sll0529 | | hypothetical protein |
| ssl0601 | <i>rpsU, rps21</i> | 30S ribosomal protein S21 |
| sll1958 | <i>hisC</i> | histidinol phosphate aminotransferase |
| sll1399 | | hypothetical protein |
| ssr3184 | | 4Fe-4S type iron-sulfur protein |
| slr0580 | | hypothetical protein |
| slr1235 | | hypothetical protein |
| sll1101 | <i>rpsJ, rps10</i> | 30S ribosomal protein S10 |
| slr0242 | <i>bcp</i> | bacterioferritin comigratory protein |
| slr1312 | <i>speA</i> | arginine decarboxylase |
| slr1063 | | hypothetical protein |
| sll1244 | <i>rplI, rpl9</i> | 50S ribosomal protein L9 |
| ssr0482 | <i>rpsP, rps16</i> | 30S ribosomal protein S16 |
| slr0954 | | hypothetical protein |
| slr1065 | | hypothetical protein |
| slr1919 | | ABC1-like |
| sll1166 | | hypothetical protein |
| Cluster 12 | | |
| sll1030 | <i>ccmL</i> | carbon dioxide concentrating mechanism protein CcmL, putative carboxysome assembly protein |

| | | |
|---------|----------------------------------|---|
| sll1029 | <i>ccmK1</i> | carbon dioxide concentrating mechanism protein CcmK homolog 1, putative carboxysome assembly protein |
| sll0322 | <i>hypF</i> | putative hydrogenase expression/formation protein HypF |
| slr0323 | <i>amsI</i> | alpha-mannosidase |
| slr0239 | <i>cbiF, cobM</i> | precorrin-4 C11-methyltransferase |
| sll1258 | <i>dcd</i> | deoxycytidine triphosphate deaminase |
| sll1531 | | hypothetical protein |
| slr2123 | | D-isomer specific 2-hydroxyacid dehydrogenase family |
| slr2120 | | hypothetical protein |
| slr1073 | | hypothetical protein |
| slr2125 | | hypothetical protein |
| sll1019 | <i>gloB</i> | glyoxalase II |
| sll0355 | | hypothetical protein |
| slr1521 | <i>hflX</i> | GTP-binding protein HflX |
| ssr1258 | | hypothetical protein |
| sll0825 | <i>pcnB</i> | polyA polymerase |
| slr0521 | | hypothetical protein |
| slr0994 | <i>lipB</i> | lipoate-protein ligase B |
| sll0563 | | hypothetical protein |
| sll1516 | | hypothetical protein |
| sll0533 | <i>tig</i> | trigger factor |
| slr0427 | | CinA-like protein |
| sll1154 | <i>norA</i> | quinolone resistance protein NorA |
| sll2014 | <i>sfsA</i> | sugar fermentation stimulation protein |
| sll0494 | | hypothetical protein |
| slr2126 | | hypothetical protein |
| sll1787 | <i>rpoB</i> | DNA-directed RNA polymerase beta chain |
| sll1789 | <i>rpoC2</i> | DNA-directed RNA polymerase beta' chain |
| sll1695 | <i>pilA2</i> | cyanobacterial pilin |
| sll1694 | <i>pilA1</i> | cyanobacterial pilin |
| sll1110 | <i>prfA, sueB</i> | peptide chain release factor RF-1 |
| sll0858 | | hypothetical protein |
| sll0428 | | hypothetical protein |
| sll0043 | <i>pixL, taxAY1, cheA, hik18</i> | positive phototaxis protein, homologous to chemotaxis protein CheA, two-component hybrid histidine kinase |
| slr0553 | | dephospho-CoA kinase |
| sll0044 | | hypothetical protein |
| slr1085 | | hypothetical protein |
| slr1087 | | hypothetical protein |
| sll1032 | <i>ccmN</i> | carbon dioxide concentrating mechanism protein CcmN, putative carboxysome assembly protein |
| slr0426 | <i>folE</i> | GTP cyclohydrolase I |
| slr0955 | | hypothetical tRNA/rRNA methyltransferase |
| sll1031 | <i>ccmM</i> | carbon dioxide concentrating mechanism protein CcmM, putative carboxysome structural protein |
| slr0552 | | hypothetical protein |
| slr2089 | <i>shc</i> | squalene-hopene-cyclase |
| sll1395 | <i>rfbD</i> | dTDP-6-deoxy-L-mannose-dehydrogenase |

| | | |
|---------|-------------|---------------------------|
| sll0514 | | hypothetical protein |
| slr0649 | <i>metS</i> | methionyl-tRNA synthetase |
| slr1066 | | hypothetical protein |
| sll1033 | | hypothetical protein |
| slr1107 | | hypothetical protein |
| sll1911 | | hypothetical protein |

