

Supplementary Material

Indole-3-acetic acid is produced by *Emiliana huxleyi* coccolith-bearing cells and triggers a physiological response in bald cells

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Note about the supplementary tables:

Presence is determined initially by a bi-directional best hit (BBH) BLASTP hit with an E-value $< 1 \times 10^{-10}$ or less, with the correct functional prediction, using the characterized bacterial genes as queries for Suppl. Table 1 (p2), and plant *A. thaliana* gene as a query for Suppl. Table 2 (p10), followed by ESG functional prediction and OrthoMCL orthology.

(+) indicates that it matches all three criteria, (-/+) indicates it is absent in OrthoMCL, present in ESG, while (+/-) indicates presence in OrthoMCL, absence in ESG. Presence in OrthoMCL was determined if it had the same group as the seed sequence. Presence in ESG was determined if it fell in the same confidence interval as the seed sequence, where $>70\%$ indicates very high confidence, $>40\%$ indicates high confidence, $\geq 30\%$ indicates moderate confidence, and below 30% indicates below moderate confidence.

The following databases were searched: JGI (<http://genome.jgi.doe.gov/>) ^(a), <http://merolae.biol.s.u-tokyo.ac.jp/blast/blast.html> ^(b), <http://cyanophora.rutgers.edu/porphyridium/> ^(c), NCBI (<http://www.ncbi.nlm.nih.gov/>) ^(d), and OIST Marine Genomics Unit (<http://marinegenomics.oist.jp/genomes/gallery/>) ^(e). The abbreviations used for the enzyme can be described as follows: Tryptamine monooxygenase (YUCCA); Indole-3-acetamide hydrolase (AMI1); Tryptophan amino transferase (TAA1); Cytochrome P450s (CYP79B2 and CYP79B3); Indole-3-acetaldehyde oxidase (AAO1); Indole-acetaldoxime dehydratase (CYP71A13); Tyrosine decarboxy lase (TDC); Myrosinase (MYR1); C-S lyase (SUR1); CYP83B1 (SUR2); and Nitralase (NIT1).

Supplementary Table 1: Distribution of bacterial IAA biosynthesis genes in roseobacter and algal genomes

Enzyme	Nitrile Hydratase	Tryptophan mono-oxygenase	Indole-3-acetamide hydrolase	Indole-3-pyruvate decarboxylase	Indole-3-acetaldehyde dehydrogenase	Tryptophan decarboxylase	Copper amine/tyramine oxidase		
TERRESTRIAL									
<i>Agrobacterium tumefaciens</i> C58 ^d		AAD30489	AAD30488						
<i>Agrobacterium radiobacter</i> K84 ^d	ACM26968	ACM26967							
<i>Pseudomonas aeruginosa</i> PA7 ^d		ABR84797							
<i>Enterobacter cloacae</i> ^d	Accession #				P23234				
<i>Paenibacillus polymyxa</i> ^d					ABV24338				
<i>Ustilago maydis</i> FBI ^d						AAC49575			
<i>Catharanthus roseus</i> ^d							CAA47898		
<i>Enterobacter aerogenes</i> ^d								P49250	
<i>Klebsiella pneumoniae</i> ^d	AIE03299	AIE03300							
Ortho MCL	OG5_194743	NO_GROUP	OG5_130946	OG5_175845	OG5_129158, OG5_126899	OG5_126638	OG5_127644	OG5_127171	
ESG Molecular Function terms	indole-3-acetonitrile nitrile hydratase activity	indole-3-acetonitrile nitrile hydratase activity	L-amino-acid oxidase activity	glutaminyl-tRNA synthase (glutamine-hydrolyzing) activity,	pyruvate decarboxylase activity	oxidoreductase activity,	aromatic-L-amino-acid decarboxylase activity	copper ion binding	
ESG Confidence	89.60%	90.40%	100.00%	93%	53.80%	38.40%	43.50%	50.60%	
ROSEOBACTER									
<i>Ruegeria sp. R11</i> ^d	Accession #	EEB72184	EEB70836	-	WP_008560074	EEB71015	EEB70673	WP_008558890	-
	E-value	2.00E-86	2.00E-47	-	8.00E-33	3.00E-51	7.00E-113	4.00E-105	-
	Reciprocal e-value	3.00E-84	7.00E-42	-	0.00E+00	2.00E-57	2.00E-112	1.00E-100	-
	OrthoMCL	OG5_194743	NO_GROUP		OG5_127466	OG5_126899	OG5_131868	OG5_129065	
	ESG Confidence	89.40%	90.10%		92.00%	0.00%	48.10%	47.70%	-
	Presence	+	+	-	-/+	+/-	-/+	-/+	-

