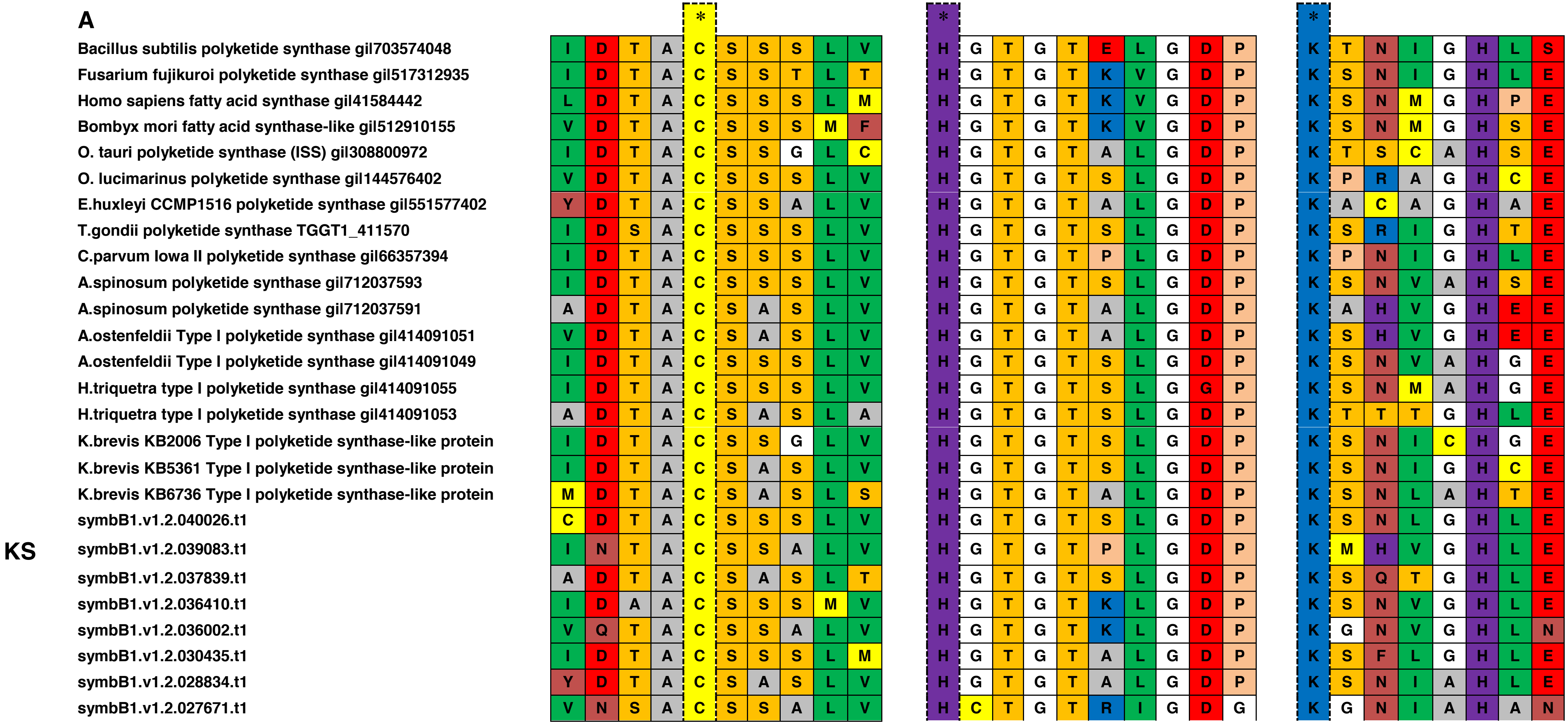
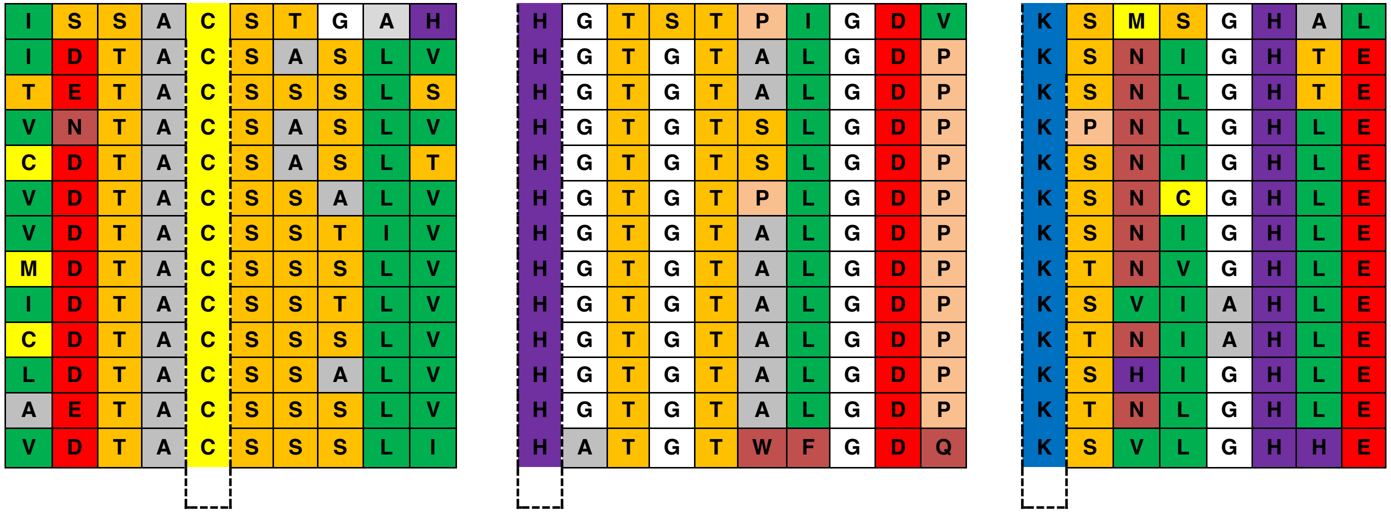
Figure S3. (A) Alignment of KS domains with those of other dinoflagellates and animal PKSs and FASs. Asterisks indicate conserved amino acids required for catalytic activity. (B) Additional *Symbiodinium* and *K. brevis* sequences that are consistent with previous reports.