Cluster 13

| | | |
|---------|-------------------|---|
| sll1325 | <i>atpD, atpH</i> | ATP synthase delta chain of CF(1) |
| sll1323 | <i>atpG</i> | ATP synthase subunit b' of CF(0) |
| ssl2615 | <i>atpH, atpE</i> | ATP synthase C chain of CF(0) |
| sll1324 | <i>atpF</i> | ATP synthase B chain (subunit I) of CF(0) |
| sll1322 | <i>atpI, atpB</i> | ATP synthase A chain of CF(0) |
| sll1321 | | hypothetical protein |
| sll1327 | <i>atpC, atpG</i> | ATP synthase gamma chain |
| sll1429 | | hypothetical protein |
| slr1471 | | inner membrane protein |
| slr1218 | <i>ycf39</i> | hypothetical protein |
| slr1693 | <i>rre24</i> | two-component response regulator (PatA subfamily) |
| sll1315 | | hypothetical protein |
| sll1709 | <i>gdh</i> | glucose dehydrogenase |
| slr0914 | | hypothetical protein |
| sll0379 | <i>lpxA</i> | acyl-[acyl-carrier-protein]-UDP-N-acetylglucosamine o-acyltransferase |
| sll1108 | <i>surE</i> | survival protein SurE homolog |
| slr0921 | | hypothetical protein |
| slr1342 | | hypothetical protein |
| slr0923 | <i>ycf65</i> | ycf65-like protein |
| sll1109 | | hypothetical protein |
| slr0574 | <i>cyp</i> | cytochrome P450 |
| slr1167 | <i>gldA</i> | glycerol dehydrogenase |
| sll0982 | | hypothetical protein |
| slr0186 | <i>leuA</i> | 2-isopropylmalate synthase |
| sll1194 | <i>psbU</i> | photosystem II 12 kDa extrinsic protein |
| slr1517 | <i>leuB</i> | 3-isopropylmalate dehydrogenase |
| sll0634 | <i>btpA</i> | photosystem I biogenesis protein BtpA |
| sll1058 | <i>dapB</i> | dihydrodipicolinate reductase |
| sll1980 | <i>txlA</i> | thiol:disulfide interchange protein TrxA |
| sll2011 | | hypothetical protein |
| sll1193 | | hypothetical protein |
| sll1349 | <i>cbbZp</i> | phosphoglycolate phosphatase |
| sll0181 | | hypothetical protein |
| sll1350 | | hypothetical protein |
| slr0468 | | hypothetical protein |
| sll0507 | | magnesium and cobalt transport protein |
| slr0869 | | hypothetical protein |
| slr1908 | | probable porin |

| | | |
|---------|--|---------------------------------------|
| slr0334 | | hypothetical protein |
| slr1406 | | periplasmic protein, function unknown |
| slr0209 | | hypothetical protein |
| slr1815 | | hypothetical protein |
| slr1187 | | hypothetical protein |
| ssl2874 | | hypothetical protein |

Cluster 14

| | | |
|---------|--------------------|--|
| slr1489 | <i>pchR</i> | regulatory protein PchR. |
| sll0247 | <i>isiA</i> | iron-stress induced chlorophyll-binding protein |
| sll0248 | <i>isiB</i> | flavodoxin |
| sll0249 | | hypothetical protein |
| slr0073 | <i>cheA, hik36</i> | Hpt domain of chemotaxis protein CheA, a part of two-component hybrid histidine kinase |
| slr0835 | <i>moxR</i> | MoxR |
| slr0520 | <i>purL, purI</i> | phosphoribosyl formylglycinamide synthase |
| slr0836 | <i>rfbB</i> | dTDP-glucose 4,6-dehydratase |
| slr0055 | <i>trpG</i> | anthranilate synthase component II |
| sll0635 | <i>thiE</i> | thiamin-phosphate pyrophosphorylase |
| slr0038 | | hypothetical protein |
| sll0199 | <i>petE</i> | plastocyanin |
| sll1550 | | probable porin |
| slr1295 | <i>futA1, sufA</i> | ABC-type iron transport system substrate-binding protein |
| sll1655 | <i>birA</i> | biotin [acetyl-CoA-carboxylase] ligase |
| sll0622 | <i>nadA</i> | quinolinate synthetase |
| sll1654 | | hypothetical protein |
| slr1205 | | hypothetical protein |
| slr1177 | | hypothetical protein |
| slr1906 | | hypothetical protein |
| slr0008 | <i>ctpA</i> | carboxyl-terminal processing protease |
| sll1737 | <i>ycf60</i> | hypothetical protein |
| slr1597 | | hypothetical protein |
| sll0688 | | hypothetical protein |
| ssr1256 | | hypothetical protein |
| slr1812 | | hypothetical protein |
| slr1811 | | hypothetical protein |
| slr1813 | | hypothetical protein |
| slr1814 | | hypothetical protein |
| sll0445 | | hypothetical protein |
| sll1618 | | hypothetical protein |
| sll0897 | <i>dnaJ</i> | DnaJ protein, heat shock protein 40, molecular chaperone |
| slr1119 | | hypothetical protein |
| sll0687 | <i>sigI</i> | RNA polymerase ECF-type (group 3) sigma factor |
| slr0249 | | hypothetical protein |
| sll1507 | | salt-induced periplasmic protein |
| ssl3364 | <i>cp12</i> | CP12, hypothetical protein |
| sll0169 | | hypothetical protein |

