

## Supplementary Material

**Table S1.** Primers sequences used in this study.

Target	Name	Sequence 5 -> 3	PCR product bp	Ref
<i>Marteilia refringens</i>	Pr4	CCGCACACGTTCTTCACTCC	412	[22]
	Pr5	CTCGCGAGTTTCGACAGACG		
<i>B. exitiosa</i> / <i>B. ostrae</i>	Bo	CATTTAATTGGTCGGGCCGC	300	[58]
	Boas	CTGATCGTCTTCGATCCCC		
<i>Candidatus Xenohali- otis californiensis</i>	RA 3.6	ACTTGGACTCATTCAAAAGCGGA	160	[67]
	RA 5-1	GTTGAACGTGCCTTCAGTTTAC		
<i>P. marinus</i> / <i>P. olsenii</i>	PerKITS85	CCGCTTTGTTTGGATCCC	703	[68]
	PerKITS750	ACATCAGGCCTTCTAATGATG		
OsHV-1	C5	CCGTGACTTCTATGGGTATGTCAG	765	[56]
	C13	CCTCGAGGTAGCTTTTGTCAAG		
	C2	CTCTTTACCATGAAGATACCCACC	352	
	C4	GCAGTTGTGGTATACTCGAGATTG		
HVA b	ORF77F1	CAACCACTTGTTTCGGGTTCT	190	[69]
	ORF77R1	CAGGGTGATTAATGCCGAGT		
	ORF77 Probe	FAM-TCCGTACGCGGGATCTTCGT -TAMRA		
<i>Mytilus chilensis</i>	Me15	CCAGTATACAAACCTGTGAAGA	126	[70]
	Me16	TGTTGTCTTAATAGGTTTGTGAAGA		
Eukaryotic V4 re- gion	E27F	TCGTCGGCAGCGTCAGATGTGTATAAGAGA- CAGCYGCGGTAATTCCAGCTC		[71]
	E1009R	GTCTCGTGGGCTCGGAGATGTGTATAAGAGA- CAGAYGGTATCTRATCRTCCTTYG		

**Table S2.** Primers concentration and PCR conditions used in this study.

Primer Fwd/Rv	Primer $\mu$ M	Probe $\mu$ M	Annealing Tm $^{\circ}$ C	Time (Sec)	N° Cycles
Bo / Boas	1.0		55	60	35
Pr4 / Pr5	1.0		55	60	40
ORF77F1 / ORF77R1 / Probe	0.3	0.1	60	30	40
RA 3.6 / RA 5.1	0.3		62	60	30
C2 / C6	0.2		50	60	35
PerKITS86 / PerKITS750	0.1		55	60	40
Me15/Me16	0.1		56	30	30

**Table S3.** Relative abundance (%) of sequences in gut assigned to different families.

Taxa	WT1	WT2	MF1	MF2	MF3
<i>Pteriomorphia</i>	68.8551154	65.9160075	78.0093741	79.0261738	76.2784822
Not_assigned	20.3056609	20.1256088	20.8194826	20.7619244	22.4752859
<i>Peridiniales</i>	7.61998297	12.218167	0.07290959	0.0360853	0.3309753
<i>Copepoda</i>	0.98744988	0.00402961	0.00970951	0.03910566	0.21807799
<i>Mediophyceae</i>	0.55033979	0.45208408	0.02471511	0.00524588	0.0580423
<i>Ebriacea</i>	0.33119192	0.42713886	0.00123576	0	0.00939413
<i>Coscinodiscophytina</i>	0.25037002	0.16214391	0	0	0
<i>Bacillariophyceae</i>	0.1389188	0.0544957	0.00070615	0	0.00553583
<i>Melosirids</i>	0.13220011	0.08961089	0	0	0
<i>Thoracosphaeraceae</i>	0.12350534	0.07330056	0.0164179	0	0.07649505
<i>Syndiniales</i>	0.12073882	0.04777968	0.06320008	0.01859903	0.17932721
<i>Chlorophyceae</i>	0.08576211	0.04566893	0	0	0
<i>Sphaeropleales</i>	0.07904342	0.07234113	0	0	0
<i>Diatomea</i>	0.06382756	0.04048801	0	0	0
<i>Trebouxiophyceae</i>	0.04920453	0.05257684	0	0	0.00402606
<i>Cryptomycota</i>	0.04367149	0.02264258	0	0	0
<i>Bacillariophytina</i>	0.03576715	0.01765354	0	0	0
<i>Collodaria</i>	0.0324078	0	0	0	0
<i>Thecofilosea</i>	0.0278628	0.0055647	0.0019419	0	0.00218078
<i>Suessiaceae</i>	0.02647954	0	0.00547263	0.00238449	0.04227358
<i>Phragmoplastophyta</i>	0.0162039	0	0	0	0
<i>Prasinophytiae</i>	0.01561107	0.01592656	0	0	0
<i>Abeoformidae</i>	0.0114613	0.00940243	0.00441341	0	0.00989739
<i>Fragilariales</i>	0.0114613	0.00307018	0	0	0
<i>Pyramimonadales</i>	0.00968282	0	0	0	0