A

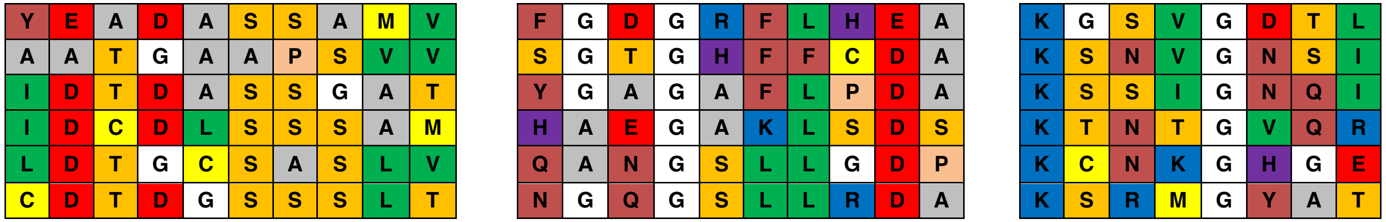
KS

					*						*										*							
Bacillus subtilis polyketide synthase gil703574048	I	D	T	A	C	S	S	S	L	V	H	G	T	G	T	E	L	G	D	P	K	T	N	I	G	H	L	S
Fusarium fujikuroi polyketide synthase gil517312935	I	D	T	A	C	S	S	T	L	T	H	G	T	G	T	K	V	G	D	P	K	S	N	I	G	H	L	E
Homo sapiens fatty acid synthase gil41584442	L	D	T	A	C	S	S	S	L	M	H	G	T	G	T	K	V	G	D	P	K	S	N	M	G	H	P	E
Bombyx mori fatty acid synthase-like gil512910155	V	D	T	A	C	S	S	S	M	F	H	G	T	G	T	K	V	G	D	P	K	S	N	M	G	H	S	E
O. tauri polyketide synthase (ISS) gil308800972	I	D	T	A	C	S	S	G	L	C	H	G	T	G	T	A	L	G	D	P	K	T	S	C	A	H	S	E
O. lucimarinus polyketide synthase gil144576402	V	D	T	A	C	S	S	S	L	V	H	G	T	G	T	S	L	G	D	P	K	P	R	A	G	H	C	E
E.huxleyi CCMP1516 polyketide synthase gil551577402	Y	D	T	A	C	S	S	A	L	V	H	G	T	G	T	A	L	G	D	P	K	A	C	A	G	H	A	E
T.gondii polyketide synthase TGGT1_411570	I	D	S	A	C	S	S	S	L	V	H	G	T	G	T	S	L	G	D	P	K	S	R	I	G	H	T	E
C.parvum Iowa II polyketide synthase gil66357394	I	D	T	A	C	S	S	S	L	V	H	G	T	G	T	P	L	G	D	P	K	P	N	I	G	H	L	E
A.spinosum polyketide synthase gil712037593	I	D	T	A	C	S	S	S	L	V	H	G	T	G	T	S	L	G	D	P	K	S	N	V	A	H	S	E
A.spinosum polyketide synthase gil712037591	A	D	T	A	C	S	A	S	L	V	H	G	T	G	T	A	L	G	D	P	K	A	H	V	G	H	E	E
A.ostenfeldii Type I polyketide synthase gil414091051	V	D	T	A	C	S	A	S	L	V	H	G	T	G	T	A	L	G	D	P	K	S	H	V	G	H	E	E
A.ostenfeldii Type I polyketide synthase gil414091049	I	D	T	A	C	S	S	S	L	V	H	G	T	G	T	S	L	G	D	P	K	S	N	V	A	H	G	E
H.triquetra type I polyketide synthase gil414091055	I	D	T	A	C	S	S	S	L	V	H	G	T	G	T	S	L	G	G	P	K	S	N	M	A	H	G	E
H.triquetra type I polyketide synthase gil414091053	A	D	T	A	C	S	A	S	L	A	H	G	T	G	T	S	L	G	D	P	K	T	T	T	G	H	L	E
K.brevis KB2006 Type I polyketide synthase-like protein	I	D	T	A	C	S	S	G	L	V	H	G	T	G	T	S	L	G	D	P	K	S	N	I	C	H	G	E
K.brevis KB5361 Type I polyketide synthase-like protein	I	D	T	A	C	S	A	S	L	V	H	G	T	G	T	S	L	G	D	P	K	S	N	I	G	H	C	E
K.brevis KB6736 Type I polyketide synthase-like protein	M	D	T	A	C	S	A	S	L	S	H	G	T	G	T	A	L	G	D	P	K	S	N	L	A	H	T	E
symbB1.v1.2.040026.t1	C	D	T	A	C	S	S	S	L	V	H	G	T	G	T	S	L	G	D	P	K	S	N	L	G	H	L	E
symbB1.v1.2.039083.t1	I	N	T	A	C	S	S	A	L	V	H	G	T	G	T	P	L	G	D	P	K	M	H	V	G	H	L	E
symbB1.v1.2.037839.t1	A	D	T	A	C	S	A	S	L	T	H	G	T	G	T	S	L	G	D	P	K	S	Q	T	G	H	L	E
symbB1.v1.2.036410.t1	I	D	A	A	C	S	S	S	M	V	H	G	T	G	T	K	L	G	D	P	K	S	N	V	G	H	L	E
symbB1.v1.2.036002.t1	V	Q	T	A	C	S	S	A	L	V	H	G	T	G	T	K	L	G	D	P	K	G	N	V	G	H	L	N
symbB1.v1.2.030435.t1	I	D	T	A	C	S	S	S	L	M	H	G	T	G	T	A	L	G	D	P	K	S	F	L	G	H	L	E
symbB1.v1.2.028834.t1	Y	D	T	A	C	S	A	S	L	V	H	G	T	G	T	A	L	G	D	P	K	S	N	I	A	H	L	E
symbB1.v1.2.027671.t1	V	N	S	A	C	S	S	A	L	V	H	C	T	G	T	R	I	G	D	G	K	G	N	I	A	H	A	N



