

Supplementary Table S1. Genome data used in this study

Species	Link and genome annotation version
<i>Porphyridium purpureum</i>	http://cyanophora.rutgers.edu/porphyridium
<i>Chondrus crispus</i>	https://www.ncbi.nlm.nih.gov/genome/12016
<i>Cyanidioschyzon merolae</i>	http://plants.ensembl.org ; V1
<i>Micromonas pusilla</i>	https://jgi.doe.gov ; C3V2
<i>Chlorella variabilis</i>	https://www.ncbi.nlm.nih.gov/genome/694
<i>Chlamydomonas reinhardtii</i>	https://jgi.doe.gov ; V5
<i>Klebsormidium nitens</i>	http://www.plantmorphogenesis.bio.titech.ac.jp/~algae_genome_project/klebsormidium; V1.1
<i>Chara braunii</i>	https://www.ncbi.nlm.nih.gov/
<i>Mesostigma viride</i>	https://www.ncbi.nlm.nih.gov/nucleotide/RPFO00000000.1
<i>Marchantia polymorpha</i>	http://marchantia.info ; V3.1
<i>Physcomitrium patens</i>	https://genome.jgi.doe.gov ; V3
<i>Sphagnum fallax</i>	https://phytozome.jgi.doe.gov ; V0.5
<i>Selaginella moellendorffii</i>	https://phytozome.jgi.doe.gov ; V1.0
<i>Azolla filiculoides</i>	https://www.fernbase.org ; V1.1
<i>Salvinia cucullata</i>	https://www.fernbase.org ; V1.2
<i>Ginkgo biloba</i>	https://figshare.com/articles/dataset/annotation_of_Ginkgo_biloba/14759223
<i>Gnetum montanum</i>	DRYAD website
<i>Pinus taeda</i>	http://congenie.org/start ; V1.0
<i>Amborella trichopoda</i>	https://phytozome.jgi.doe.gov ; V1.0
<i>Nymphaea colorata</i>	https://www.ncbi.nlm.nih.gov/
<i>Musa acuminata</i>	https://phytozome.jgi.doe.gov ; V1
<i>Oryza sativa</i>	http://rice.plantbiology.msu.edu ; IRGSP-1.0
<i>Brachypodium distachyon</i>	https://phytozome.jgi.doe.gov ; V3.1
<i>Setaria italica</i>	https://phytozome.jgi.doe.gov ; V2.2
<i>Sorghum bicolor</i>	https://phytozome.jgi.doe.gov ; V3.1
<i>Zea mays</i>	https://phytozome.jgi.doe.gov ; V4
<i>Vitis vinifera</i>	https://phytozome.jgi.doe.gov ; V2.1
<i>Theobroma cacao</i>	https://phytozome.jgi.doe.gov ; V2.1
<i>Arabidopsis thaliana</i>	https://www.arabidopsis.org ; TAIR10
<i>Malus domestica</i>	https://phytozome.jgi.doe.gov ; V1.1
<i>Prunus persica</i>	Genome Database for Rosaceae, V2.0.a1
<i>Fragaria vesca</i>	Genome Database for Rosaceae, V4.2
<i>Glycine max</i>	https://phytozome.jgi.doe.gov ; V4.1
<i>Populus trichocarpa</i>	https://phytozome.jgi.doe.gov ; V4.1
<i>Solanum tuberosum</i>	https://phytozome.jgi.doe.gov ; V6.1
<i>Solanum lycopersicum</i>	https://phytozome.jgi.doe.gov ; V4.0