**Supplementary Table.** Species, strains, and genes used in the phylogenetic analyses. The sequences of accession numbers for *Paludistella* 18S *r*DNA include the ITS sequences.

|  |  |  |  |
| --- | --- | --- | --- |
| **Genus/clade** Species (Strain) | Accession number | | |
| 18S *r*RNA (Strain) | *atp*B (Strain) | *psa*B (Strain) |
| ***Paludistella***  *Paludistella chlorostellata*  (SAG 12.72)  *Paludistella asymmetrica*  (SAG 19.88)  *Paludistella meslinii*  (SAG 75.81)  *Paludistella trianguloculus*  (NIES-4318)  *Paludistella trianguloculus*  (NIES-4317) | MK696129  MK696130  MK696131  MK696132  MK696133 | MK650458  MK650459  MK650460  MK650461  MK650462 | MK650453  MK650454  MK650455  MK650456  MK650457 |
| **CR clade (*Chloromonas* s.s.)** |  |  |  |
| *Chloromonas chlorococcoides* (SAG 15.82) | AJ410449 | AB624580 | AB624595 |
| *Chloromonas reticulata* (UTEX 1970) | U70791 | AB084312 | AB084346–7 |
| *Chloromonas rosae* (SAG 51.72 = UTEX 1337) | AB624565 (SAG 51.72) | AB084315 (UTEX 1337) | AB084350–1 (UTEX 1337) |
| *Chloromonas typhlos* (SAG 26.86 = UTEX 1969) | AB624566 (SAG 26.86) | AB084307 (UTEX 1969) | AB084341 (UTEX 1969) |
|  |  |  |  |
| ***Gloeomonas*** |  |  |  |
| *Gloeomonas rubrifilum* (SAG 3.85) | AJ410455 | AB504758 | AB504770 |
| *Gloeomonas tubulosa*  (ACOI-1541) | AB971360 | LC437937 (unpublished) | LC437941 (unpublished) |
| *Gloeomonas* sp. (TkS1601B4 [= NIES-4283]) | LC437935 (unpublished) | LC437936 (unpublished) | LC437940 (unpublished) |
|  |  |  |  |
| ***Ixipapillifera*** |  |  |  |
| *Ixipapillifera deasonii* (SAG 46.72) | AJ410446 | AB101503 | AB101514 |
| *Ixipapillifera pauromitos* (EbCl-16 = NIES-3707) | LC057290 (EbCl-16) | LC360487 (NIES-3707) | LC360491 (NIES-3707) |
|  |  |  |  |
| **CA clade** |  |  |  |
| *Chloromonas asteroidea* (SAG 11-47) | U70783 | AB084808 | AB084342 |
| *Chloromonas radiata* (UTEX 966) | U57697 | AB084311 | AB084345 |
|  |  |  |  |
| **SA clade** |  |  |  |
| *Chloromonas chenangoensis* (UTEX SNO150) | AB906341 | AB906360 | AB906371 |
| *Chloromonas krienitzii* (NIES-3753) | LC012712 | LC012720 | LC012728 |
| *Chloromonas miwae* (NIES-2379) | AB906350 | AB906369 | AB906380 |
| *Chloromonas tughillensis* (UTEX SNO91)  *Chloromonas nivalis*  (UTEX SNO71) | AB906348  LC360465 | AB906367  LC360484 | AB906378  LC360488 |
|  |  |  |  |
| **Other *Chloromonadinia* species** |  |  |  |
| *Chloromonas augustae* (SAG 5.73) | AJ410452 | AB504757 | AB504769 |
| *Chloromonas kasaiae* (EbCl-8 [= NBRC 109389 = NIES-2862]) | AB734109 | AB734110 | AB734111 |
| *Chloromonas pseudoplatyrhyncha* (HjCl-3 [= NIES-2563]) | AB548689 | AB548690 | AB548691 |
| *Chloromonas serbinowii* (SAG 11.84) | Unpublished | AB084317 | AB084354 |
| *Chloromonas vernalis* (ACOI-3241) | AB971361 | LC437939 (unpublished) | LC437943 (unpublished) |
|  |  |  |  |
| **Outgroup** |  |  |  |
| *Chlamydomonas reinhardtii* (CC-620, CC-503) | JX888471 (CC-620) | FJ423446 (CC-503) | FJ423446 (CC-503) |
| *Chlorogonium euchlorum* (CCAP 12/3) | AB278604 | AB084328 | AB084369 |
| *Oogamochlamys gigantea* (SAG 44.91) | AJ410465 | KT625412 | KT625412 |