

### **Description of Additional Supplementary Files**

File Name: Supplementary Data 1

Description: Accession numbers for the analyzed sequence data of nine plastid genes (atpB, rbcl, psaA, psbB, rps4, matK, trnL, cpLSU, and cpSSU), including the catalytic core of the trnL group I intron for a representative sampling of green plants, and the red algal outgroup. Sequences of *Asterochloris* sp. (Astpho1) can be downloaded from <https://genome.jgi.doe.gov/Astpho1/Astpho1.download.html>.