| | | |
|---------|--------------|---|
| sll1537 | | hypothetical protein |
| slr1258 | | hypothetical protein |
| slr1259 | | hypothetical protein |
| slr1260 | | hypothetical protein |
| slr1261 | | hypothetical protein |
| sll0441 | | hypothetical protein |
| sll1106 | | hypothetical protein |
| slr0513 | <i>futA2</i> | ABC-type iron transport system substrate-binding protein, periplasmic protein |
| sll0020 | <i>clpC</i> | ATP-dependent Clp protease ATPase subunit |
| slr1192 | | zinc-containing alcohol dehydrogenase family |
| slr0589 | | hypothetical protein |
| sll1680 | | hypothetical protein |
| sll1107 | | hypothetical protein |
| sll1621 | | membrane protein |

Cluster 15

| | | |
|---------|-------------------|--|
| slr0417 | <i>gyrA</i> | DNA gyrase subunit A |
| sll0471 | | hypothetical protein |
| slr2002 | <i>cphA</i> | cyanophycin synthetase |
| sll0470 | | hypothetical protein |
| sll1127 | <i>menB</i> | 1,4-dihydroxy-2-naphthoate synthase |
| sll1681 | | hypothetical protein |
| slr0747 | <i>ggtA, msiK</i> | ABC-type glucosylglycerol transport system ATP-binding protein |
| slr1129 | <i>rne</i> | ribonuclease E |
| slr1604 | <i>ftsH</i> | cell division protein FtsH |
| ssl2162 | | hypothetical protein |
| slr1287 | | hypothetical protein |
| slr1228 | <i>prfC, tos</i> | peptide chain release factor RF-3 |
| slr1150 | | hypothetical protein |
| sll1072 | | hypothetical protein |
| sll1566 | <i>ggpS</i> | glucosyl-glycerol-phosphate synthase |
| sll0005 | | hypothetical protein |
| sll1245 | <i>cytM</i> | cytochrome cM |
| slr0611 | <i>sds</i> | solanesyl diphosphate synthase |
| slr0915 | | endonuclease |
| ssl3446 | | hypothetical protein |
| slr0746 | <i>stpA</i> | glucosylglycerolphosphate phosphatase |
| sll1772 | <i>mutS</i> | DNA mismatch repair protein MutS |
| slr1130 | <i>rhnB</i> | ribonuclease HII |
| sll0723 | | hypothetical protein |
| slr0292 | | hypothetical protein |
| slr0689 | | hypothetical protein |
| sll1933 | <i>dnaJ</i> | DnaJ protein, heat shock protein 40, molecular chaperone |
| slr0844 | <i>ndhF1</i> | NADH dehydrogenase I chain L, involved in photosystem-1 cyclic electron flow |
| sll1639 | <i>ureD</i> | urease accessory protein D |
| sll1025 | | hypothetical protein |

| | | |
|---------|-----------------|---|
| sll1988 | | heat shock protein 33 |
| sll1564 | <i>leuA</i> | alpha-isopropylmalate synthase |
| sll0992 | | esterase |
| slr0615 | | MDR (multidrug resistance) family ABC transporter |
| sll0330 | | sepiapterine reductase |
| sll1773 | | hypothetical protein |
| sll0335 | | hypothetical protein |
| sll0944 | | hypothetical protein |
| slr1751 | <i>prc, tsp</i> | periplasmic carboxyl-terminal protease |
| slr1566 | | hypothetical protein |
| slr1627 | | hypothetical protein |
| ssr1853 | | hypothetical protein |
| sll1491 | | periplasmic WD-repeat protein, beta transducin-like protein |
| slr1501 | | hypothetical protein |