<i>Monogononta</i>	0.00790434	0.00364584	0.03618999	0	0.02516285
<i>Dipodascaceae</i>	0.00770673	0	0	0	0
<i>Gymnodinium_clade</i>	0.00731152	0.00307018	0	0	0
<i>Emiliana</i>	0.00592826	0.00115132	0	0	0.00570358
<i>Oligohymenophorea</i>	0.00592826	0	0	0	0
<i>Chromulinales</i>	0.004545	0	0	0	0
<i>Olpidiopsis</i>	0.00434739	0	0	0	0
<i>Myrtales</i>	0.00414978	0	0	0	0
<i>Pseudoperkinsidae</i>	0.00414978	0	0	0.00222553	0.00603908
<i>Ceratostomataceae</i>	0.00395217	0	0	0	0
<i>Ophiocordycipitaceae</i>	0.00395217	0	0	0	0
<i>Saccharomycetaceae</i>	0.00355695	0	0	0	0
<i>Colpodellida</i>	0.00335935	0.00671602	0	0	0
<i>Paulinellidae</i>	0.00296413	0.00230264	0	0	0
<i>Thraustochytriaceae</i>	0.00256891	0.00172698	0	0	0.0035228
<i>Neopterygii</i>	0.00197609	0	0	0	0
<i>Prostomatea</i>	0.00177848	0	0	0	0
<i>Hydroidolina</i>	0	0.00076755	0.44875586	0.10014863	0.14409923
<i>Gastropoda</i>	0	0	0.25050534	0	0
<i>Thecostraca</i>	0	0	0.09144592	0	0
<i>Scolecida</i>	0	0.00345395	0.05949281	0	0
<i>Heteroconchia</i>	0	0	0.04219223	0	0.02734363
<i>Araucariales</i>	0	0.02916671	0.01659443	0	0
<i>Spumellaria</i>	0	0	0.00847375	0	0
<i>Chromadorea</i>	0	0.01554279	0.00564917	0	0
<i>Palpata</i>	0	0.00479716	0.00476649	0	0
<i>Tetrapoda</i>	0	0	0.0019419	0	0.00067101
<i>Rhodymeniophycidae</i>	0	0.00345395	0.00176537	0	0
<i>Protaspidae</i>	0	0	0.00141229	0	0.02482734
<i>Echinodermata</i>	0	0	0.00123576	0	0
<i>Apiosporaceae</i>	0	0	0	0	0.0070456
<i>Asciidiacea</i>	0	0.01228072	0	0	0
<i>Basal_Group_T</i>	0	0.00249452	0	0	0
<i>Capsasporidae</i>	0	0	0	0	0.00134202
<i>Chlamydomonadales</i>	0	0.00019189	0	0	0
<i>Chlorodendrales</i>	0	0	0	0	0.03103418
<i>Choreotrichia</i>	0	0.00402961	0	0	0
<i>Chytridiomycetes</i>	0	0.00307018	0	0	0
<i>Clade_L</i>	0	0.00057566	0	0	0
<i>Cyphoderiidae</i>	0	0.00767545	0	0	0

<i>Eugregarinorida</i>	0	0.00211075	0	0	0
eukaryote_marine_clone_ME1-24	0	0	0	0	0.00285179
<i>Eustigmatales</i>	0	0.00076755	0	0	0
<i>Glissomonadida</i>	0	0	0	0.00063586	0
<i>Incertae_Sedis</i>	0	0.0209156	0	0	0
<i>Ochromonadales</i>	0	0.00057566	0	0	0
<i>Peregriniidae</i>	0	0.00076755	0	0	0
<i>Peridiniphyctidae</i>	0	0	0	0	0.02902115
<i>Perkinsidae</i>	0	0.00153509	0	0	0
<i>Pezizomycotina</i>	0	0.00882677	0	0	0
<i>Sorodiplophrys</i>	0	0.00095943	0	0	0
<i>Spermatophyta</i>	0	0.00172698	0	0	0
<i>Spirotrichea</i>	0	0	0	0.00747141	0
uncultured_eukaryote	0	0	0	0	0.00134202