<i>Dinoroseobacter shibae</i> DFL 12 ^d	Accession #	WP_012178521	WP_012178520	-	WP_012179446	WP_012178451	WP_012177768	-	-
	E-value	3.00E-59	2.00E-10	-	8.00E-34	0.00E+00	2.00E-122	-	-
	Reciprocal e-value	5.00E-57	5.00E-09	-	1.00E-41	0.00E+00	2.00E-132	-	-
	OrthoMCL	OG5_194743	NO_GROUP	OG5_130946	OG5_127466	OG5_126899	OG5_126638		
	ESG Confidence	88.80%	87.50%	-	88.00%	0.00%	32.60%		-
	Presence	+	+	-	-/+	+/-	+	-	-
<i>Jannaschia sp. CCS1</i> ^d	Accession #	-	-	-	ABD56894	WP_044006611	WP_011456626	WP_011456620	-
	E-value	-	-	-	2.00E-54	0.00E+00	1.00E-119	5.00E-88	-
	Reciprocal e-value	-	-	-	4.00E-58	0.00E+00	2.00E-121	2.00E-90	-
	OrthoMCL				OG5_175845	OG5_126899	OG5_131868	OG5_129065	
	ESG Confidence				100.00%	0.00%	44.60%	46.90%	
	Presence	+	+	-	+	+/-	-/+	-/+	-
<i>Phaeobacter gallaeciensis</i> 2.10 ^d	Accession #	AFO88179	AFO88178	-	WP_014875196	WP_014875766	WP_014873197	WP_014873282	-
	E-value	5.00E-91	3.00E-42	-	1.00E-31	1.00E-50	3.00E-118	3.00E-108	-
	Reciprocal e-value	1.00E-88	3.00E-37	-	0.00E+00	1.00E-56	5.00E-122	1.00E-103	-
	OrthoMCL	OG5_194743	NO_GROUP		OG5_127466	OG5_126899	OG5_131868	OG5_129065	
	ESG Confidence	89.40%	89.90%		93.50%	0.00%	43.50%	47.10%	-
	Presence	+	+	-	-/+	+/-	-/+	-/+	-
<i>Phaeobacter gallaeciensis</i> DSM17395 (BS107) ^d	Accession #	AFO92073	WP_014880670	-	WP_014880496	WP_014880356	WP_014881318	WP_014881252	-
	E-value	1.00E-89	5.00E-57	-	3.00E-32	0.00E+00	2.00E-119	1.00E-107	-
	Reciprocal e-value	3.00E-87	3.00E-38	-	0.00E+00	0.00E+00	4.00E-123	4.00E-103	-
	OrthoMCL	OG5_194743	NO_GROUP		OG5_127466	OG5_126899	OG5_131868	OG5_129065	
	ESG Confidence	89.40%	89.40%		94.00%	0.00%	42.00%	40.70%	-
	Presence	+	+	-	-/+	+/-	-/+	-/+	-

<i>Roseobacter denitrificans</i> OCh 114 ^d	Accession #	WP_011568135	WP_011568136	WP_011567748	WP_011568221	WP_011568956	WP_011568243	-	-
	E-value	1.00E-91	2.00E-53	6.00E-94	5.00E-34	0.00E+00	4.00E-115	-	-
	Reciprocal e-value	3.00E-89	1.00E-39	1.00E-47	4.00E-42	0.00E+00	2.00E-126	-	-
	OrthoMCL	OG5_194743	NO_GROUP	OG5_130946	OG5_127466	OG5_126899	OG5_131437		
	ESG Confidence	89.30%	89.30%	100.00%	93.00%	0.00%	36_0%		-
	Presence	+	+	+	-/+	+/-	-/+	-	-
<i>Ruegeria pomeroyi</i> DSS-3 ^d	Accession #	WP_011047053	WP_011047054	-	WP_011047226	WP_011048283	WP_011241895	WP_011049365	-
	E-value	1.00E-91	1.00E-48	-	2.00E-100	0.00E+00	7.00E-139	3.00E-112	-
	Reciprocal e-value	3.00E-89	4.00E-41	-	3.00E-104	0.00E+00	7.00E-141	7.00E-107	-
	OrthoMCL	OG5_194743	NO_GROUP		OG5_175845	OG5_126899	OG5_168711	OG5_129065	
	ESG Confidence	89.40%	89.40%		96.60%	0.00%	36.00%	41.30%	-
	Presence	+	+	-	+	+/-	-/+	-/+	-
<i>Ruegeria sp. TM1040</i> ^d	Accession #	WP_011539297	WP_011539296	-	WP_011539245	WP_011538220	WP_011537227	WP_011537081	-
	E-value	1.00E-91	1.00E-48	-	2.00E-100	0.00E+00	7.00E-139	3.00E-112	-
	Reciprocal e-value	2.00E-83	6.00E-36	-	0.00E+00	0.00E+00	6.00E-131	4.00E-99	-
	OrthoMCL	OG5_194743	NO_GROUP		OG5_127466	OG5_126899	OG5_126638	OG5_129065	
	ESG Confidence	89.40%	89.40%		94.00%	0.00%	32.10%	47.10%	-
	Presence	+	+	-	-/+	+/-	+	-/+	-
LAND PLANT									
<i>Arabidopsis thaliana</i> ^d	Accession #	none	none	none	AAF73891_	NP_200307	NP_190383	NP_849999	NP_176469
	E-value	-	-	-	7.00E-31	6.00E-81	5.00E-180	0	1.00E-96
	Reciprocal e-value	-	-	-	8.00E-33	5.00E-81	4.00E-82	0	2.00E-97
	OrthoMCL	-	-	-	OG5_132924	OG5_129158	OG5_126638	OG5_129065	OG5_127171
	ESG Confidence	-	-	-	96.00%	87.50%	25.50%	52.70%	62.40%
	Presence	-	-	-	-/+	+	+/-	-/+	+

