

Table S2. Reference table for the proposed evolutionary history of RedCAP, LHC and LHC-like genes (Figure 2). Findings for cyanobacteria, green algae and plants have been generalised according to published studies, while findings for red algae, cryptophytes and diatoms are specific for representative species of which the plastid-, nucleomorph-, and nuclear genomes (or large transcriptome datasets in the case of “present” statements) have been sequenced and published (see footnotes in table). Genes are marked as “present” if their existence has been reported in the literature; “absent” means that these genes were neither identified in our analyses, nor—to our knowledge—have been reported to exist before (hence no references for “absent” statements). For RedCAP sequence identifiers see also Table 1 of this study.

algal group	cyanobacteria		green algae and plants		red algae		cryptophytes			diatoms	
	genome	bacterial chromosome	plastid	nuclear	plastid ¹	nuclear ²	plastid ³	nucleomorph ⁴	nuclear ⁵	plastid ⁶	nuclear ⁷
HLIP/OHP1	present [1,2]	absent	absent	present [1,2]	present [1–3]	present [1,2]	present [1–3]	absent	absent	absent	present [1,2]
OHP2	absent	absent	absent	present [1,2]	absent	present [1–3]	absent	present ⁸ [1–3]	absent	absent	present [1–3]
SEP	absent	absent	absent	present [1,2]	absent	present [1]	absent	absent	absent	absent	present [1]
RedCAP	absent	absent	absent	absent	absent	present [1]	absent	absent	present [1]	absent	present [1]
ELIP	absent	absent	absent	present [1,2]	absent	absent	absent	absent	absent	absent	absent
LHC/FCP	absent	absent	absent	present [1,2]	absent	present [1,2]	absent	absent	present [1,2]	absent	present [1,2]

¹ The plastid genomes of *Cyanidioschyzon merolae* [4,5], *Cyanidium caldarium* [5,6], *Porphyra purpurea* [5,7], *Pyropia yezoensis* [5] and *Gracilaria tenuistipitata* var. *liui* [5,8] have been searched.

² The *Cyanidioschyzon merolae* Genome Project [9,10] database and the Michigan State University *Galdieria* Database [11–13] have been searched.

³ The *Guillardia theta* [5,14], *Rhodomonas salina* [5,15] and *Cryptomonas paramecium* [5,16] plastid genomes have been searched.

⁴ The *G. theta* [5,17], *C. paramecium* [5,18], *Hemiselmis andersenii* [5,19] and *Chroomonas mesostigmatica* [5,20] nucleomorph genomes have been searched.

⁵ The *G. theta* nuclear genome database [21,22] has been searched.

⁶ The *Phaeodactylum tricornutum* and *Thalassiosira pseudonana* plastid genomes [5,23] have been searched.

⁷ The *P. tricornutum* and *T. pseudonana* nuclear genome databases [24–27] have been searched.

⁸ OHP2 encoded on chryptophyte nucleomorphs is denoted “Hlip” or “HlipNm” in some studies.

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