**Table S4.** Relative abundance (%) of sequences in gut assigned to different genera.

Taxa	WT1	WT2	MF1	MF2	MF3
<i>Mytiloida</i>	68.8541274	65.9160075	78.0093741	79.0261738	76.2784822
Not_assigned	20.5198686	20.3244029	20.8553195	20.7619244	22.4967582
<i>Heterocapsa</i>	7.42474573	12.0136163	0	0	0
<i>Calanoida</i>	0.90346625	0.00402961	0.00970951	0.02305008	0.21807799
<i>Ebria</i>	0.33119192	0.42713886	0.00123576	0	0.00939413
<i>Thalassiosira</i>	0.33040148	0.30394787	0	0.00381519	0.03657
<i>Actinocyclus</i>	0.17270987	0.11858572	0	0	0
<i>Amphidiniopsis</i>	0.11955317	0.07464376	0	0	0
<i>Syndiniales_Group_I</i>	0.10611579	0.02532899	0.06320008	0.0178042	0.17932721
<i>Cyclotella</i>	0.09900188	0.09805389	0	0	0
<i>Navicula</i>	0.09603775	0.01093752	0	0	0.00553583
<i>Melosira</i>	0.0855645	0.07713828	0	0	0
<i>Monstrilloida</i>	0.07034864	0	0	0	0
<i>Scrippsiella</i>	0.06817495	0.04662837	0.0164179	0	0.06257161
<i>Coscinodiscophytina</i>	0.06382756	0.04048801	0	0	0
<i>Minutocellus</i>	0.06204908	0.03338821	0	0	0
<i>Coscinodiscus</i>	0.05651604	0.02974237	0	0	0
<i>Aulacoseira</i>	0.04663562	0	0	0	0
LKM11	0.04367149	0.02264258	0	0	0
<i>Bacillariophyceae</i>	0.03576715	0.01765354	0	0	0
<i>Siphonosphaera</i>	0.0324078	0	0	0	0
uncultured_Chlorophyta	0.03023411	0.00441338	0	0	0
<i>Chlamydomonas_sp._NIES-3904</i>	0.0300365	0.03204501	0	0	0

<i>Pfiesteria</i>	0.02904846	0.0097862	0	0	0
<i>Coelastrum</i>	0.02746759	0.02225881	0	0	0
<i>Desmodesmus</i>	0.02608433	0.03108558	0	0	0
<i>Symbiodinium</i>	0.02529389	0	0	0	0
<i>Archaeoperidinium</i>	0.02470107	0.0195724	0.07290959	0.0360853	0.26739717
<i>Rhaphoneis</i>	0.02430585	0	0	0	0
<i>Durinskia</i>	0.02193455	0.02974237	0	0	0
<i>Actinoptychus</i>	0.02114411	0.01381581	0	0	0
<i>Zygnematophyceae</i>	0.0162039	0	0	0	0
<i>Peridinium</i>	0.01561107	0.00921054	0	0	0
<i>Pseudo-nitzschia</i>	0.01561107	0.04010423	0	0	0
<i>Cyclopoida</i>	0.01363499	0	0	0	0
<i>Diplopsalis</i>	0.01343738	0.02494522	0	0	0
<i>Chaetoceros</i>	0.01185651	0.00575659	0.00300112	0	0.00872312
<i>Fragilaria</i>	0.0114613	0.00307018	0	0	0
<i>Marine_Ichthyosporeans_1</i>	0.0114613	0.00940243	0	0	0
uncultured_eukaryote	0.01027564	0.0237939	0	0	0.00218078
<i>Pterosperma</i>	0.00968282	0	0	0	0
<i>Syndiniales_Group_II</i>	0.00869478	0.00537282	0	0.00079483	0
<i>Ploimida</i>	0.00790434	0.00364584	0.03618999	0	0.02516285
<i>Saprochaete</i>	0.00770673	0	0	0	0
uncultured	0.00632347	0.01036186	0.01041566	0	0.00218078
<i>Emiliana_huxleyi_CCMP1516</i>	0.00592826	0.00115132	0	0	0.00570358
<i>Scuticociliatia</i>	0.00592826	0	0	0	0
<i>Golenkinia_sp._UTEX_931</i>	0.0047426	0.00249452	0	0	0
<i>Chromulina</i>	0.004545	0	0	0	0
<i>Eucalyptus</i>	0.00414978	0	0	0	0
<i>Pseudoperkinsus</i>	0.00414978	0	0	0.00222553	0.00167752
<i>Ophiocordyceps</i>	0.00395217	0	0	0	0
<i>Sphaerodes</i>	0.00395217	0	0	0	0
<i>Saccharomyces</i>	0.00355695	0	0	0	0
<i>Colpodella</i>	0.00335935	0	0	0	0
<i>Paulinella</i>	0.00296413	0.00230264	0	0	0
<i>Mychonastes</i>	0.0023713	0	0	0	0
uncultured_Trebouxiophyceae	0.00217369	0	0	0	0
<i>Teleostei</i>	0.00197609	0	0	0	0
<i>Cryptocaryon</i>	0.00177848	0	0	0	0
<i>Biecheleria</i>	0.00118565	0	0	0	0
<i>Chytridinium</i>	0.00098804	0	0	0	0
aca	0	0	0.00441341	0	0.00989739

