

Table 1

Number and Total Amount (in Kilobases) of NUPTs and NUMTs in the Available Nuclear Genome Sequences from Plastid-Harboring Eukaryotes

Taxon	Number of Plastids per Cell	Number of Mitochondria per Cell	NUPTs			NUMTs		
			Number of Blast Hits ^a	Accumulative Length (kb)	Average Length (kb)	Number of Blast Hits ^a	Accumulative Length (kb)	Average Length (kb)
Land plants								
<i>Arabidopsis thaliana</i>	Multiple	Multiple	332	50	0.15	1,173	549	0.46
<i>Brachypodium distachyon</i>	Multiple	Multiple	310	114	0.37	NA	NA	NA
<i>Carica papaya</i>	Multiple	Multiple	839	291	0.34	1,528	467	0.32
<i>Cucumis sativus</i>	Multiple	Multiple	751	265	0.35	NA	NA	NA
<i>Glycine max</i>	Multiple	Multiple	3,414	822	0.24	NA	NA	NA
<i>Medicago truncatula</i>	Multiple	Multiple	258	93.3	0.36	NA	NA	NA
<i>Oryza sativa</i> subsp. <i>indica</i>	Multiple	Multiple	1,541	782	0.50	2,544	818	0.32
<i>O. sativa</i> subsp. <i>japonica</i>	Multiple	Multiple	2,036	1,073	0.52	3,072	834	0.27
<i>Physcomitrella patens</i>	Effectively monoplastidic ^b	Multiple	31	5	0.16	294	74	0.25
<i>Populus trichocarpa</i>	Multiple	Multiple	2,036	428	0.30	NA	NA	NA
<i>Selaginella moellendorffii</i>	Effectively monoplastidic ^b	Multiple	114	11.4	0.10	NA	NA	NA
<i>Sorghum bicolor</i>	Multiple	Multiple	1,574	329	0.20	1,957	406	0.20
<i>Vitis vinifera</i>	Multiple	Multiple	3,858	801	0.20	2,357	602	0.25
Green algae								
<i>Chlamydomonas reinhardtii</i>	Single	Multiple	35	1.9	0.05	35	3.3	0.09
<i>Coccomyxa</i> sp. C-169	Single	Single	73	7.5	0.10	107	12	0.11
<i>Ostreococcus</i> sp. RCC809	Single	Single	0	0	0	0	0	0
<i>Ostreococcus tauri</i>	Single	Single	4	0.6	0.17	2	0.6	0.31
<i>Micromonas pusilla</i>	Single	Single	3	0.5	0.16	0	0	0
<i>Micromonas</i> sp. RCC299	Single	Single	3	0.6	0.20	0	0	0
<i>Volvox carteri</i> f. <i>nagariensis</i>	Single	Multiple	1,100	65	0.12	802	33	0.09
Red alga								
<i>Cyanidioschyzon merolae</i>	Single	Single	2	0.37	0.18	0	0	0
Apicomplexans								
<i>Babesia bovis</i>	Single	Single	0	0	0	0	0	0
<i>Eimeria tenella</i>	Single	Single	31	2.8	0.09	NA	NA	NA
<i>Plasmodium falciparum</i>	Single	Single	2	0.11	0.05	2	0.11	0.05
<i>Theileria parva</i>	Single	Single	0	0	0	0	0	0
<i>Toxoplasma gondii</i>	Single	Single	77	10.3	0.03	NA	NA	NA
Haptophyte								
<i>Emiliania huxleyi</i>	1–2	Single	2	0.15	0.07	2	0.1	0.05
Stramenopiles								
<i>Aureococcus anophagefferens</i>	Single	Single	0	0	0	NA	NA	NA
<i>Phaeodactylum tricornutum</i>	Single	Multiple	14	4	0.29	NA	NA	NA
<i>Thalassiosira pseudonana</i>	1–2	Multiple	8	1.6	0.20	0	0	0

NOTE.—NA—data not available (i.e., mitochondrial genome has not been sequenced; thus, we were unable to search the nuclear DNA for NUMTs).

^a Blast parameters were as follows: BlastN (version 2.2.23) with an expectation value of 0.0001; a word size of 11; match and mismatch scores of 2 and -3, respectively; and gap cost values of 5 (existence) and 2 (extension). Multiple organelle DNA hits to the same nuclear DNA regions were counted only once. Regions of nuclear DNA that contained tight clusters of NUPTs/NUMTs (i.e., sections of organelle-like DNA interrupted by genomic sequence that did not show sequence identity to organelle DNA) were not counted as a single NUPT/NUMT but as separate hits. See supplementary table S3 (Supplementary Material online) for references and notes on the number of organelles per cell.

^b *S. moellendorffii* and *P. patens* both contain cells that are polyplastidic, but for the purpose of this study, they are considered "effectively monoplastidic" because mitosis and meiosis only occurs in cells that contain a single plastid (Brown and Lemmon 1990).