

Table S3. Gene datasets used in the phylogenetic studies.

Dataset	Genes names
44-proteins	atpA, atpB, atpE, atpF, atpH, petA, petB, petD, petG, psaA, psaB, psaC, psaJ, psbA, psbB, psbC, psbD, psbE, psbF, psbH, psbI, psbJ, psbK, psbL, psbN, psbT, rpl14, rpl16, rpl2, rpl20, rpoA, rpoB, rps11, rps12, rps14, rps18, rps19, rps2, rps3, rps4, rps7, rps8, ycf3, ycf4
83-proteins	atpA, atpB, atpD, atpE, atpF, atpG, atpH, atpI, chlI, clpC, dnaK, groEL, petA, petB, petD, petG, petN, psaA, psaB, psaC, psaD, psaF, psaI, psaJ, psaL, psaM, psbA, psbB, psbC, psbD, psbE, psbF, psbH, psbI, psbJ, psbK, psbL, psbN, psbT, psbV, rbcL, rbcS, rpl14, rpl16, rpl19, rpl2, rpl20, rpl21, rpl22, rpl23, rpl27, rpl3, rpl31, rpl33, rpl34, rpl5, rpl6, rpoA, rpoB, rps10, rps11, rps12, rps13, rps14, rps16, rps17, rps18, rps19, rps2, rps3, rps4, rps5, rps7, rps8, rps9, secA, secY, sufB, tufA, ycf12, ycf3, ycf39, ycf4
33-proteins	atpA, atpB, atpH, chlI, dnaK, groEL, petB, petD, petN, psaA, psaB, psaC, psaD, psbA, psbB, psbC, psbE, psbF, psbH, psbI, psbJ, psbL, psbN, psbT, rbcL, rbcS, rpl14, rpl16, rps12, rps19, sufB, tufA, ycf3

Table S4. Plastid and bacterial genomes used in the global genome comparisons and the phylogenetic studies.

Species	Accession Number	Date
<i>Arabidopsis thaliana</i>	NC_000932	30-JAN-2008
<i>Chlamydomonas reinhardtii</i>	NC_005353	08-FEB-2008
<i>Cyanophora paradoxa</i>	NC_001675	09-OCT-1995
<i>Mesostigma viride</i>	NC_002186	06-AUG-2007
<i>Nephroselmis olivacea</i>	NC_000927	21-FEB-2007
<i>Prochlorococcus marinus</i>	NC_009976	25-JAN-2008
<i>Synechocystis sp.</i>	NC_000911	26-MAR-2008
<i>Cyanidioschyzon merolae</i> *	NC_004799	30-JUL-2007
<i>Cyanidium caldarium</i> *	NC_001840	18-NOV-1999
<i>Ectocarpus siliculosus</i> *	FP102296	<i>this study</i>
<i>Emiliana huxleyi</i> *	NC_007288	26-FEB-2007
<i>Fucus vesiculosus</i> *	FM957154	<i>this study</i>
<i>Gracilaria tenuistipitata</i> *	NC_006137	13-AUG-2004
<i>Guillardia theta</i> *	NC_000926	15-SEP-1998
<i>Heterosigma akashiwo</i> *	EU168191	05-JUN-2008
<i>Vaucheria litorea</i> °	NC_011600	01-DEC-2008
<i>Odontella sinensis</i> *	NC_001713	21-FEB-2007
<i>Phaeodactylum tricorutum</i> *	NC_008588	13-APR-2007
<i>Porphyra purpurea</i> *	NC_000925	25-APR-1996
<i>Rhodomonas salina</i> *	NC_009573	28-MAR-2008
<i>Thalassiosira pseudonana</i> *	NC_008589	17-APR-2007

(*) Species used in both protein datasets analyses, i.e. the 44-proteins and 83-proteins datasets, whereas the other species appear only in the 44-proteins dataset analyses. (°) Species only used in comparisons of global genome rearrangements and gene contents.

Table S5. Complementary information about gene synonyms used for gene content comparisons between cyanobacterial and plastid genomes, and about protein-encoded genes used in the phylogenetic analyses.

ftsH(ycf25), groEL(groL), petM(ycf31), psbW(psb28), sufB(ycf24), ycf33(Escp43), ycf46(ORF491), petL(ycf7), petN(ycf6), psbZ(ycf9), syfB(pheT), ilvH(ilvN), cbbX(cfxQ), sufC(ycf16), thiS(ycf40), ycf41(Escp41), acsF(ycf59), ycf65(psrp3), atpE(atpC), rpl1(rplA), rpl2(rplB), rpl3(rplC), rpl4(rplD), rpl5(rplE), rpl6(rplF), rpl9(rplI), rpl10(rplJ), rpl11(rplK), rpl12(rplL), rpl13(rplM), rpl14(rplN), rpl15(rplO), rpl16(rplP), rpl17(rplQ), rpl18(rplR), rpl19(rplS), rpl20(rplT), rpl21(rplU,rpl21_1), rpl22(rplV), rpl23(rplW), rpl24(rplX), rpl25(rplY), rpl27(rpmA), rpl28(rpmB), rpl29(rpmC), rpl30(rpmD), rpl31(rpmE), rpl32(rpmF), rpl33(rpmG), rpl34(rpmH), rpl35(rpmI), rpl36(rpmJ), rps1(rpsA), rps2(rpsB), rps3(rpsC), rps4(rpsD), rps5(rpsE), rps6(rpsF), rps7(rpsG), rps8(rpsH), rps9(rpsI), rps10(rpsJ), rps11(rpsK), rps12(rpsL), rps13(rpsM), rps14(rpsN), rps15(rpsO), rps16(rpsP), rps17(rpsQ), rps18(rpsR), rps19(rpsS), rps20(rpsT), psbA(psbA1,psbA_1), rpoB(rpoB-1,rpoB-2), ccsA(ycf5), ccs1(ycf44), cemA(ycf10), hlip(ycf17), petM(ycf31), secG(ycf47), sufB(ycf24), tatC(ycf43), rbcR(ycf30)

Species	Gene	locus_tag	Position	protein_id
<i>Prochlorococcus marinus</i>	<i>atpB</i>	P9211_15571	1389417..1390883	YP_001551442.1
	<i>atpF</i>	P9211_15721	1403242..1403757	YP_001551457.1
	<i>atpH</i>	P9211_15741	1404363..1404698	YP_001551459.1
	<i>ycf3</i>	P9211_01461	143012..143533	YP_001550031.1
	<i>ycf4</i>	P9211_12321	1107849..1108400	YP_001551117.1
<i>Synechocystis sp.</i>	<i>atpE</i>	slr1330	1668531..1668941	NP_441408.2
<i>Chlamydomonas reinhardtii</i>	<i>rpoB</i>	ChreCp042	(96126..98006)	NP_958397.1
		+ChreCp041	+(98624..101092)	+NP_958398.1