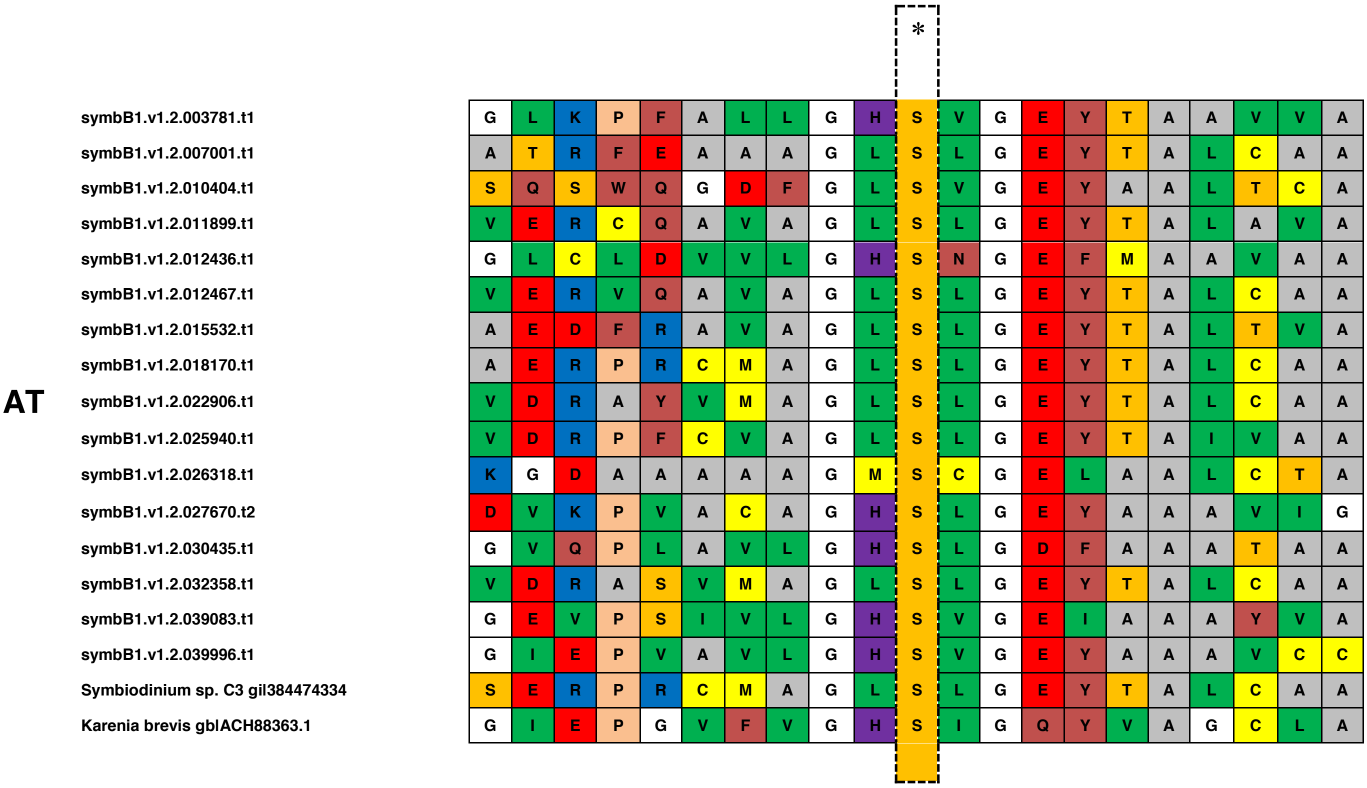
symbB1.v1.2.027279.t1	I	S	S	A	C	S	T	G	A	H	H	G	T	S	T	P	I	G	D	V	K	S	M	S	G	H	A	L
symbB1.v1.2.022565.t1	I	D	T	A	C	S	A	S	L	V	H	G	T	G	T	A	L	G	D	P	K	S	N	I	G	H	T	E
symbB1.v1.2.020241.t1	T	E	T	A	C	S	S	S	L	S	H	G	T	G	T	A	L	G	D	P	K	S	N	L	G	H	T	E
symbB1.v1.2.019160.t1	V	N	T	A	C	S	A	S	L	V	H	G	T	G	T	S	L	G	D	P	K	P	N	L	G	H	L	E
symbB1.v1.2.017689.t1	C	D	T	A	C	S	A	S	L	T	H	G	T	G	T	S	L	G	D	P	K	S	N	I	G	H	L	E
symbB1.v1.2.015790.t1	V	D	T	A	C	S	S	A	L	V	H	G	T	G	T	P	L	G	D	P	K	S	N	C	G	H	L	E
symbB1.v1.2.015789.t1	V	D	T	A	C	S	S	T	I	V	H	G	T	G	T	A	L	G	D	P	K	S	N	I	G	H	L	E
symbB1.v1.2.015788.t2	M	D	T	A	C	S	S	S	L	V	H	G	T	G	T	A	L	G	D	P	K	T	N	V	G	H	L	E
symbB1.v1.2.008782.t1	I	D	T	A	C	S	S	T	L	V	H	G	T	G	T	A	L	G	D	P	K	S	V	I	A	H	L	E
symbB1.v1.2.008781.t1	C	D	T	A	C	S	S	S	L	V	H	G	T	G	T	A	L	G	D	P	K	T	N	I	A	H	L	E
symbB1.v1.2.002919.t1	L	D	T	A	C	S	S	A	L	V	H	G	T	G	T	A	L	G	D	P	K	S	H	I	G	H	L	E
symbB1.v1.2.001307.t1	A	E	T	A	C	S	S	S	L	V	H	G	T	G	T	A	L	G	D	P	K	T	N	L	G	H	L	E
symbB1.v1.2.012436.t1	V	D	T	A	C	S	S	S	L	I	H	A	T	G	T	W	F	G	D	Q	K	S	V	L	G	H	H	E