GREEN ALGAE									
<i>Ostreococcus sp</i> <i>RCC809</i> ^a	Accession #	none	none	none	29365	41388	58690	28940	none
	E-value	-	-	-	3.48E-26	8.28E-145	9.97E-61	4.68E-20	-
	Reciprocal e-value	-	-	-	5.00E-42	6.00E-20	2.00E-71	3.00E-31	-
	OrthoMCL	-	-	-	OG5_127466	OG5_126899	OG5_126638	OG5_127644	-
	ESG Confidence	-	-	-	88.50%	0.00%	43.50%	0.00%	-
	Presence	-	-	-	-/+	+/-	+	+/-	-
<i>Coccomyxa subellipsoidea</i> ^a	Accession #	none	none	none	XP_005651884	XP_005645798	XP_005642981	XP_005646768	XP_005649283
	E-value	-	-	-	7.00E-59	3.00E-175	0	4.00E-158	4.00E-83
	Reciprocal e-value	-	-	-	6.00E-61	2.00E-98	2.00E-85	4.00E-155	7.00E-84
	OrthoMCL	-	-	-	OG5_175845	OG5_129158	OG5_126638	OG5_129065	OG5_127171
	ESG Confidence	-	-	-	100.00%	59.40%	46.60%	52.70%	89.20%
	Presence	-	-	-	+	+	+	-/+	+
<i>Chlamydomonas reinhardtii</i> ^a	Accession #	none	none	none	XP_001690552	AAB88292	XP_001690955	XP_001690025	XP_001697595
	E-value	-	-	-	6.00E-31	5.00E-174	3.00E-180	8.00E-133	6.00E-70
	Reciprocal e-value	-	-	-	1.00E-40	4.00E-92	8.00E-97	9.00E-140	8.00E-81
	OrthoMCL	-	-	-	OG5_127466	OG5_129158	OG5_126638	OG5_129065	OG5_127171
	ESG Confidence	-	-	-	87.00%	59.20%	27.10%	40.10%	80.90%
	Presence	-	-	-	-/+	+	+/-	-/+	+
RED ALGAE									
<i>Cyanidioschyzon merolae</i> ^b	Accession #	none	none	none	XP_005537175	NP_849033	XP_005538376	none	XP_005538693
	E-value	-	-	-	7.00E-27	1.00E-166	1.00E-94	-	9.00E-89
	Reciprocal e-value	-	-	-	5.00E-38	1.00E-25	8.00E-92	-	1.00E-89
	OrthoMCL	-	-	-	OG5_127466	OG5_126899	OG5_127004	-	OG5_127171
	ESG Confidence	-	-	-	96.50%	0.00%	30.50%	-	67.60%
	Presence	-	-	-	-/+	+/-	-/+	-	+

<i>Porphyridium purpureum</i> ^c	Accession #	none	none	none	none	YP_008965627	none	none	none
	E-value	-	-	-	-	6.00E-175	-	-	-
	Reciprocal e-value	-	-	-	-	2.00E-28	-	-	-
	OrthoMCL	-	-	-	-	OG5_126899	-	-	-
	ESG	-	-	-	-	0.00%	-	-	-
	Confidence Presence	-	-	-	-	+/-	-	-	-
<i>Chondrus crispus</i> ^d	Accession #	none	none	none	XP_005710130	YP_007627349	XP_005718776	none	none
	E-value	-	-	-	3.00E-30	5.00E-178	4.00E-63	-	-
	Reciprocal e-value	-	-	-	7.00E-40	2.00E-22	1.00E-62	-	-
	OrthoMCL	-	-	-	OG5_127466	OG5_126899	OG5_127004	-	-
	ESG	-	-	-	93.50%	0.00%	40.40%	-	-
	Confidence Presence	-	-	-	-/+	+/-	-/+	-	-
GLAUCOPHYTE					-				
<i>Cyanophora paradoxa</i> ^d	Accession #	none	none	none	none	none	none	none	none
	E-value	-	-	-	-	-	-	-	-
	Reciprocal e-value	-	-	-	-	-	-	-	-
	OrthoMCL	-	-	-	-	-	-	-	-
	ESG	-	-	-	-	-	-	-	-
	Confidence Presence	-	-	-	-	-	-	-	-
DIATOMS									
<i>Fragilariopsis cylindrus</i> ^a	Accession #	none	none	none	none	none	none	none	none
	E-value	-	-	-	-	-	-	-	-
	Reciprocal e-value	-	-	-	-	-	-	-	-
	OrthoMCL	-	-	-	-	-	-	-	-
	ESG	-	-	-	-	-	-	-	-
	Confidence Presence	-	-	-	-	-	-	-	-

<i>Phaeodactylum tricornutum</i> ^a	Accession #	none	none	none	XP_002180426	XP_002181443	XP_002185692	none	XP_002180619
	E-value	-	-	-	1.00E-16	5.00E-59	1.00E-72	-	9.00E-60
	Reciprocal e-value	-	-	-	1.00E-18	1.00E-05	5.00E-66	-	9.00E-61
	OrthoMCL	-	-	-	OG5_127783	OG5_126899	OG5_127004	-	OG5_127171
	ESG Confidence	-	-	-	100.00%	0.00%	32.60%	-	80.90%
	Presence	-	-	-	-/+	+/-	-/+	-	+
<i>Pseudo-nitzschia multiseriis</i> <i>CLN-47</i> ^a	Accession #	55399	none	none	228151	237689	298461	none	243692
	E-value	3.98E-41	-	-	1.76E-12	1.84E-67	2.07E-68	-	4.59E-45
	Reciprocal e-value	2.00E-43	-	-	2.00E-11	1.00E-09	1.00E-57	-	2.00E-62
	OrthoMCL	OG5_194743	-	-	OG5_127466	OG5_126899	OG5_137356	-	OG5_127171
	ESG Confidence	90.20%	-	-	100.00%	0.00%	39.60%	-	84.00%
	Presence	+	-	-	-/+	+/-	-/+	-	+
PELAGOPHYTE									
<i>Aureococcus anophagefferens</i> ^a	Accession #	XP_009036233	none	none	XP_009032301	YP_003002081	XP_009041380	XP_009042616	none
	E-value	9.00E-41	-	-	6.00E-31	4.00E-20	4.00E-145	1.00E-13	-
	Reciprocal e-value	7.00E-43	-	-	7.00E-39	3.00E-20	4.00E-75	5.00E-14	-
	OrthoMCL	OG5_194743	-	-	OG5_175845	OG5_126899	OG5_126638	OG5_127644	-
	ESG Confidence	89.30%	-	-	98.00%	0.00%	34.60%	0.00%	-
	Presence	+	-	-	+	+/-	+	+/-	-
BROWN ALGAE									
<i>Ectocarpus siliculosus</i> ^d	Accession #	none	none	none	CBN78043	YP_003289152	CBJ33263	CBN75443	CBN75262
	E-value	-	-	-	3.00E-24	6.00E-19	6.00E-95	4.00E-97	2.00E-84
	Reciprocal e-value	-	-	-	5.00E-36	9.00E-19	2.00E-59	8.00E-101	3.00E-85
	OrthoMCL	-	-	-	OG5_127466	OG5_126899	OG5_137356	OG5_129065	OG5_127171
	ESG Confidence	-	-	-	100.00%	0.00%	37.00%	46.80%	80.60%
	Presence	-	-	-	-/+	+/-	-/+	-/+	+

