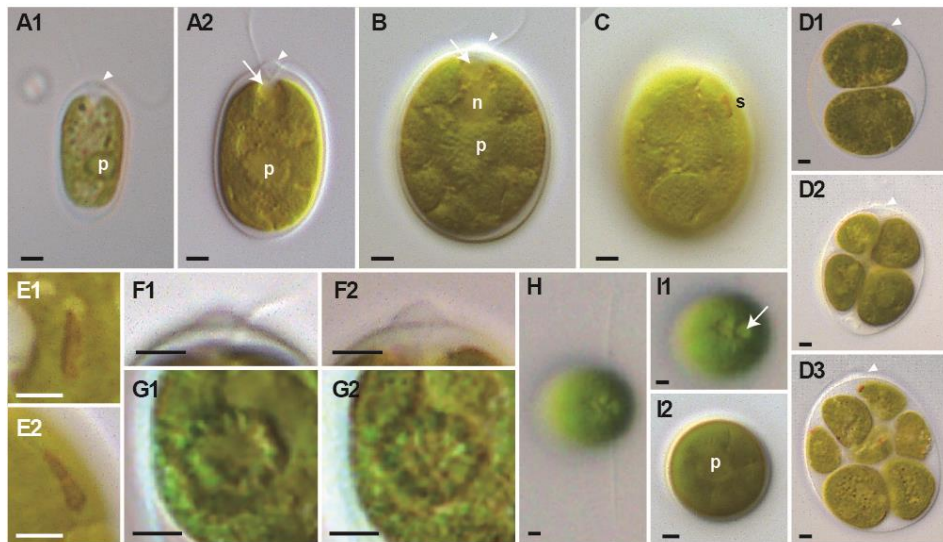
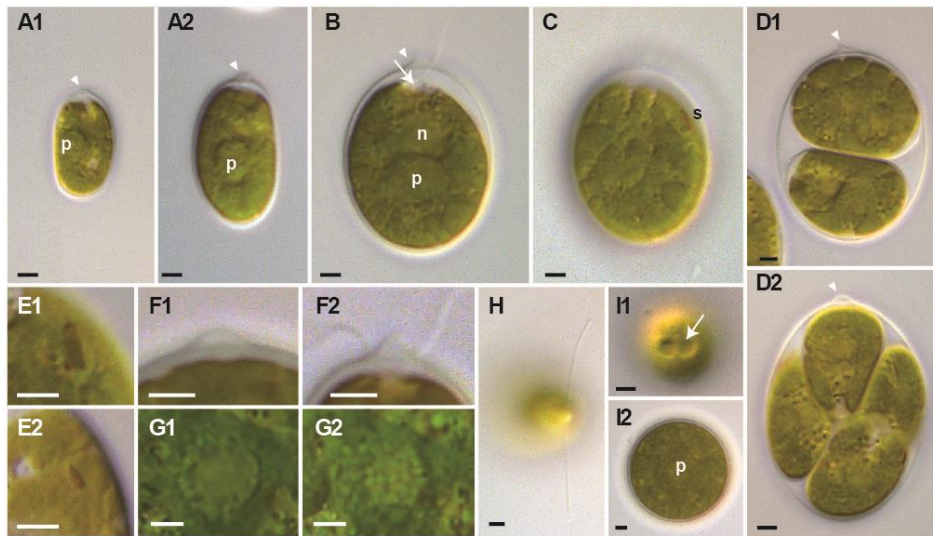