B



K.brevis KB6380 Type I polyketide synthase-like protein	Y	E	A	D	A	S	S	A	M	V	F	G	D	G	R	F	L	H	E	A	K	G	S	V	G	D	T	L
K.brevis KB4825 Type I polyketide synthase-like protein	A	A	T	G	A	A	P	S	V	V	S	G	T	G	H	F	F	C	D	A	K	S	N	V	G	N	S	I
symbB1.v1.2.015913.t1	I	D	T	D	A	S	S	G	A	T	Y	G	A	G	A	F	L	P	D	A	K	S	S	I	G	N	Q	I
symbB1.v1.2.013880.t1	I	D	C	D	L	S	S	S	A	M	H	A	E	G	A	K	L	S	D	S	K	T	N	T	G	V	Q	R
symbB1.v1.2.000535.t1	L	D	T	G	C	S	A	S	L	V	Q	A	N	G	S	L	L	G	D	P	K	C	N	K	G	H	G	E
symbB1.v1.2.001928.t1	C	D	T	D	G	S	S	S	L	T	N	G	Q	G	S	L	L	R	D	A	K	S	R	M	G	Y	A	T

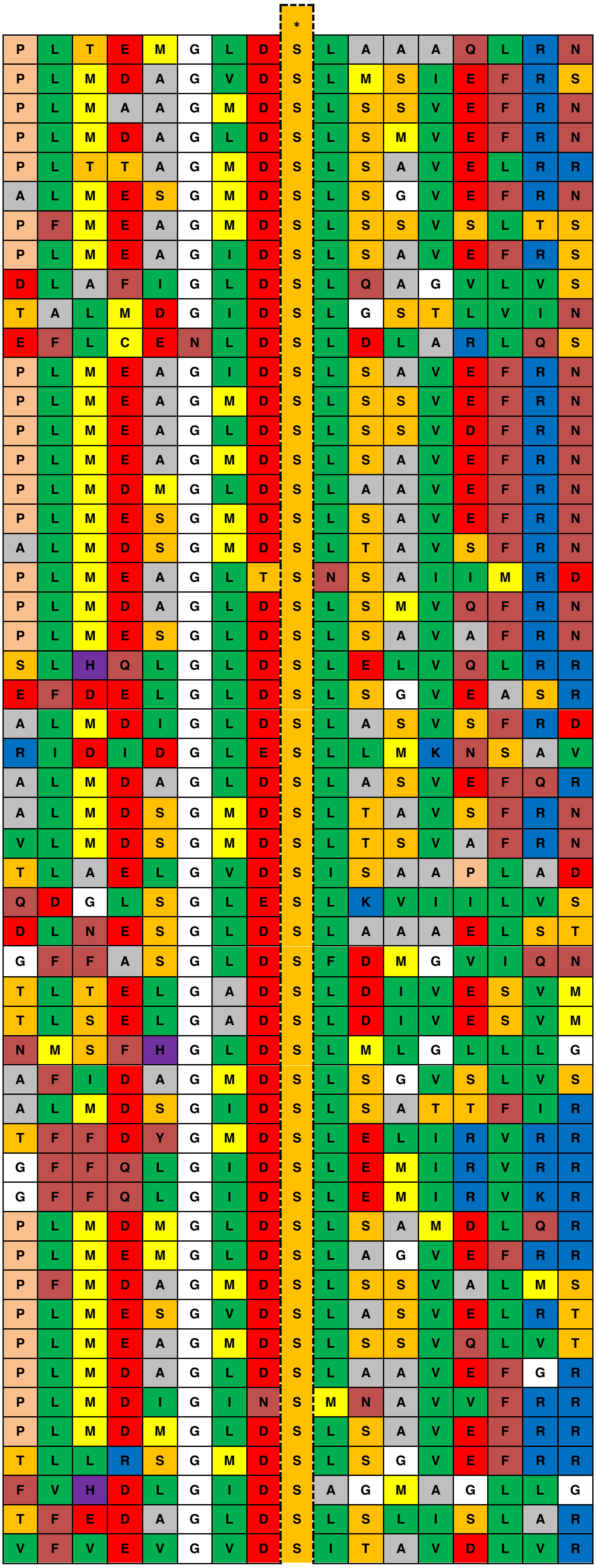
Figure S4. Alignments of motifs within AT, ACP, KR, ER and DH domains. Active sites within the motifs are boxed with dashed lines.



