Table S1. Information on aquatic strains is presented: taxonomy at species level, sampling location (origin), the location on Figure 1 (#), culture medium (freshwater: MWC, brackish-water: f2 25%, sea-water: f2 100%), growth temperature (T) and the capacity of revival assessed over four months after freezing (Revival).

Strain	Phylum	Species	Origin	#	Medium	T [°C]	Revival
Cryptomonas	Cryptophytes	*Cryptomonas sp.*	Lake Highway, Antarctica [A]	1	F2 25%	4	no
GS1103-12	Raphidophytes	*Gonyostomum semen*	Minnesota, USA [B]	3	MWC	20	no
GSDA-04	Raphidophytes	*Gonyostomum semen*	Dagstorpssjön, Sweden [C]	13	MWC	20	no
GSJE-09	Raphidophytes	*Gonyostomum semen*	Jelino, Poland [D]	7	MWC	20	no
GSNO-10	Raphidophytes	*Gonyostomum semen*	Nobleboro, USA [E]	4	MWC	20	no
GSNO-12	Raphidophytes	*Gonyostomum semen*	Nobleboro, USA [E]	4	MWC	20	no
GSNO-18	Raphidophytes	*Gonyostomum semen*	Nobleboro, USA [E]	4	MWC	20	no
GSNO-28	Raphidophytes	*Gonyostomum semen*	Nobleboro, USA [E]	4	MWC	20	no
GSNO-35	Raphidophytes	*Gonyostomum semen*	Nobleboro, USA [E]	4	MWC	20	no
GSPA-08	Raphidophytes	*Gonyostomum semen*	Pabezdninkai, Lithuania [F]	8	MWC	20	no
GSPA-23	Raphidophytes	*Gonyostomum semen*	Pabezdninkai, Lithuania [F]	8	MWC	20	no
PABR-04	Dinoflagellates	*Peridinium aciculiferum*	Brodammen, Sweden [G]	10	MWC	4	yes
PABR-05	Dinoflagellates	*Peridinium aciculiferum*	Brodammen, Sweden [G]	10	MWC	4	no
PACO-11	Dinoflagellates	*Peridinium aciculiferum*	Copenhagen, Denmark [A]	9	MWC	4	yes
PAER-01	Dinoflagellates	*Peridinium aciculiferum*	Lake Erken, Sweden [G]	14	MWC	4	no
PAER-02	Dinoflagellates	*Peridinium aciculiferum*	Lake Erken, Sweden [G]	14	MWC	4	no
PAER-03	Dinoflagellates	*Peridinium aciculiferum*	Lake Erken, Sweden [G]	14	MWC	4	no

[A] Rengefors laboratory, [B] Lebret *et al.,* 2015, [C] Johansson *et al.,*2016, [D] Pęczuła, Poniewozik & Szczurowska 2013, [E] isolated by Rengefors K, [F] Karosienė *et al.,*2016, [G] Logares *et al.,*2009, [H] isolated by Logares R, [I] isolated by Björnerås C, [J] Rengefors, Logares & Laybourn-Parry 2012, [K]isolated by Kremp A. *Apocalathium malmogiense* previously referred as *Scrippsiella hangoei* (Craveiro et al.,2016).

PAER-08	Dinoflagellates	*Peridinium aciculiferum*	Lake Erken, Sweden [G]	14	MWC	4	no
PASP-01	Dinoflagellates	*Peridinium aciculiferum*	Stora Pildammen, Sweden [G]	11	MWC	4	no
PASP-02	Dinoflagellates	*Peridinium aciculiferum*	Stora Pildammen, Sweden [G]	11	MWC	4	yes
PASP-03	Dinoflagellates	*Peridinium aciculiferum*	Stora Pildammen, Sweden [G]	11	MWC	4	yes
PASP-04	Dinoflagellates	*Peridinium aciculiferum*	Stora Pildammen, Sweden [G]	11	MWC	4	yes
PB2-202a	Dinoflagellates	*Peridinium baicalense*	Lake Baikal, Russia [A]	6	MWC	4	no
PGAbrC	Dinoflagellates	*Polarella glacialis*	Lake Abraxas, Antarctica [G]	1	F2 100%	4	no
PGCCMP-1383	Dinoflagellates	*Polarella glacialis*	Ross Sea [G]	2	F2 100%	4	yes
PGCCMP-2088	Dinoflagellates	*Polarella glacialis*	Baffin Bay, Arctic [G]	5	F2 100%	4	yes
PGWI	Dinoflagellates	*Polarella glacialis*	Lake Williams, Antarctica [H]	1	F2 100%	4	no
S3-188	Cyanobacteria	*Microcystis sp.*	Lake Vombsjön, Sweden [I]	12	MWC	20	no
S4-16	Cyanobacteria	*Microcystis sp.*	Lake Vombsjön, Sweden [I]	12	MWC	20	no
SHAB-T35	Dinoflagellates	*Apocalathium malmogiense*	Lake Abraxas, Antarctica [J]	1	F2 25%	4	yes
SHLL-07	Dinoflagellates	*Apocalathium malmogiense*	Östersjön, Finland [K]	15	F2 25%	4	yes
SHVE-74	Dinoflagellates	*Apocalathium malmogiense*	Lake Vereteno, Antarctica [J]	1	F2 25%	4	yes

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