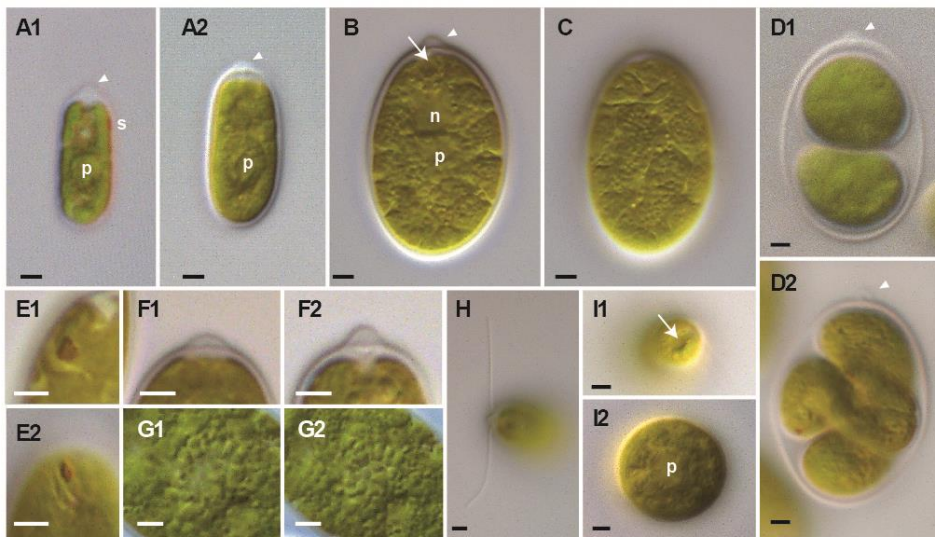
**FIGURE 1.** Light microscopy of *Paludistella meslinii* (SAG 75.81). A young cell (A), optical section (B) and cell surface (C) of mature cells (B and C1 are the same cell), zoosporangium including two (D1) or four (D2) daughter cells, filiform stigma (E), hemispherical to conical papilla (F), optical section (G1) and surface (G2) of a pyrenoid, equal two flagella (H), top view with contractile vacuoles (I1) and optical cross section (I2) of cells. Arrowheads indicate the papillae and arrows indicate contractile vacuoles. n = nucleus, p = pyrenoid, s = stigma. Scale bars = 2  $\mu$ m.



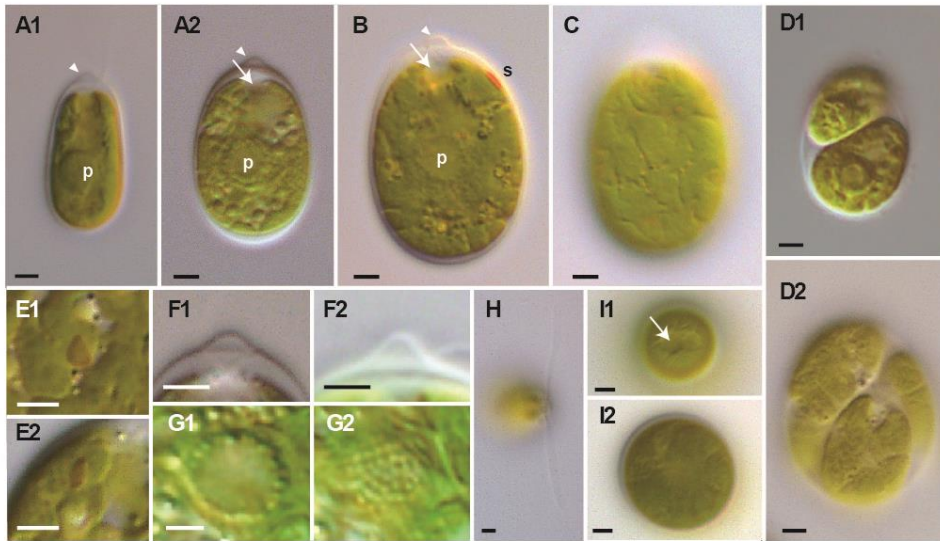
**FIGURE 2.** Light microscopy of *Paludistella chlorostellata* (SAG 12.72). Young cells (A), optical section (B) and cell surface (C) of a mature cell, zoosporangium including two (D1), four (D2) or eight (D3) daughter cells, oblong stigmata (E), hemispherical to conical papillae (F), optical section (G1) and surface (G2) of a pyrenoid, equal two flagella (H), top view with contractile vacuoles (I1) and optical cross section (I2) of cells. For abbreviations, see the legend to Figure 1. Scale bars = 2  $\mu$ m.