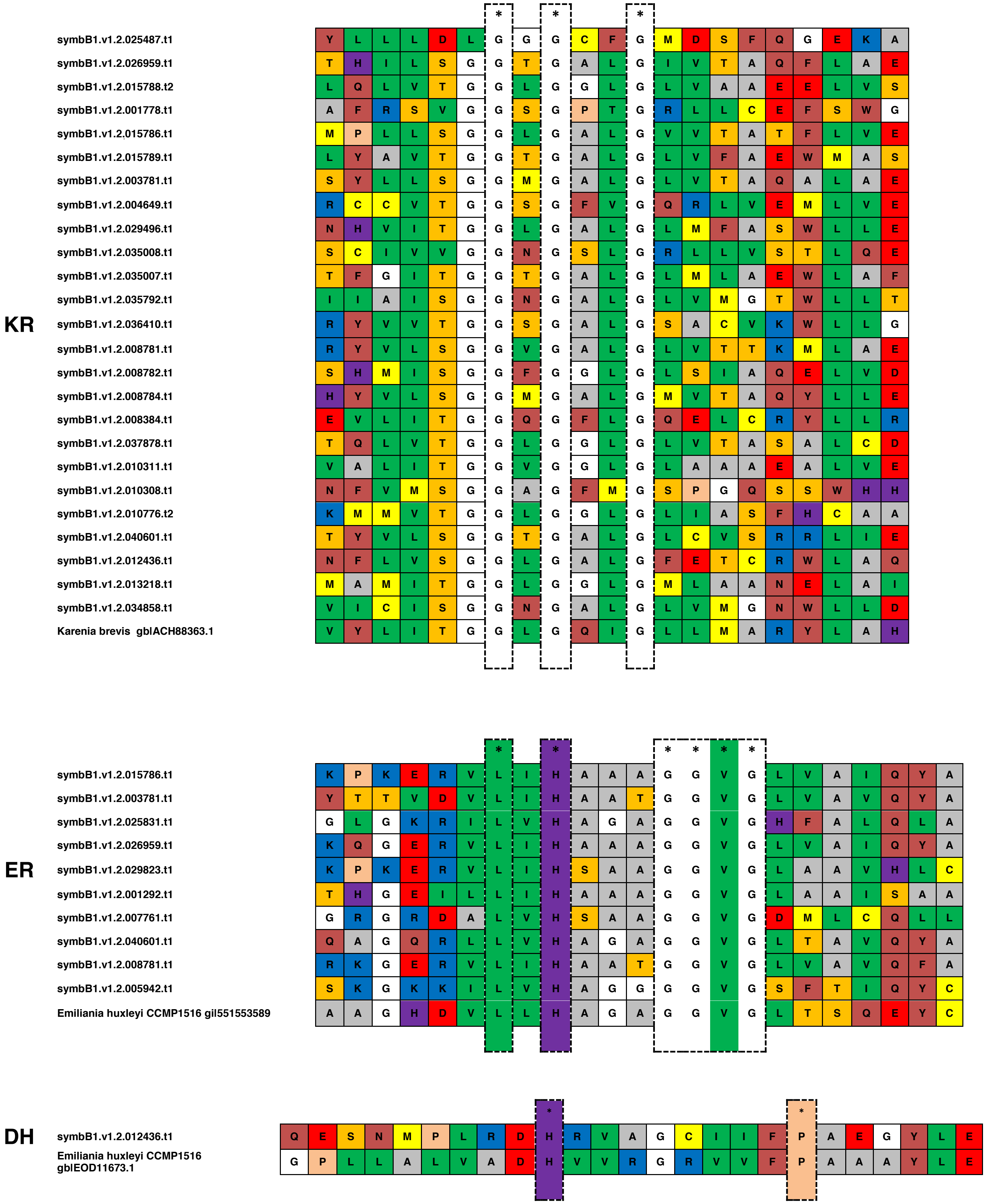
AT

											*										
symbB1.v1.2.003781.t1	G	L	K	P	F	A	L	L	G	H	S	V	G	E	Y	T	A	A	V	V	A
symbB1.v1.2.007001.t1	A	T	R	F	E	A	A	A	G	L	S	L	G	E	Y	T	A	L	C	A	A
symbB1.v1.2.010404.t1	S	Q	S	W	Q	G	D	F	G	L	S	V	G	E	Y	A	A	L	T	C	A
symbB1.v1.2.011899.t1	V	E	R	C	Q	A	V	A	G	L	S	L	G	E	Y	T	A	L	A	V	A
symbB1.v1.2.012436.t1	G	L	C	L	D	V	V	L	G	H	S	N	G	E	F	M	A	A	V	A	A
symbB1.v1.2.012467.t1	V	E	R	V	Q	A	V	A	G	L	S	L	G	E	Y	T	A	L	C	A	A
symbB1.v1.2.015532.t1	A	E	D	F	R	A	V	A	G	L	S	L	G	E	Y	T	A	L	T	V	A
symbB1.v1.2.018170.t1	A	E	R	P	R	C	M	A	G	L	S	L	G	E	Y	T	A	L	C	A	A
symbB1.v1.2.022906.t1	V	D	R	A	Y	V	M	A	G	L	S	L	G	E	Y	T	A	L	C	A	A
symbB1.v1.2.025940.t1	V	D	R	P	F	C	V	A	G	L	S	L	G	E	Y	T	A	I	V	A	A
symbB1.v1.2.026318.t1	K	G	D	A	A	A	A	A	G	M	S	C	G	E	L	A	A	L	C	T	A
symbB1.v1.2.027670.t2	D	V	K	P	V	A	C	A	G	H	S	L	G	E	Y	A	A	A	V	I	G
symbB1.v1.2.030435.t1	G	V	Q	P	L	A	V	L	G	H	S	L	G	D	F	A	A	A	T	A	A
symbB1.v1.2.032358.t1	V	D	R	A	S	V	M	A	G	L	S	L	G	E	Y	T	A	L	C	A	A
symbB1.v1.2.039083.t1	G	E	V	P	S	I	V	L	G	H	S	V	G	E	I	A	A	A	Y	V	A
symbB1.v1.2.039996.t1	G	I	E	P	V	A	V	L	G	H	S	V	G	E	Y	A	A	A	V	C	C
Symbiodinium sp. C3 gi|384474334	S	E	R	P	R	C	M	A	G	L	S	L	G	E	Y	T	A	L	C	A	A
Karenia brevis gb|ACH88363.1	G	I	E	P	G	V	F	V	G	H	S	I	G	Q	Y	V	A	G	C	L	A

ACP
(PP-binding)



									*								
symbB1.v1.2.000534.t1	P	L	T	E	M	G	L	D	S	L	A	A	A	Q	L	R	N
symbB1.v1.2.001762.t1	P	L	M	D	A	G	V	D	S	L	M	S	I	E	F	R	S
symbB1.v1.2.003781.t1	P	L	M	A	A	G	M	D	S	L	S	S	V	E	F	R	N
symbB1.v1.2.003989.t1	P	L	M	D	A	G	L	D	S	L	S	M	V	E	F	R	N
symbB1.v1.2.040551.t1	P	L	T	T	A	G	M	D	S	L	S	A	V	E	L	R	R
symbB1.v1.2.015786.t1	A	L	M	E	S	G	M	D	S	L	S	G	V	E	F	R	N
symbB1.v1.2.019479.t1	P	F	M	E	A	G	M	D	S	L	S	S	V	S	L	T	S
symbB1.v1.2.029496.t1	P	L	M	E	A	G	I	D	S	L	S	A	V	E	F	R	S
symbB1.v1.2.005063.t1	D	L	A	F	I	G	L	D	S	L	Q	A	G	V	L	V	S
symbB1.v1.2.007443.t3	T	A	L	M	D	G	I	D	S	L	G	S	T	L	V	I	N
symbB1.v1.2.008326.t1	E	F	L	C	E	N	L	D	S	L	D	L	A	R	L	Q	S
symbB1.v1.2.015788.t1	P	L	M	E	A	G	I	D	S	L	S	A	V	E	F	R	N
symbB1.v1.2.013531.t1	P	L	M	E	A	G	M	D	S	L	S	S	V	E	F	R	N
symbB1.v1.2.008780.t1	P	L	M	E	A	G	L	D	S	L	S	S	V	D	F	R	N
symbB1.v1.2.008781.t1	P	L	M	E	A	G	M	D	S	L	S	A	V	E	F	R	N