Cluster 16

| | | |
|---------|-----------------------|--|
| sll1724 | <i>icsA</i> | LPS glycosyltransferase IcsA |
| sll1733 | <i>ndhD3</i> | NADH dehydrogenase I chain M, involved in inducible high-affinity CO2 uptake |
| sll1732 | <i>ndhF3</i> | NADH dehydrogenase I chain L, involved in inducible high-affinity CO2 uptake |
| sll1626 | <i>lexA</i> | SOS function regulatory protein |
| slr1739 | <i>psb28, psb28-2</i> | photosystem II 13 kDa protein homolog, formerly PsbW |
| slr1488 | | MDR (multidrug resistance) family ABC transporter |
| sll1427 | <i>hhoB, htrH</i> | protease HhoB |
| sll0572 | | hypothetical protein |
| sll1119 | | hypothetical protein |
| sll1426 | | hypothetical protein |
| slr0936 | <i>nadC</i> | nicotinate-nucleotide pyrophosphorylase (carboxylating) |
| slr1113 | | ABC-2 type transport system ATP-binding protien |
| slr0418 | | hypothetical protein |
| slr0896 | | multidrug resistance protein NorM, putative |
| sll1086 | | hypothetical protein |
| ssr2153 | | hypothetical protein |
| sll0905 | <i>maf</i> | MAF |
| slr1050 | | hypothetical protein |
| sll1383 | <i>suhB, ssyA</i> | extragenic suppressor SuhB |
| sll1382 | <i>petF, fdx</i> | ferredoxin, petF-like protein, expression is negatively regulated by glucose |
| slr1894 | | hypothetical protein |
| slr0080 | <i>rnhA</i> | ribonuclease H |
| slr1594 | <i>rre5</i> | two-component response regulator (PatA subfamily) |
| slr0899 | <i>cynS</i> | cyanate lyase |
| sll0924 | | hypothetical protein |
| sll1348 | | hypothetical protein |
| sll1865 | <i>pfbB</i> | peptide chain release factor RF-2 |
| slr0612 | | hypothetical protein |
| slr1599 | | hypothetical protein |
| sll1888 | <i>hik5</i> | two-component sensor histidine kinase |

| | | |
|---------|----------------------|--|
| sll1894 | <i>ribA</i> | GTP cyclohydrolase II / 3,4-dihydroxy-2-butanone 4-phosphate synthase (dhbp synthase) |
| slr1748 | | hypothetical protein |
| slr0436 | <i>ccmO</i> | carbon dioxide concentrating mechanism protein CcmO, N terminus closely related to CcmK2 (Sll1028) |
| sll0412 | | hypothetical protein |
| sll1634 | | hypothetical protein |
| sll1967 | | RNA methyltransferase, putative |
| slr1311 | <i>psbA2, psba-2</i> | photosystem II D1 protein |
| sll1388 | | hypothetical protein |
| slr0596 | | creatinine amidohydrolase |
| slr0960 | | hypothetical protein |
| slr0964 | | hypothetical protein |
| sll2013 | | hypothetical protein |
| slr0199 | | hypothetical protein |
| slr0320 | | hypothetical protein |
| slr1436 | | hypothetical protein |

Cluster 17

| | | |
|---------|-------------------|---|
| sll1085 | <i>glpD, glyD</i> | glycerol-3-phosphate dehydrogenase |
| sll1167 | <i>pbp</i> | penicillin-binding protein 4 |
| slr1971 | | hypothetical protein |
| sll1797 | <i>ycf21</i> | Ycf21 gene product |
| sll1884 | | hypothetical protein |
| slr0852 | | hypothetical protein |
| slr0974 | <i>infC</i> | translation initiation factor IF-3 |
| slr1882 | <i>ribF</i> | riboflavin kinase / FMN adenylyltransferase |
| sll0382 | | hypothetical protein |
| slr0877 | | glutamyl-tRNA(Gln) amidotransferase subunit A |
| sll0413 | | hypothetical protein |
| slr1885 | | hypothetical protein |
| slr0251 | <i>ycf85</i> | ABC transporter ATP-binding protein |
| sll1757 | | hypothetical protein |
| slr0853 | <i>rimI</i> | ribosomal-protein-alanine acetyltransferase |
| slr1760 | <i>rre8</i> | two-component response regulator |
| slr0878 | | hypothetical protein |
| slr0252 | | precorrin-6X reductase |
| sll1023 | <i>sucC</i> | succinyl-CoA synthetase beta chain |
| sll0088 | | hypothetical protein |
| sll1512 | | hypothetical protein |
| slr0582 | | hypothetical protein |
| slr0328 | | putative low molecular weight protein-tyrosine-phosphatase |
| sll1599 | <i>mntA</i> | ABC-type manganese transport system ATP-binding protein |
| slr0397 | | hypothetical protein |
| slr0211 | | hypothetical protein |
| slr0841 | | periplasmic protein, function unknown |
| sll1598 | <i>mntC</i> | ABC-type manganese transport system substrate-binding protein |
| slr0581 | | hypothetical protein |