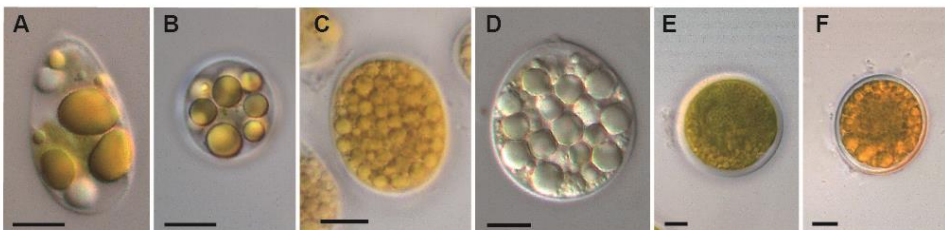
**FIGURE 3.** Light microscopy of *Paludistella asymmetrica* (SAG 19.88). Young cells (A), optical section (B) and cell surface (C) of a mature cell, zoosporangium including two (D1) or four (D2) daughter cells, oblong to small elliptical stigmata (E), hemispherical to conical papilla (F), optical section (G1) and surface (G2) of the pyrenoids, equal two flagella (H), top view (I1) and optical cross section (I2) of cells. For abbreviations, see the legend to Figure 1. Scale bars = 2  $\mu$ m.



**FIGURE 4.** Light microscopy of *Paludistella trianguloculus* (NIES-4317). Young cells (A), optical section (B) and cell surface (C) of a mature cell, zoosporangium including two (D1) or four (D2) daughter cells, triangular to elliptical stigmata (E), hemispherical to conical papilla (F), optical section (G1) and surface (G2) of the pyrenoids, equal two flagella (H), top view with contractile vacuole (I1) and optical cross section (I2) of cells. For abbreviations, see the legend to Figure 1. Scale bars = 2  $\mu$ m.

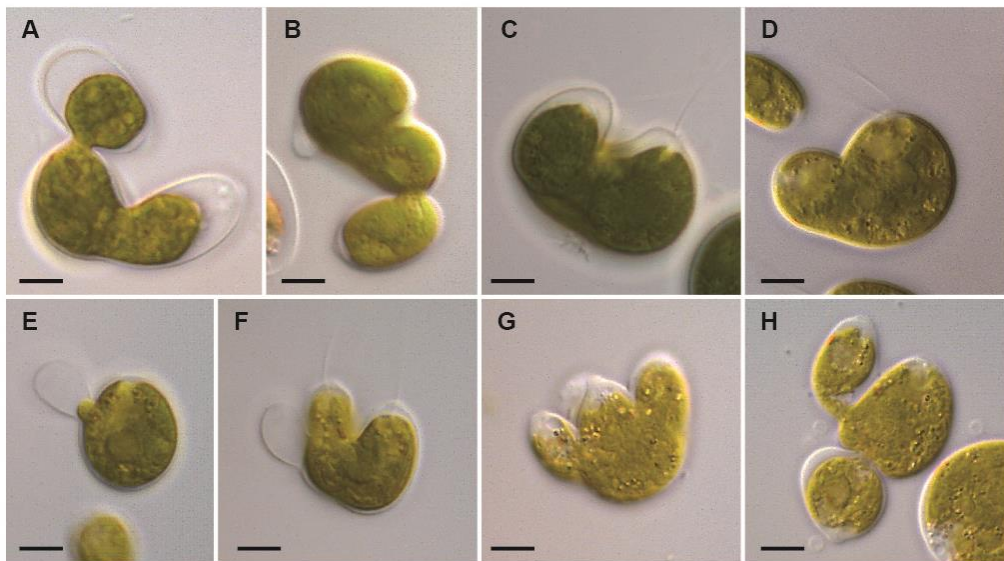


**FIGURE 5.** Light microscopy of *Paludistella trianguloculus* (NIES-4318). Young cells (A), optical section (B) and cell surface (C) of a mature cell, zoosporangium including two (D1) or four (D2) daughter cells, triangular to elliptical stigmata (E), hemispherical to conical papilla (F), optical section (G1) and surface (G2) of a pyrenoid, equal two flagella (H), top view with contractile vacuole (I1) and optical cross section (I2) of cells. For abbreviations, see the legend to Figure 1. Scale bars = 2  $\mu\text{m}$ .