EUSTIGMATOPHYTE									
<i>Nannochloropsis oculata</i> ^d	Accession #	none	none	none	none	AHX25385	none	none	none
	E-value	-	-	-	-	5.00E-22	-	-	-
	Reciprocal e-value	-	-	-	-	4.00E-22	-	-	-
	OrthoMCL	-	-	-	-	OG5_126899	-	-	-
	ESG	-	-	-	-	0.00%	-	-	-
	Confidence Presence	-	-	-	-	+/-	-	-	-
CHRYSOPHYTE									
<i>Ochromonas danica</i> ^d	Accession #	none	none	none	none	none	none	none	none
	E-value	-	-	-	-	-	-	-	-
	Reciprocal e-value	-	-	-	-	-	-	-	-
	OrthoMCL	-	-	-	-	-	-	-	-
	ESG	-	-	-	-	-	-	-	-
	Confidence Presence	-	-	-	-	-	-	-	-
DINOFLAGELLATES									
<i>Symbiodinium minutum</i> ^e	Accession #	none	none	none	none	none	none	none	none
	E-value	-	-	-	-	-	-	-	-
	Reciprocal e-value	-	-	-	-	-	-	-	-
	OrthoMCL	-	-	-	-	-	-	-	-
	ESG	-	-	-	-	-	-	-	-
	Confidence Presence	-	-	-	-	-	-	-	-
CRYPTOPHYTE									
<i>Guillardia theta</i> ^a	Accession #	none	none	none	XP_005837094	NP_050806	XP_005835269	XP_005821099	none
	E-value	-	-	-	1.00E-15	3.00E-20	4.00E-175	1.00E-31	-
	Reciprocal e-value	-	-	-	6.00E-18	2.00E-20	7.00E-84	3.00E-30	-
	OrthoMCL	-	-	-	OG5_132214	OG5_126899	OG5_126638	OG5_127644	-
	ESG	-	-	-	100.00%	0.00%	44.60%	0.00%	-
	Confidence Presence	-	-	-	-/+	+/-	+	+/-	-

<i>Hemiselms andersenii</i> ^d	Accession #	none	none	none	none	none	none	none	none
	E-value	-	-	-	-	-	-	-	-
	Reciprocal e-value	-	-	-	-	-	-	-	-
	OrthoMCL	-	-	-	-	-	-	-	-
	ESG	-	-	-	-	-	-	-	-
	Confidence	-	-	-	-	-	-	-	-
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HAPTOPHYTE									
<i>Emiliana huxleyi</i> CCMP1516 ^d	Accession #	XP_005756629	XP_005756628	none	XP_005537175	XP_005756827	XP_005779034	XP_005776490	XP_005767244
	E-value	2.00E-27	1.00E-11	-	7.00E-27	8.00E-99	3.00E-123	2.00E-32	2.00E-19
	Reciprocal e-value	2.00E-25	-	-	2.00E-30	3.00E-25	5.00E-76	1.00E-32	4.00E-20
	OrthoMCL	OG5_194743	OG5_194743	-	OG5_127466	OG5_126899	OG5_126638	OG5_129065	OG5_127171
	ESG	88.00%	90.40%	-	95.50%	0.00%	29.00%	47.10%	76.80%
	Confidence	+	-/+	-	-/+	+/-	+/-	-/+	+
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Supplementary Table 2: Distribution of IAA plant biosynthesis genes in algal and roseobacter genomes

	Code	YUCCA	AMI1	TAA1	CYP79B2	CYP79B3	AAO1	CYP71A13	TDC	MYR1	SUR1	SUR2	NIT1
LAND PLANT													
	Accession #	AEE86075	Q9FR37	Q9S7N2	NP_195705	NP_179820	Q7G193	O49342	Q8RY79	P37702	O65782	Q9SIV0	AEE77887
	OrthoMCL group	OG5_129359	OG5_149946	OG5_189781	OG5_140471	OG5_140471	OG5_127252	OG5_146283	OG5_129065	OG5_164273	OG5_126582	OG5_128985	OG5_131865
<i>Arabidopsis thaliana</i> ^d	ESG Molecular Function terms	N,N-dimethylaniline monooxygenase activity,	glutaminyl-tRNA synthase (glutamine-hydrolyzing) activity	L-phenylalanine:2-oxoglutarate aminotransferase activity	monooxygenase activity	monooxygenase activity	oxidoreductase activity	oxidoreductase activity	aromatic-L-amino-acid decarboxylase activity	hydrolase activity, hydrolyzing O-glycosyl compounds	oxidoreductase activity	L-phenylalanine:2-oxoglutarate aminotransferase activity	nitrilase activity
	ESG Confidence	0.00%	100.00%	48.00%	42.70%	53.20%	100.00%	0.00%	52.70%	71.40%	30.50%	33.00%	31.80%
GREEN ALGAE													
	Accession #	39261	38981	none	40254	40254	none	58872	28940	38969	40254	27915	none
	E-value	4.54E-06	2.03E-61	-	1.08E-14	1.01E-16	-	1_0E-16	8.93E-24	1.53E-43	7.80E-25	1_7E-72	-
	Reciprocal e-value	4.00E-14	5.00E-85	-	0	0	-	4.00E-18	2.00E-37	2.00E-109	0.00E+00	2.00E-75	-
<i>Ostreococcus sp RCC809</i> ^a	OrthoMCL	-	OG5_150132	-	OG5_126554	OG5_126554	-	OG5_134261	OG5_127644	OG5_126690	OG5_126554	OG5_128985	-
	ESG Confidence	-	96.50%	-	49.60%	49.60%	-	36.10%	0.00%	59.50%	47.60%	55.50%	-
	Presence	-	-/+	-	-/+	-/+	-	-	-	-/+	-/+	+	-
	Accession #	XP_005652161	XP_005647194	none	XP_005648231	XP_005648231	XP_005646284	XP_005652354	XP_005646768	XP_005643327	XP_005648231	XP_005650249	XP_005646017
	E-value	1.00E-36	2.00E-100	-	8.00E-19	2.00E-19	9.00E-164	2.00E-25	2.00E-170	3.00E-101	4.00E-30	9.00E-19	3.00E-45
	Reciprocal e-value	2.00E-37	7.00E-101	-	0	0	0	0	3.00E-171	3.00E-152	0	1.00E-19	4.00E-46
<i>Coccomyxa subellipsoidea</i> ^a	OrthoMCL	OG5_126653	OG5_149946	-	OG5_134261	OG5_134261	OG5_127252	OG5_126554	OG5_129065	OG5_126690	OG5_134261	OG5_135328	OG5_131865
	ESG Confidence	73.40%	100.00%	-	53.00%	53.00%	100.00%	43.80%	47.10%	70.00%	44.40%	100.00%	30.10%
	Presence	-	+	-	-/+	-/+	+	-	+	-/+	-/+	-/+	+