| | | |
|---------|--|----------------------|
| slr2006 | | hypothetical protein |
| sll1620 | | hypothetical protein |
| sll1965 | | hypothetical protein |
| slr1738 | | hypothetical protein |

Cluster 18

| | | |
|---------|--|---------------------------------------|
| slr0895 | | hypothetical protein |
| slr1704 | | hypothetical protein |
| sll1236 | | hypothetical protein |
| ssr2194 | | hypothetical protein |
| slr1932 | | hypothetical protein |
| sll1558 | | mannose-1-phosphate guanyltransferase |

Group 3

Cluster 19

| | | |
|---------|--------------------|--|
| sll0383 | <i>cbiM</i> | cobalamin biosynthesis protein |
| slr1991 | <i>cyaI</i> | adenylate cyclase |
| sll0381 | | hypothetical protein |
| slr0075 | <i>ycf16</i> | probable ATP-dependent transporter subunit |
| slr0898 | <i>nirA</i> | ferredoxin-nitrite reductase |
| slr0975 | | hypothetical protein |
| sll0385 | <i>cbiO</i> | ABC-type cobalt transport system ATP-binding protein |
| sll0384 | <i>cbiQ</i> | ABC-type cobalt transport system permease protein |
| sll0556 | | hypothetical protein |
| sll1854 | <i>xthA, xth</i> | exodeoxyribonuclease III |
| slr1677 | | hypothetical protein |
| sll2005 | <i>gyrB</i> | DNA gyrase subunit B [Contains: Ssp gyrB intein] |
| sll1096 | <i>rpsL, rps12</i> | 30S ribosomal protein S12 |
| sll1688 | <i>thrC</i> | threonine synthase |
| sll1097 | <i>rpsG, rps7</i> | 30S ribosomal protein S7 |
| slr0551 | | hypothetical protein |

Cluster 20

| | | |
|---------|-----------------|---|
| sll0668 | <i>ISY352e2</i> | putative transposase gene of IS4 family insertion sequence ISY352e2 |
| sll1397 | <i>ISY100a</i> | putative transposase gene of IS630 family insertion sequence ISY100a |
| sll1780 | <i>ISY203b</i> | transposase gene of IS4 family insertion sequence ISY203b |
| sll1095 | | hypothetical protein |
| slr0755 | | hypothetical protein |
| slr0902 | <i>moaC</i> | molybdenum cofactor biosynthesis protein C, fused to molybdopterin-guanine dinucleotide biosynthesis protein MobA |
| slr0900 | <i>moeA</i> | molybdopterin biosynthesis MoeA protein |
| sll1568 | | fibrillin |
| slr1396 | | hypothetical protein |
| sll1515 | <i>gjfB</i> | glutamine synthetase inactivating factor IF17 |
| ssr1527 | <i>moaD</i> | molybdopterin (MPT) converting factor, subunit 1 |
| slr0903 | <i>moaE</i> | molybdopterin (MPT) converting factor, subunit 2 |
| slr2116 | <i>spsA</i> | spore coat polysaccharide biosynthesis protein SpsA |