<i>Amphora</i>	0	0.00287829	0	0	0
<i>Anthoathecata</i>	0	0.00076755	0.02065477	0	0
<i>Aplanochytrium</i>	0	0	0	0	0.0035228
<i>Arthrinium</i>	0	0	0	0	0.0070456
<i>Blastodinium</i>	0	0.00172698	0	0	0
<i>Caenogastropoda</i>	0	0	0.14528956	0	0
<i>Choreotrichia</i>	0	0	0	0.00747141	0
<i>Choricystis</i>	0	0.01918863	0	0	0
<i>Chromadorida</i>	0	0	0.00564917	0	0
<i>Cyphoderia</i>	0	0.00767545	0	0	0
D2P04A09	0	0.00076755	0	0	0
D3P05A02	0	0.00211075	0	0	0
<i>Dinobryon</i>	0	0.00057566	0	0	0
<i>Dothideomycetes</i>	0	0.00882677	0	0	0
<i>Echinoidea</i>	0	0	0.00123576	0	0
eukaryote_marine_clone_ME1-24	0	0	0	0	0.00285179
<i>Eunicida</i>	0	0	0.00476649	0	0
<i>Gracilaria</i>	0	0.00345395	0	0	0
<i>Harpacticoida</i>	0	0	0	0.01605557	0
<i>Heterobranchia</i>	0	0	0.10521577	0	0
<i>Heteromita</i>	0	0	0	0.00063586	0
<i>Hyalodiscus</i>	0	0.00076755	0	0	0
<i>Islandinium</i>	0	0	0	0	0.01576872
<i>Leptothecata</i>	0	0	0.42810108	0.10014863	0.14409923
<i>Mammalia</i>	0	0	0.0019419	0	0.00067101
Marine_Group	0	0	0	0	0.00134202
<i>Microglena</i>	0	0.00019189	0	0	0
<i>Monhysterida</i>	0	0.01055375	0	0	0
<i>Monoraphidium</i>	0	0.00172698	0	0	0
<i>Myoida</i>	0	0	0.02701009	0	0
<i>Nannochloropsis</i>	0	0.00076755	0	0	0
<i>Palpata_Incertae_Sedis</i>	0	0.00479716	0	0	0
<i>Parvilucifera</i>	0	0.00153509	0	0	0
<i>Pelagodinium</i>	0	0	0.00547263	0.00238449	0.04227358
<i>Peridiniales</i>	0	0	0	0	0.02902115
<i>Phycodryes</i>	0	0	0.00176537	0	0
<i>Pinophyta</i>	0	0.00172698	0	0	0
<i>Protaspis</i>	0	0	0.00141229	0	0.02482734
<i>Protoperidinium</i>	0	0	0	0	0.04780941
<i>Sessilia</i>	0	0	0.07290959	0	0

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<i>Skeletonema</i>	0	0	0.02171399	0.00143069	0.00570358
<i>Spionida</i>	0	0.00307018	0.05949281	0	0
<i>Stephanopyxis</i>	0	0.01170506	0	0	0
<i>Stolidobranchia</i>	0	0.01228072	0	0	0
<i>Tetraselmis</i>	0	0	0	0	0.03103418
<i>Triceratium</i>	0	0	0	0	0.0070456
<i>Tylenchida</i>	0	0.00498904	0	0	0
Uncultured_Cercozoa	0	0.00249452	0	0	0
Uncultured_Chlorella	0	0.00230264	0	0	0
Uncultured_Eimeriidae	0	0.00057566	0	0	0
Uncultured_labyrinthulid	0	0.00095943	0	0	0
<i>Veneroida</i>	0	0	0.01518214	0	0.02734363
<i>Westella</i>	0	0.00287829	0	0	0