symbB1.v1.2.008782.t1	P	L	M	D	M	G	L	D	S	L	A	A	V	E	F	R	N
symbB1.v1.2.008784.t1	P	L	M	E	S	G	M	D	S	L	S	A	V	E	F	R	N
symbB1.v1.2.009497.t1	A	L	M	D	S	G	M	D	S	L	T	A	V	S	F	R	N
symbB1.v1.2.011469.t1	P	L	M	E	A	G	L	T	S	N	S	A	I	I	M	R	D
symbB1.v1.2.015740.t1	P	L	M	D	A	G	L	D	S	L	S	M	V	Q	F	R	N
symbB1.v1.2.017853.t1	P	L	M	E	S	G	L	D	S	L	S	A	V	A	F	R	N
symbB1.v1.2.038311.t1	S	L	H	Q	L	G	L	D	S	L	E	L	V	Q	L	R	R
symbB1.v1.2.035007.t1	E	F	D	E	L	G	L	D	S	L	S	G	V	E	A	S	R
symbB1.v1.2.033167.t1	A	L	M	D	I	G	L	D	S	L	A	S	V	S	F	R	D
symbB1.v1.2.036002.t1	R	I	D	I	D	G	L	E	S	L	L	M	K	N	S	A	V
symbB1.v1.2.035491.t1	A	L	M	D	A	G	L	D	S	L	A	S	V	E	F	Q	R
symbB1.v1.2.021709.t1	A	L	M	D	S	G	M	D	S	L	T	A	V	S	F	R	N
symbB1.v1.2.018367.t1	V	L	M	D	S	G	M	D	S	L	T	S	V	A	F	R	N
symbB1.v1.2.016135.t1	T	L	A	E	L	G	V	D	S	I	S	A	A	P	L	A	D
symbB1.v1.2.017506.t2	Q	D	G	L	S	G	L	E	S	L	K	V	I	I	L	V	S
symbB1.v1.2.017743.t1	D	L	N	E	S	G	L	D	S	L	A	A	A	E	L	S	T
symbB1.v1.2.018635.t1	G	F	F	A	S	G	L	D	S	F	D	M	G	V	I	Q	N
symbB1.v1.2.020351.t1	T	L	T	E	L	G	A	D	S	L	D	I	V	E	S	V	M
symbB1.v1.2.020352.t1	T	L	S	E	L	G	A	D	S	L	D	I	V	E	S	V	M
symbB1.v1.2.010769.t1	N	M	S	F	H	G	L	D	S	L	M	L	G	L	L	L	G
symbB1.v1.2.020642.t1	A	F	I	D	A	G	M	D	S	L	S	G	V	S	L	V	S
symbB1.v1.2.024742.t1	A	L	M	D	S	G	I	D	S	L	S	A	T	T	F	I	R
symbB1.v1.2.024849.t1	T	F	F	D	Y	G	M	D	S	L	E	L	I	R	V	R	R
symbB1.v1.2.025182.t1	G	F	F	Q	L	G	I	D	S	L	E	M	I	R	V	R	R
symbB1.v1.2.025887.t1	G	F	F	Q	L	G	I	D	S	L	E	M	I	R	V	K	R
symbB1.v1.2.026958.t1	P	L	M	D	M	G	L	D	S	L	S	A	M	D	L	Q	R
symbB1.v1.2.015789.t1	P	L	M	E	M	G	L	D	S	L	A	G	V	E	F	R	R
symbB1.v1.2.036576.t1	P	F	M	D	A	G	M	D	S	L	S	S	V	A	L	M	S
symbB1.v1.2.022094.t3	P	L	M	E	S	G	V	D	S	L	A	S	V	E	L	R	T
symbB1.v1.2.035340.t1	P	L	M	E	A	G	M	D	S	L	S	S	V	Q	L	V	T
symbB1.v1.2.023189.t1	P	L	M	D	A	G	L	D	S	L	A	A	V	E	F	G	R
symbB1.v1.2.030674.t3	P	L	M	D	I	G	I	N	S	M	N	A	V	V	F	R	R
symbB1.v1.2.037879.t1	P	L	M	D	M	G	L	D	S	L	S	A	V	E	F	R	R
symbB1.v1.2.026959.t1	T	L	L	R	S	G	M	D	S	L	S	G	V	E	F	R	R
symbB1.v1.2.040289.t1	F	V	H	D	L	G	I	D	S	A	G	M	A	G	L	L	G
symbB1.v1.2.029823.t1	T	F	E	D	A	G	L	D	S	L	S	L	I	S	L	A	R
symbB1.v1.2.034871.t1	V	F	V	E	V	G	V	D	S	I	T	A	V	D	L	V	R