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|---------|--------------------------------|--|
| slr1803 | <i>mbpA</i> | adenine-specific DNA methylase |
| slr1840 | | hypothetical protein |
| slr1512 | <i>sbtA</i> | sodium-dependent bicarbonate transporter |
| slr0901 | <i>moaA</i> | molybdopterin biosynthesis protein A |
| slr2115 | | hypothetical protein |
| sll1956 | | hypothetical protein |
| sll0040 | <i>pixI, pixI</i> | positive phototaxis protein, homologous to chemotaxis protein CheW |
| sll0039 | <i>pixH, pixH, cheY, rre35</i> | two-component response regulator (CheY subfamily) |
| sll1408 | <i>pcrR</i> | regulatory protein PcrR. |
| sll1473 | <i>sll1473-5, hik32</i> | two-component sensor histidine kinase, a part of gene sll1473-5 for phytochrome-like protein |
| sll1407 | | hypothetical protein |
| slr1414 | <i>hik11</i> | two-component sensor histidine kinase |
| sll1472 | | hypothetical protein |
| sll2006 | | hypothetical protein |
| slr1196 | | periplasmic protein, function unknown |
| slr1930 | <i>pilA7</i> | type 4 pilin-like protein |
| slr0438 | | hypothetical protein |
| slr1468 | | tymocyte protein cThy28kD |
| sll1124 | <i>plpA, hik3</i> | two-component sensor histidine kinase, phytochrome-like protein |
| ssl2233 | <i>rpsT, rps20</i> | 30S ribosomal protein S20 |
| sll0361 | | hypothetical protein |
| slr2127 | | hypothetical protein |
| slr0399 | <i>ycf39</i> | chaperon-like protein for quinone binding in photosystem II |
| slr0400 | | probable inorganic polyphosphate/ATP-NAD kinase 1 |
| sll1611 | | hypothetical protein |
| slr0401 | | spermidine/putrescine transport system substrate-binding protein |

Cluster 21

| | | |
|---------|-------------------|---|
| sll1406 | <i>fhuA</i> | ferrichrome-iron receptor. |
| slr0040 | <i>cmpA</i> | ABC-type bicarbonate transport system substrate-binding protein |
| slr1931 | <i>pilA8</i> | type 4 pilin-like protein |
| sll0473 | | putative ABC transport system substrate-binding protein |
| sll0030 | <i>cmpR</i> | cmp operon transcriptional regulator, LysR family protein |
| sll0189 | | hypothetical protein |
| sll1277 | <i>recF</i> | RecF protein |
| sll0454 | <i>pheS</i> | phenylalanyl-tRNA synthetase alpha chain |
| sll1024 | | hypothetical protein |
| sll0828 | <i>nylA</i> | 6-aminohexanoate-cyclic-dimer hydrolase |
| slr1503 | | hypothetical protein |
| sll1192 | | hypothetical protein |
| sll1848 | | hypothetical protein |
| slr0311 | <i>hik29</i> | two-component sensor histidine kinase |
| slr1199 | <i>mutL</i> | DNA mismatch repair protein MutL |
| sll0537 | <i>amt3</i> | ammonium/methylammonium permease |
| slr0031 | | hypothetical protein |
| slr0618 | <i>cbiP, cobQ</i> | cobyric acid synthase |

| | | |
|---------|--------------------|---|
| sll0536 | | hypothetical protein |
| slr1197 | <i>smf</i> | smf protein |
| sll1386 | | hypothetical protein |
| slr0682 | <i>hisD</i> | histidinol dehydrogenase |
| ssl2153 | <i>rpiB</i> | ribose 5-phosphate isomerase B |
| slr1925 | <i>cbiB, cobD</i> | cobalamin biosynthesis protein |
| sll0309 | | hypothetical protein |
| sll1411 | | hypothetical protein |
| sll1981 | <i>ilvB</i> | acetolactate synthase large subunit |
| slr0569 | | hypothetical protein |
| slr0395 | | hypothetical protein |
| slr0120 | | hypothetical protein |
| sll0295 | | hypothetical protein |
| slr0066 | <i>ribD</i> | diaminohydroxyphosphoribosylaminopyrimidine deaminase / 5-amino-6-(5-phosphoribosylamino)uracil reductase |
| sll1265 | | hypothetical protein |
| slr0299 | | hypothetical protein |
| slr0329 | <i>xylR</i> | xylose repressor |
| slr0880 | | secreted protein MPB70 precursor |
| slr1929 | <i>pilA6</i> | type 4 pilin-like protein |
| slr1232 | | hypothetical protein |
| slr2132 | <i>pta</i> | phosphotransacetylase |
| sll1201 | | hypothetical protein |
| sll1774 | | hypothetical protein |
| slr1712 | | hypothetical protein |
| slr1573 | | hypothetical protein |
| slr0394 | <i>pgk</i> | phosphoglycerate kinase |
| slr0036 | <i>aspC, aat</i> | aspartate aminotransferase |
| sll0848 | <i>dnaA</i> | chromosomal replication initiator protein DnaA |
| sll0095 | | ABC1-like protein |
| sll0364 | | hypothetical protein |
| slr1117 | | hypothetical protein |
| slr1188 | <i>im30</i> | chloroplast membrane-associated 30 kD protein |
| slr1305 | <i>rre41, nijL</i> | two-component response regulator |
| slr1179 | <i>rre41, nijL</i> | two-component response regulator |
| sll0036 | | hypothetical protein |
| slr0272 | | hypothetical protein |
| slr2037 | | hypothetical protein |
| sll1121 | | putative DNA helicase |