<i>Chlamydomonas reinhardtii</i> ^a	Accession #	XP_005779538	XP_001698766	none	XP_001698892	ABQ59243	XP_001694090	XP_001700492	XP_001690005	XP_001700848	XP_001698892	AAB01685	XP_001692986	
	E-value	1.00E-14	2.00E-50	-	2.00E-16	2.00E-17	8.00E-164	1.00E-28	2.00E-150	1.00E-18	2.00E-23	8.00E-15	5.00E-07	
	Reciprocal e-value	3.00E-15	8.00E-61	-	2.00E-163	0.00E+00	2.00E-151	0.00E+00	9.00E-163	3.00E-33	2.00E-163	2.00E-15	2.00E-09	
	OrthoMCL	OG5_126653	OG5_149946	-	OG5_126554	OG5_134261	OG5_127252	OG5_126554	OG5_129065	OG5_126690	OG5_126554	OG5_127112	n/a	
	ESG Confidence	77.90%	95.50%	-	45.00%	44.80%	100.00%	38.30%	40_0%	64.60%	40_0%	0.00%	n/a	
	Presence	-	+	-	-/+	-/+	+	-	+	-/+	-/+	-	-	
RED ALGAE														
<i>Cyanidioschyzon merolae</i> ^b	Accession #	none	XP_005537175	none	none	XP_005534988	none	XP_005535456	none	none	XP_005535456	XP_005539487	XP_005538174	
	E-value	-	4.00E-21	-	-	1.00E-09	-	1.00E-08	-	-	8.00E-09	2.00E-65	8.00E-08	
	Reciprocal e-value	-	1.00E-126	-	-	4.00E-123	-	1.00E-16	-	-	1.00E-16	7.00E-66	1.00E-86	
	OrthoMCL	-	OG5_127466	-	-	n/a	-	n/a	-	-	n/a	OG5_128985	n/a	
	ESG Confidence	-	96.50%	-	-	n/a	-	n/a	-	-	n/a	68.30%	n/a	
	Presence	-	-/+	-	-	-	-	-	-	-	-	-	+	-
<i>Porphyridium purpureum</i> ^c	Accession #	none	none	none	none	none	none	none	none	none	none	none	none	
	E-value	-	-	-	-	-	-	-	-	-	-	-	-	
	Reciprocal e-value	-	-	-	-	-	-	-	-	-	-	-	-	
	OrthoMCL	-	-	-	-	-	-	-	-	-	-	-	-	
	ESG Confidence	-	-	-	-	-	-	-	-	-	-	-	-	
	Presence	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Chondrus crispus</i> ^d	Accession #	none	XP_005710130	none	XP_005713400	XP_005713400	XP_005718689	XP_005715170	none	XP_005715104	XP_005715216	XP_005713817	none	
	E-value	-	7.00E-21	-	2.00E-19	5.00E-18	5.00E-168	1.00E-21	-	4.00E-94	9.00E-23	3.00E-70	-	
	Reciprocal e-value	-	6.00E-139	-	1.00E-46	1.00E-46	0.00E+00	2.00E-39	-	1.00E-132	0.00E+00	1.00E-72	-	
	OrthoMCL	-	OG5_127466	-	OG5_126554	OG5_126554	OG5_127252	OG5_126554	OG5_126554	-	OG5_126690	OG5_126554	OG5_128985	-
	ESG Confidence	-	93.50%	-	60.10%	60.10%	99.50%	30.80%	-	44.50%	32.90%	50.60%	-	
	Presence	-	-/+	-	-/+	-/+	+	-	-	-/+	-/+	+	-	