KR

							*		*			*									
symbB1.v1.2.025487.t1	Y	L	L	L	D	L	G	G	G	C	F	G	M	D	S	F	Q	G	E	K	A
symbB1.v1.2.026959.t1	T	H	I	L	S	G	G	T	G	A	L	G	I	V	T	A	Q	F	L	A	E
symbB1.v1.2.015788.t2	L	Q	L	V	T	G	G	L	G	G	L	G	L	V	A	A	E	E	L	V	S
symbB1.v1.2.001778.t1	A	F	R	S	V	G	G	S	G	P	T	G	R	L	L	C	E	F	S	W	G
symbB1.v1.2.015786.t1	M	P	L	L	S	G	G	L	G	A	L	G	V	V	T	A	T	F	L	V	E
symbB1.v1.2.015789.t1	L	Y	A	V	T	G	G	T	G	A	L	G	L	V	F	A	E	W	M	A	S
symbB1.v1.2.003781.t1	S	Y	L	L	S	G	G	M	G	A	L	G	L	V	T	A	Q	A	L	A	E
symbB1.v1.2.004649.t1	R	C	C	V	T	G	G	S	G	F	V	G	Q	R	L	V	E	M	L	V	E
symbB1.v1.2.029496.t1	N	H	V	I	T	G	G	L	G	A	L	G	L	M	F	A	S	W	L	L	E
symbB1.v1.2.035008.t1	S	C	I	V	V	G	G	N	G	S	L	G	R	L	L	V	S	T	L	Q	E
symbB1.v1.2.035007.t1	T	F	G	I	T	G	G	T	G	A	L	G	L	M	L	A	E	W	L	A	F
symbB1.v1.2.035792.t1	I	I	A	I	S	G	G	N	G	A	L	G	L	V	M	G	T	W	L	L	T
symbB1.v1.2.036410.t1	R	Y	V	V	T	G	G	S	G	A	L	G	S	A	C	V	K	W	L	L	G
symbB1.v1.2.008781.t1	R	Y	V	L	S	G	G	V	G	A	L	G	L	V	T	T	K	M	L	A	E
symbB1.v1.2.008782.t1	S	H	M	I	S	G	G	F	G	G	L	G	L	S	I	A	Q	E	L	V	D
symbB1.v1.2.008784.t1	H	Y	V	L	S	G	G	M	G	A	L	G	M	V	T	A	Q	Y	L	L	E
symbB1.v1.2.008384.t1	E	V	L	I	T	G	G	Q	G	F	L	G	Q	E	L	C	R	Y	L	L	R
symbB1.v1.2.037878.t1	T	Q	L	V	T	G	G	L	G	G	L	G	L	V	T	A	S	A	L	C	D
symbB1.v1.2.010311.t1	V	A	L	I	T	G	G	V	G	G	L	G	L	A	A	A	E	A	L	V	E
symbB1.v1.2.010308.t1	N	F	V	M	S	G	G	A	G	F	M	G	S	P	G	Q	S	S	W	H	H
symbB1.v1.2.010776.t2	K	M	M	V	T	G	G	L	G	G	L	G	L	I	A	S	F	H	C	A	A
symbB1.v1.2.040601.t1	T	Y	V	L	S	G	G	T	G	A	L	G	L	C	V	S	R	R	L	I	E
symbB1.v1.2.012436.t1	N	F	L	V	S	G	G	L	G	A	L	G	F	E	T	C	R	W	L	A	Q
symbB1.v1.2.013218.t1	M	A	M	I	T	G	G	L	G	G	L	G	M	L	A	A	N	E	L	A	I
symbB1.v1.2.034858.t1	V	I	C	I	S	G	G	N	G	A	L	G	L	V	M	G	N	W	L	L	D
Karenia brevis gb|ACH88363.1	V	Y	L	I	T	G	G	L	G	Q	I	G	L	L	M	A	R	Y	L	A	H