Cluster 22

| | | |
|---------|--------------------------------|---|
| sll0461 | <i>proA</i> | gamma-glutamyl phosphate reductase |
| sll1544 | <i>rre40</i> | two-component response regulator (NarL subfamily) |
| sll1946 | | hypothetical protein |
| sll0042 | <i>pixJ2, pisJ2, tar, cheM</i> | methyl-accepting chemotaxis protein for positive phototaxis |
| slr1377 | <i>lepB</i> | leader peptidase I (signal peptidase I) |
| slr1665 | <i>dapF</i> | diaminopimelate epimerase |

| | | |
|---------|---------------------------------------|---|
| slr0069 | | hypothetical protein |
| sll0041 | <i>pixJ1, pisJ1, taxD1, tsr, cheD</i> | phytochrome-like photoreceptor protein for positive phototaxis; homologous to methyl-accepting chemotaxis protein |
| slr0300 | | hypothetical protein |
| sll0084 | <i>hisB</i> | imidazoleglycerol-phosphate dehydratase |
| slr2081 | <i>tyrA</i> | prephenate dehydrogenase |
| sll0856 | <i>sigH, rpoE</i> | RNA polymerase ECF-type (group 3) sigma-E factor |
| ssr2781 | | hypothetical protein |
| slr0469 | <i>rpsD, rps4</i> | 30S ribosomal protein S4 |
| sll0544 | | hypothetical protein |
| sll1389 | | hypothetical protein |
| slr1094 | | hypothetical protein |
| sll0398 | <i>dgt</i> | dGTP triphosphohydrolase |
| slr1348 | <i>cysE</i> | serine acetyltransferase |
| sll1123 | | hypothetical protein |
| slr1546 | | hypothetical protein |
| slr0033 | | glutamyl-tRNA(Gln) amidotransferase subunit C |
| slr1926 | | hypothetical protein |
| sll0037 | | hypothetical protein |
| slr1186 | | hypothetical protein |
| slr0077 | <i>nifS</i> | putative cysteine desulfurase |
| slr1303 | | hypothetical protein |
| slr0863 | | hypothetical protein |
| slr1189 | | hypothetical protein |
| ssr2333 | | hypothetical protein |
| sll0038 | <i>pixG, cheY, rre36</i> | two-component response regulator (PatA subfamily) |
| slr0032 | <i>ilvE</i> | branched-chain amino acid aminotransferase |
| sll0066 | | hypothetical protein |
| sll0359 | | hypothetical protein |
| sll1853 | | hypothetical protein |
| ssl3769 | | hypothetical protein |
| sll0842 | <i>npIT</i> | neopullulanase |
| sll0508 | | hypothetical protein |
| sll0877 | | hypothetical protein |
| sll1849 | | hypothetical protein |
| slr1246 | <i>ISY802b</i> | putative transposase gene of IS5 family insertion sequence ISY802b |
| sll1716 | <i>ISY523a</i> | putative transposase gene of IS5 family insertion sequence IS523a |
| sll1191 | | hypothetical protein |
| slr0224 | | hypothetical protein |
| slr1772 | | penicillin acylase homolog, periplasmic protein |
| slr1397 | | hypothetical protein |
| slr0787 | | nicotinamide-nucleotide adenyltransferase / ADP compounds hydrolase |
| slr1917 | | hypothetical protein |
| sll0844 | | probable tRNA-methyltransferase |