GLAUCOPHYTE													
<i>Cyanophora paradoxa</i> ^d	Accession #	none	none	none	none	none	none	none	none	none	none	none	none
	E-value	-	-	-	-	-	-	-	-	-	-	-	-
	Reciprocal e-value	-	-	-	-	-	-	-	-	-	-	-	-
	OrthoMCL	-	-	-	-	-	-	-	-	-	-	-	-
	ESG	-	-	-	-	-	-	-	-	-	-	-	-
	Confidence	-	-	-	-	-	-	-	-	-	-	-	-
	Presence	-	-	-	-	-	-	-	-	-	-	-	-
DIATOMS													
<i>Fragilariopsis cylindrus</i> ^a	Accession #	none	none	none	none	none	none	none	none	none	none	none	none
	E-value	-	-	-	-	-	-	-	-	-	-	-	-
	Reciprocal e-value	-	-	-	-	-	-	-	-	-	-	-	-
	OrthoMCL	-	-	-	-	-	-	-	-	-	-	-	-
	ESG	-	-	-	-	-	-	-	-	-	-	-	-
	Confidence	-	-	-	-	-	-	-	-	-	-	-	-
	Presence	-	-	-	-	-	-	-	-	-	-	-	-
<i>Phaeodactylum tricorutum</i> ^a	Accession #	none	XP_ 002180426	none	XP_ 002185035	XP_ 002185035	XP_ 002184143	XP_ 002178044	none	XP_ 002185317	XP_ 002185035	XP_ 002186145	XP_ 002183613
	E-value	-	4.00E-13	-	2.00E-11	9.00E-11	7.00E-132	6.00E-08	-	6.00E-104	5.00E-22	1.00E-51	4.00E-17
	Reciprocal e-value	-	5.00E-21	-	0	0	8.00E-138	2.00E-17	-	1.00E-140	0	9.00E-54	2.00E-97
	OrthoMCL	-	OG5_ 127783	-	OG5_ 126554	OG5_ 126554	OG5_ 127252	n/a	-	OG5_ 126690	OG5_ 126554	OG5_ 128985	OG5_ 126651
	ESG	-	100.00%	-	44.00%	44.00%	100.00%	n/a	-	74_0%	39_0%	99.00%	0.00%
	Confidence	-	100.00%	-	44.00%	44.00%	100.00%	n/a	-	74_0%	39_0%	99.00%	0.00%
	Presence	-	-/+	-	-/+	-/+	+	-	-	-/+	-/+	+	-/+
<i>Pseudo-nitzschia multiseriis CLN-47</i> ^a	Accession #	26050	54595	none	7819	8596	36829	1342	none	41676	7819	13947	289105
	E-value	1.47E-25	2.64E-13	-	8.47E-08	5.72E-11	1.92E-84	5_2E-12	-	2.56E-90	1.74E-18	1.30E-37	1.73E-06
	Reciprocal e-value	1.00E-25	7.00E-46	-	1.00E-36	4.00E-21	5.00E-120	6.00E-165	-	2.00E-135	1.00E-36	1.00E-55	1.00E-12
	OrthoMCL	OG5_ 129359	OG5_ 127466	-	n/a	OG5_ 127298	OG5_ 127252	OG5_ 126554	-	OG5_ 126690	OG5_ 169987	OG5_ 128985	n/a
	ESG	69.40%	100.00%	-	n/a	51.50%	100.00%	31.30%	-	48.90%	80.00%	64.10%	n/a
	Confidence	69.40%	100.00%	-	n/a	51.50%	100.00%	31.30%	-	48.90%	80.00%	64.10%	n/a
	Presence	+/-	-/+	-	-	-/+	+	-	-	-/+	-/+	+	-

PELAGOPHYTE													
<i>Aureococcus anophagefferens</i> ^a	Accession #	XP_009036936	XP_009039682	none	XP_009039697	XP_009039697	XP_009034984	XP_009032102	none	XP_009035359	XP_009032928	XP_009033544	XP_009039155
	E-value	3.00E-16	2.00E-18	-	2.00E-12	1.00E-12	5.00E-126	3.00E-15	-	2.00E-78	2.00E-07	3.00E-30	3.00E-11
	Reciprocal e-value	8.00E-17	7.00E-47	-	1.00E-28	1.00E-28	4.00E-148	4.00E-24	-	4.00E-129	2.00E-164	1.00E-31	7.00E-65
	OrthoMCL	OG5_126653	OG5_132924	-	OG5_126554	OG5_126554	OG5_127252	OG5_126554	-	OG5_126690	OG5_126554	OG5_128985	OG5_126651
	ESG Confidence	83.50%	100.00%	-	47.50%	47.50%	100.00%	33.40%	-	52.50%	n/a	100.00%	0.00%
	Presence	-	-/+	-	-/+	-/+	+	-	-	-	-	+	-
BROWN ALGAE													
<i>Ectocarpus siliculosus</i> ^d	Accession #	CBJ32825	CBN78043	none	CBJ27249	CBJ27249	CBJ27195	CBN74955	CBN75443	CBN79091	CBJ27248	CBJ25743	CBN74568
	E-value	3.00E-15	2.00E-14	-	1.00E-13	4.00E-13	9.00E-119	8.00E-06	2.00E-109	7.00E-92	1.00E-24	6.00E-21	1.00E-10
	Reciprocal e-value	5.00E-17	5.00E-93	-	0.00E+00	0.00E+00	8.00E-121	1.00E-07	2.00E-117	1.00E-130	0.00E+00	3.00E-22	6.00E-10
	OrthoMCL	OG5_152674	OG5_127466	-	OG5_126554	OG5_126554	OG5_127252	n/a	OG5_129065	OG5_126690	OG5_126554	OG5_127112	n/a
	ESG Confidence	72.10%	100.00%	-	65.20%	65.10%	99.70%	n/a	46.80%	54.00%	53.80%	35.30%	n/a
	Presence	-	-/+	-	-/+	-/+	+	-	+	-/+	-/+	-/+	-
EUSTIGMATOPHYTE													
<i>Nannochloropsis oculata</i> ^d	Accession #	none	none	none	none	none	none	none	none	none	none	none	none
	E-value	-	-	-	-	-	-	-	-	-	-	-	-
	Reciprocal e-value	-	-	-	-	-	-	-	-	-	-	-	-
	OrthoMCL	-	-	-	-	-	-	-	-	-	-	-	-
	ESG Confidence	-	-	-	-	-	-	-	-	-	-	-	-
	Presence	-	-	-	-	-	-	-	-	-	-	-	-
CHRYSOPHYTE													
<i>Ochromonas danica</i> ^d	Accession #	none	none	none	none	none	none	none	none	none	none	none	none
	E-value	-	-	-	-	-	-	-	-	-	-	-	-
	Reciprocal e-value	-	-	-	-	-	-	-	-	-	-	-	-
	OrthoMCL	-	-	-	-	-	-	-	-	-	-	-	-
	ESG Confidence	-	-	-	-	-	-	-	-	-	-	-	-
	Presence	-	-	-	-	-	-	-	-	-	-	-	-