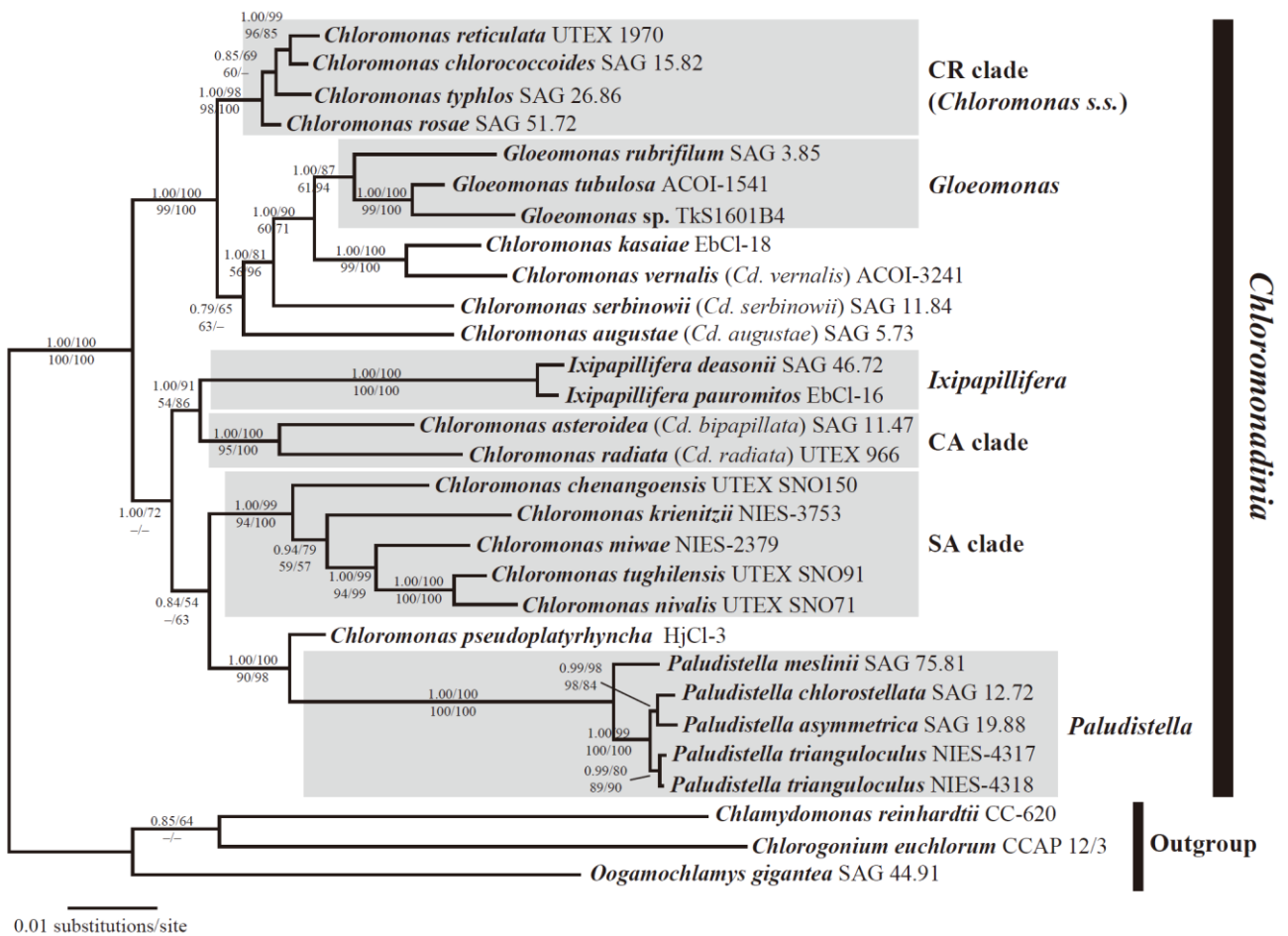


**FIGURE 6.** Light microscopy of the old cells storing oil droplets of *Paludistella meslinii* (SAG 75.81) (A), *P. chlorostellata* (SAG 12.72) (B), *P. trianguloculus* NIES-4317 (C) and NIES-4318 (D). The akinetes of *P. asymmetrica* (SAG 19.88) (E, F). Scale bars = 5  $\mu\text{m}$ .