Cluster 23

| | | |
|---------|--------------|---------------------------------------|
| sll0790 | <i>hik31</i> | two-component sensor histidine kinase |
|---------|--------------|---------------------------------------|

| | | |
|---------|--------------------|--|
| slr0549 | <i>asd</i> | aspartate beta-semialdehyde dehydrogenase |
| sll0360 | | hypothetical protein |
| slr0550 | <i>dapA</i> | dihydrodipicolinate synthase |
| slr1547 | | hypothetical protein |
| sll0789 | <i>copR, rre34</i> | two-component response regulator (OmpR subfamily) |
| sll0788 | | hypothetical protein |
| sll0086 | | arsenical pump-driving ATPase |
| sll1786 | | putative deoxyribonuclease, tatD homolog |
| slr0798 | <i>ziaA</i> | zinc-transporting P-type ATPase (zinc efflux pump) involved in zinc tolerance |
| sll0462 | | hypothetical protein |
| slr1927 | | hypothetical protein |
| slr0518 | <i>abfB</i> | arabinofuranosidase |
| sll0843 | | hypothetical protein |
| slr1398 | | hypothetical protein |
| slr1185 | <i>petC2</i> | cytochrome b6-f complex alternative iron-sulfur subunit (Rieske iron sulfur protein) |
| slr1851 | | hypothetical protein |
| ssr3129 | | hypothetical protein |

Cluster 24

| | | |
|---------|-------------------|--|
| slr1392 | <i>feoB</i> | ferrous iron transport protein B |
| ssl2542 | <i>hliA, scpC</i> | high light inducible protein |
| ssl3044 | | hydrogenase component |
| slr1687 | | hypothetical protein |
| slr0959 | | hypothetical protein |
| slr1686 | | hypothetical protein |
| slr1291 | <i>ndhD2</i> | NADH dehydrogenase I chain M, Involved in photosystem-1 cyclic electron flow |
| slr0083 | <i>crhR, deaD</i> | ATP-dependent RNA helicase |
| slr0082 | | salt-regulated gene, function unknown |
| ssl1633 | <i>hliC, scpB</i> | CAB/ELIP/HLIP superfamily |
| ssr2016 | | hypothetical protein |
| ssr2595 | <i>hliB, scpD</i> | high light inducible protein |
| sll1483 | | periplasmic protein, similar to transforming growth factor induced protein |
| slr1544 | | hypothetical protein |
| sll2012 | <i>sigD, rpoD</i> | RNA polymerase sigma factor |
| sll0157 | | hypothetical protein |
| sll1541 | | lignostilbene-alpha,beta-dioxygenase |

Cluster 25

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|---------|--------------------|--|
| slr1641 | <i>clpB1</i> | ClpB protein |
| sll1514 | <i>hspA, hsp17</i> | 16.6 kDa small heat shock protein, molecular chaperone |
| slr0093 | <i>dnaJ</i> | DnaJ protein, heat shock protein 40, molecular chaperone |
| sll0306 | <i>sigB, rpoD</i> | RNA polymerase group 2 sigma factor |
| sll0846 | | hypothetical protein |
| slr1204 | <i>htrA</i> | serine protease HtrA |
| slr1915 | | hypothetical protein |
| sll0939 | | hypothetical protein |
| slr0967 | | hypothetical protein |

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| sll0416 | <i>groEL2, cpn60-2</i> | 60 kDa chaperonin 2, GroEL2, molecular chaperone |
| slr2076 | <i>groEL1, cpn60-1</i> | 60 kDa chaperonin 1, GroEL1, molecular chaperone |
| slr2075 | <i>groES</i> | 10 kD chaperonin, GroES protein |
| sll0430 | <i>htpG</i> | HtpG, heat shock protein 90, molecular chaperone |
| sll0170 | <i>dnaK2, dnaK</i> | DnaK protein 2, heat shock protein 70, molecular chaperone |
| slr1963 | | water-soluble carotenoid protein |
| slr1516 | <i>sodB</i> | superoxide dismutase |
| slr1603 | | hypothetical protein |
| ssl2971 | | hypothetical protein |
| slr1675 | <i>hypA1</i> | putative hydrogenase expression/formation protein HypA1 |
| slr1674 | | hypothetical protein |
| slr1285 | <i>hik34</i> | a part of two-component sensor histidine kinase |
| sll0528 | | hypothetical protein |
| slr1916 | | esterase |
| sll1653 | <i>menG, gerC2</i> | probable phyloquinone biosynthesis methyltransferase |
| sll0938 | | N-succinyldiaminopimelate aminotransferase |
| sll1652 | | hypothetical protein |
| slr0095 | | O-methyltransferase |
| slr1413 | | hypothetical protein |
| sll1022 | | hypothetical protein |
| ssr3188 | | hypothetical protein |
| sll1549 | | salt-enhanced periplasmic protein |
| slr1484 | | hypothetical protein |
| slr1485 | | putative phosphatidylinositol phosphate kinase, salt-induced periplasmic protein |
| sll1862 | | hypothetical protein |
| sll1863 | | hypothetical protein |