DINO-FLAGELLATES													
	Accession #	none	none	none	none	none	none	none	none	none	none	none	none
	E-value	-	-	-	-	-	-	-	-	-	-	-	-
	Reciprocal e-value	-	-	-	-	-	-	-	-	-	-	-	-
<i>Symbiodinium minutum</i> ^e	OrthoMCL	-	-	-	-	-	-	-	-	-	-	-	-
	ESG Confidence	-	-	-	-	-	-	-	-	-	-	-	-
	Presence	-	-	-	-	-	-	-	-	-	-	-	-
CRYPTOPHYTES													
	Accession #	XP_005831091	XP_005837094	XP_005825847	XP_005822842	XP_005822842	XP_005827081	XP_005827896	XP_00582109	none	XP_005822842	XP_005840936	XP_005837230
	E-value	3.00E-21	1.00E-15	4.00E-42	2.00E-21	8.00E-23	0.00E+00	7.00E-21	6.00E-37	-	2.00E-19	2.00E-25	3.00E-08
	Reciprocal e-value	2.00E-27	1.00E-15	4.00E-59	2.00E-50	2.00E-50	0.00E+00	0.00E+00	1.00E-37	-	2.00E-50	1.00E-24	2.00E-92
<i>Guillardia theta</i> ^a	OrthoMCL	OG5_129359	OG5_132214	OG5_146412	OG5_126554	OG5_126554	OG5_127252	OG5_126554	OG5_127644	-	OG5_126554	OG5_127112	n/a
	ESG Confidence	0.00%	100.00%	100.00%	62.40%	62.40%	99.80%	40.00%	0.00%	-	54.40%	36.10%	n/a
	Presence	+	-/+	-/+	-/+	-/+	+	-	-	-	-/+	-/+	-
	Accession #	none	none	none	none	none	none	none	none	none	none	none	none
	E-value	-	-	-	-	-	-	-	-	-	-	-	-
	Reciprocal e-value	-	-	-	-	-	-	-	-	-	-	-	-
<i>Hemiselmis andersenii</i> ^d	OrthoMCL	-	-	-	-	-	-	-	-	-	-	-	-
	ESG Confidence	-	-	-	-	-	-	-	-	-	-	-	-
	Presence	-	-	-	-	-	-	-	-	-	-	-	-
HAPTOPHYTE													
	Accession #	XP_005764353	XP_005770598	XP_005759060	XP_005782001	XP_005793926	XP_005757560	XP_005793926	XP_00577640	XP_005758786	XP_005793926	XP_005780581	XP_005785520
	E-value	1.00E-37	2.00E-17	1.00E-48	3.00E-10	2.00E-11	7.00E-87	7.00E-30	7.00E-39	4.00E-91	2.00E-25	2.00E-64	2.00E-39
	Reciprocal e-value	1.00E-38	3.00E-26	8.00E-66	3.00E-24	4.00E-36	5.00E-137	5.00E-35	1.00E-39	5.00E-132	4.00E-36	6.00E-69	2.00E-41
<i>Emiliana huxleyi</i> <i>CCMP1516</i> ^d	OrthoMCL	OG5_129359	OG5_132924	OG5_146412	OG5_127298	OG5_141359	OG5_127252	OG5_141359	OG5_129065	OG5_126690	OG5_141359	OG5_128985	OG5_131865
	ESG Confidence	58.50%	95.50%	50.30%	60.60%	73.90%	100.00%	72.40%	47.10%	62.60%	72.40%	67.40%	31.30%
	Presence	+/-	-/+	-/+	-/+	-/+	+	-	+	-/+	-/+	+	+

ROSEOBACTER													
<i>Ruegeria sp. R11</i> ^d	Accession #	none	WP_ 008560074	none	none	none	WP_ 008561606	none	WP_ 00855800	none	none	WP_ 008563355	none
	E-value	-	5.00E-13	-	-	-	1E-95	-	3E-109	-	-	4.00E-27	-
	Reciprocal e-value	-	7.00E-19	-	-	-	2E-95	-	7E-109	-	-	7.00E-27	-
	OrthoMCL	-	OG5_ 127466	-	-	-	OG5_ 127252	-	OG5_ 129065	-	-	OG5_ 135328	-
	ESG Confidence	-	92.00%	-	-	-	100.00%	-	47.70%	-	-	99.50%	-
	Presence	-	-/+	-	-	-	+	-	+	-	-	-/+	-
<i>Dinoroseobacter shibae DFL 12</i> ^d	Accession #	WP_ 012187434	WP_ 012177719	none	none	none	WP_ 012179620	WP_ 012179004	none	WP_ 012178326	WP_ 012179004	WP_ 012178466	none
	E-value	4E-23	1.00E-14	-	-	-	2E-104	4.00E-21	-	1E-54	4.00E-12	1.00E-16	-
	Reciprocal e-value	8E-27	2.00E-20	-	-	-	1E-103	1.00E-37	-	2E-58	9.00E-40	4.00E-16	-
	OrthoMCL	OG5_ 129359	OG5_ 127466	-	-	-	OG5_ 127252	OG5_ 126554	-	OG5_ 126690	OG5_ 126554	OG5_ 140291	-
	ESG Confidence	72.30%	100.00%	-	-	-	100.00%	52.40%	-	52.00%	52.40%	0.00%	-
	Presence	+/-	-/+	-	-	-	+	-/+	-	-	-/+	-	-
<i>Jannaschia sp. CCSI</i> ^d	Accession #	WP_ 011456827	WP_ 011453552	none	none	none	WP_ 011454061	WP_ 011455517	WP_ 01145660	WP_ 011455066	none	WP_ 011457232	WP_ 011456849
	E-value	8E-38	9.00E-25	-	-	-	8E-100	7.00E-12	4E-95	4E-56	-	1.00E-27	2.00E-46
	Reciprocal e-value	2E-37	2.00E-27	-	-	-	2E-96	7.00E-40	5E-100	2E-64	-	2.00E-27	1.00E-45
	OrthoMCL	OG5_ 129359	OG5_ 132924	-	-	-	OG5_ 127252	OG5_ 126554	OG5_ 129065	OG5_ 126690	-	OG5_ 126697	OG5_ 131865
	ESG Confidence	39.70%	94.00%	-	-	-	100.00%	59.20%	46.90%	55_0%	-	37.30%	36.50%
	Presence	+/-	-/+	-	-	-	+	-/+	+	-	-	-/+	+
<i>Phaeobacter gallaeciensis 2.10</i> ^d	Accession #	WP_ 014889329	WP_ 014881395	none	AFO87348	AFO87348	WP_ 014875707	AFO87348	WP_ 01487322	WP_ 014873899	none	WP_ 014889373	none
	E-value	8E-16	5.00E-19	-	3E-12	3.00E-12	2E-94	5.00E-15	2E-111	1E-60	-	3.00E-16	-
	Reciprocal e-value	8E-17	9.00E-19	-	5E-43	5.00E-43	4E-99	5.00E-43	4E-111	4E-64	-	1.00E-17	-
	OrthoMCL	OG5_ 126653	OG5_ 132924	-	OG5_ 126554	OG5_ 126554	OG5_ 127252	OG5_ 126554	OG5_ 129065	OG5_ 126690	-	OG5_ 126697	-
	ESG Confidence	63.30%	97.50%	-	47.30%	47.30%	100.00%	39.90%	47.10%	53.00%	-	47.00%	-
	Presence	-	-/+	-	-/+	-/+	+	-/+	+	-	-	-/+	-