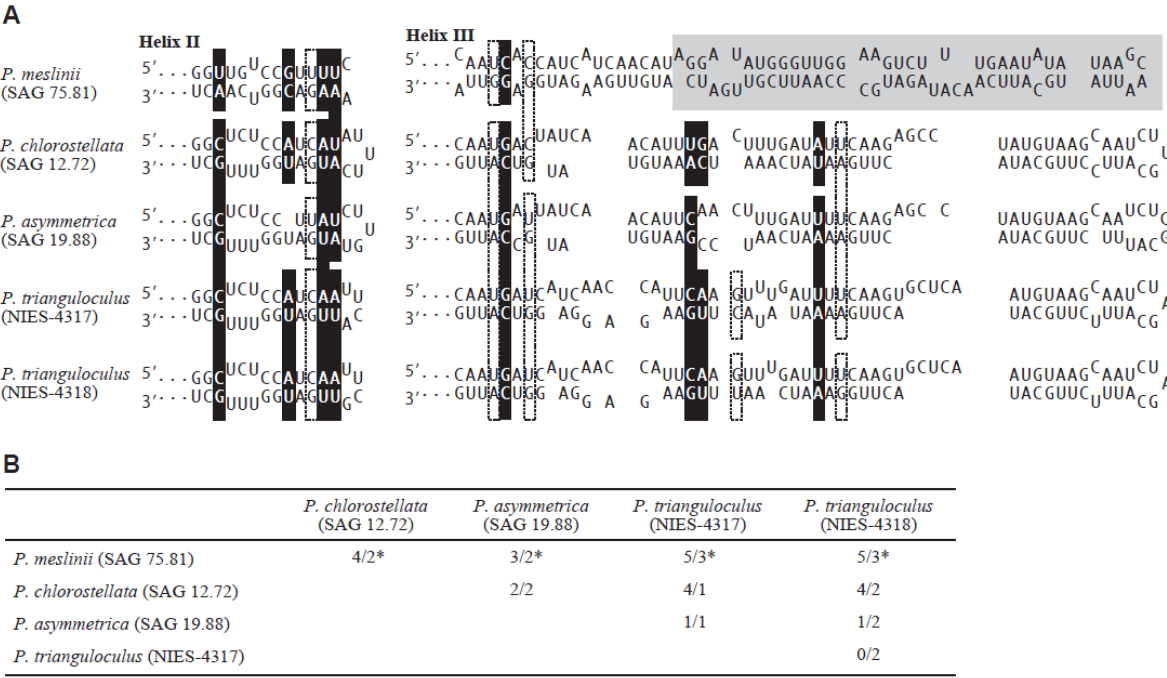




**FIGURE 7.** Light microscopy of the unusual cell divisions of *Paludistella*. *P. meslinii* (SAG 75.81) (A), *P. chlorostellata* (SAG 12.72) (B), *P. asymmetrica* (SAG 19.88) (C), *P. trianguloculus* (NIES-4317) (D), *P. trianguloculus* (NIES-4318) (E–H). Scale bars = 5  $\mu$ m.



**FIGURE 8.** Bayesian phylogenetic tree of *Chloromonadinia* based on 18S *rDNA*, *atpB* and *psaB*. Numbers at nodes indicate posterior probabilities ( $\geq 0.90$ , top left) and bootstrap proportions ( $\geq 50\%$ ) for ML (top right), MP (bottom left) and ME (bottom right) analyses.



**FIGURE 9. (A)** The predicted secondary structures of ITS-2 *r*DNA helices II and III in *Paludistella* strains. The positions marked black and dashed boxes indicate the presence of CBC and hemi-CBC respectively. The incomparable positions of SAG75.81 to other strains is marked gray. **(B)** The numbers of CBCs/hemi-CBCs among the ITS-2 *r*DNA sequences of *Paludistella* strains. \* means numbers excluding the most part of helix III (marked gray in A).