

Table S1. Fatty acid content of wild-type and transgenic *Synechocystis* sp. PCC6803 ^a cultured under mixotrophic growth conditions at 30 °C and 20 °C.

Strain	T (°C)	TFA (mg/g)	FA Content (mg/g)										
			C14:0	C14:1	C16:0	C16:1	C18:0	C18:1	C18:2	C18:3n6	C18:3n3	C18:4	Others
Wild type	30	75.20 ±	0.19 ±	0.61 ±	38.71	2.56 ±	0.62 ±	5.31 ±	10.22	12.23 ±	1.09 ±	0.90 ±	2.76 ±
		5.3	0.1	0.2	± 1.8	0.3	0.1	0.5	± 1.2	1.1	0.1	0.2	0.3
	20	60.66 ±	0.11 ±	0.51 ±	28.58	3.00 ±	0.88 ±	2.39 ±	10.16	8.93 ±	1.53 ±	0.94 ±	3.63 ±
		2.7	0.1	0.1	± 1.3	0.6	0.2	0.6	± 1.5	0.7	0.2	0.1	0.2
pSDFatA	30	77.20 ±	0.20 ±	0.44 ±	38.62	3.36 ±	0.76 ±	3.94 ±	12.73	11.45 ±	1.30 ±	0.91 ±	3.10 ±
		6.1	0.1	0.1	± 1.5	0.6	0.1	0.3	± 0.7	0.9	0.2	0.2	0.3
	20	74.79 ±	0.14 ±	0.48 ±	39.03	3.39 ±	1.08 ±	3.05 ±	9.24 ±	10.29 ±	2.29 ±	1.26 ±	2.51 ±
		3.6	0.1	0.1	± 1.6	0.7	0.3	0.8	0.9	1.1	0.3	0.2	0.1
pSDFatB	30	65.96 ±	0.22 ±	0.43 ±	33.66	3.13 ±	0.84 ±	3.26 ±	10.37	7.89 ±	1.51 ±	0.90 ±	3.15 ±
		5.6	0.1	0.1	± 1.3	0.5	0.1	0.9	± 1.0	0.7	0.3	0.2	0.3
	20	72.73 ±	0.15 ±	0.49 ±	35.87	3.72 ±	0.80 ±	1.49 ±	11.09	11.04 ±	1.34 ±	0.91 ±	1.93 ±
		6.5	0.1	0.2	± 0.9	0.7	0.1	0.3	± 1.3	1.4	0.2	0.3	0.4
pSDFatAB	30	78.24 ±	0.65 ±	0.69 ±	38.51	3.37 ±	0.78 ±	3.96 ±	13.12	10.82 ±	0.94 ±	0.61 ±	3.62 ±
		8.7	0.1	0.1	± 1.7	0.8	0.3	0.1	± 0.9	1.0	0.2	0.1	0.3
	20	81.94 ±	0.86 ±	1.01 ±	39.54	4.07 ±	0.92 ±	1.89 ±	12.08	15.03 ±	1.24 ±	0.96 ±	2.64 ±
		7.2	0.1	0.2	± 1.6	0.6	0.2	0.3	± 0.8	1.2	0.3	0.2	0.4

T: Temperature; TFA: Total fatty acids; FA: fatty acids. ^a Values are means and S.D. of triplicate experiments. Cells were grown under a light intensity of 40 $\mu\text{mol photon m}^{-2} \text{s}^{-1}$ for 10 d in BG-11 medium. The membrane lipids were extracted from the wild-type and genetically engineered *Synechocystis* sp. PCC6803. The enzymes overexpressed are indicated in parentheses (FatA: Acyl-ACP Thioesterase A from 'Luhua 14' cultivar of *Arachis hypogaea* L.; FatB: Acyl-ACP Thioesterase B from 'Luhua 14' cultivar of *Arachis hypogaea* L.).