<i>Phaeobacter gallaeciensis DSM17395 (BS107)</i> ^d	Accession #	WP_014881761	WP_014880496	none	AFO91064	AFO91064	WP_014880995	AFO91064	WP_01488122	WP_014879386	none	WP_014881859	none
	E-value	2E-15	3.00E-13	-	3E-12	3.00E-12	2E-94	2.00E-14	2E-110	2E-57	-	5.00E-16	-
	Reciprocal e-value	2E-16	5.00E-19	-	3E-40	3.00E-40	8E-99	1.00E-43	4E-110	2E-61	-	2.00E-17	-
	OrthoMCL	OG5_126653	OG5_127466	-	OG5_126554	OG5_126554	OG5_127252	OG5_126554	OG5_129065	OG5_126690	-	OG5_126697	-
	ESG Confidence	71.30%	94.00%	-	47.80%	47.80%	100.00%	37.90%	40.70%	64.00%	-	38.60%	-
	Presence	-	-/+	-	-/+	-/+	+	-/+	+	-	-	-/+	-
<i>Roseobacter denitrificans OCh 114</i> ^d	Accession #	WP_011569789	WP_011566397	none	none	none	WP_011570123	WP_011567654	none	WP_011568514	WP0115676	WP_011566437	none
	E-value	2E-23	5.00E-15	-	-	-	1E-113	1.00E-14	-	1E-62	1.00E-15	4.00E-13	-
	Reciprocal e-value	2E-28	1.00E-19	-	-	-	6E-114	9.00E-48	-	2E-62	9.00E-48	8.00E-13	-
	OrthoMCL	OG5_129359	OG5_132924	-	-	-	OG5_127252	OG5_126554	-	OG5_126690	OG5_126554	OG5_135328	-
	ESG Confidence	48.30%	98.50%	-	-	-	99.80%	43.60%	-	53.00%	43.60%	100.00%	-
	Presence	+/-	-/+	-	-	-	+	-/+	-	-	-/+	-/+	-
<i>Ruegeria pomeroyi DSS-3</i> ^d	Accession #	WP_011046547	WP_011047226	none	WP_011047630	WP_011047630	WP_011046404	WP_011047630	WP_01104935	none	WP_011047630	WP_030003254	WP_011241897
	E-value	4E-26	5.00E-20	-	1E-10	1.00E-10	1E-88	2.00E-16	3E-109	-	1.00E-12	6.00E-15	3.00E-43
	Reciprocal e-value	1E-25	7.00E-24	-	5E-46	5.00E-46	6E-95	5.00E-46	6E-109	-	5.00E-46	1.00E-14	7.00E-43
	OrthoMCL	OG5_126653	OG5_175845	-	OG5_126554	OG5_126554	OG5_127252	OG5_126554	OG5_129065	-	OG5_126554	OG5_135774	OG5_131865
	ESG Confidence	72.70%	96.50%	-	48.80%	48.80%	100.00%	39.90%	41.30%	-	39.90%	84.20%	35.90%
	Presence	-	-/+	-	-/+	-/+	+	-/+	+	-	-/+	-/+	+
<i>Ruegeria sp. TM1040</i> ^d	Accession #	none	WP_011537675	none	none	none	WP_011540019	WP_011538791	WP_01153701	WP_011536924	WP_011538791	WP_011537211	none
	E-value	-	4.00E-22	-	-	-	4E-98	1.00E-18	1E-112	8E-57	1.00E-11	3.00E-17	-
	Reciprocal e-value	-	3.00E-25	-	-	-	4E-95	2.00E-43	3E-112	2E-58	2.00E-43	7.00E-17	-
	OrthoMCL	-	OG5_132924	-	-	-	OG5_127252	OG5_126554	OG5_129065	OG5_126690	OG5_126554	OG5_126697	-
	ESG Confidence	-	97.50%	-	-	-	98.20%	56.60%	47.10%	65.60%	56.60%	47.20%	-
	Presence	-	-/+	-	-	-	+	-/+	+	-	-/+	-/+	-