ER

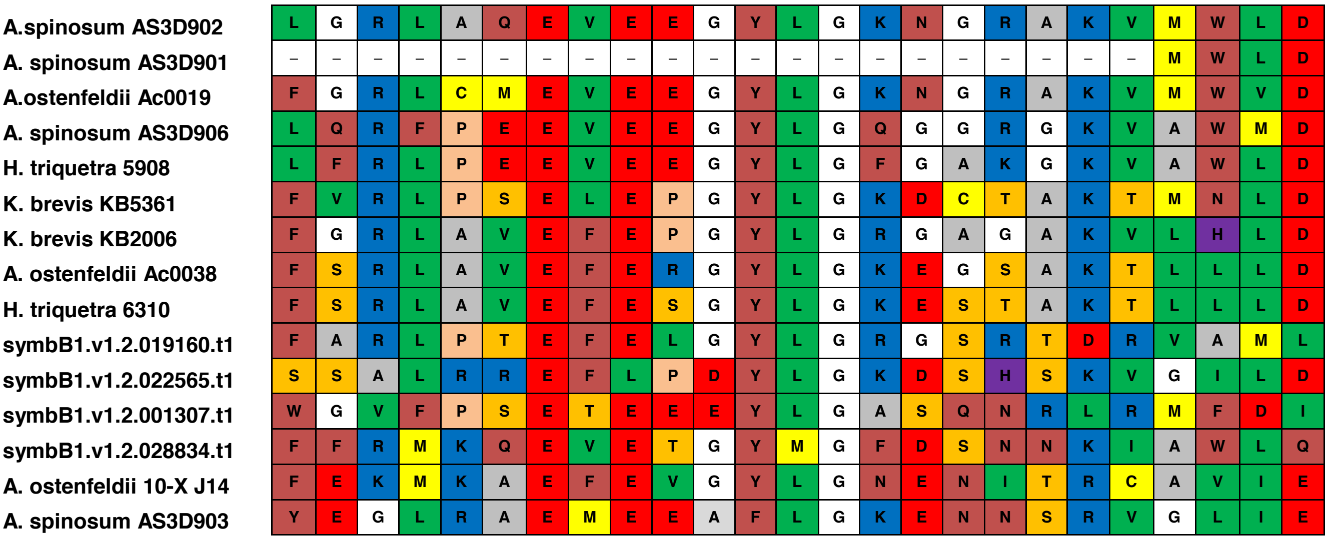
							*		*				*	*	*	*							
symbB1.v1.2.015786.t1	K	P	K	E	R	V	L	I	H	A	A	A	G	G	V	G	L	V	A	I	Q	Y	A
symbB1.v1.2.003781.t1	Y	T	T	V	D	V	L	I	H	A	A	T	G	G	V	G	L	V	A	V	Q	Y	A
symbB1.v1.2.025831.t1	G	L	G	K	R	I	L	V	H	A	G	A	G	G	V	G	H	F	A	L	Q	L	A
symbB1.v1.2.026959.t1	K	Q	G	E	R	V	L	I	H	A	A	A	G	G	V	G	L	V	A	I	Q	Y	A
symbB1.v1.2.029823.t1	K	P	K	E	R	V	L	I	H	S	A	A	G	G	V	G	L	A	A	V	H	L	C
symbB1.v1.2.001292.t1	T	H	G	E	I	L	L	I	H	A	A	A	G	G	V	G	L	A	A	I	S	A	A
symbB1.v1.2.007761.t1	G	R	G	R	D	A	L	V	H	S	A	A	G	G	V	G	D	M	L	C	Q	L	L
symbB1.v1.2.040601.t1	Q	A	G	Q	R	L	L	V	H	A	G	A	G	G	V	G	L	T	A	V	Q	Y	A
symbB1.v1.2.008781.t1	R	K	G	E	R	V	L	I	H	A	A	T	G	G	V	G	L	V	A	V	Q	F	A
symbB1.v1.2.005942.t1	S	K	G	K	K	I	L	V	H	A	G	G	G	G	V	G	S	F	T	I	Q	Y	C
Emiliania huxleyi CCMP1516 gi|551553589	A	A	G	H	D	V	L	L	H	A	G	A	G	G	V	G	L	T	S	Q	E	Y	C

DH

										*									*						
symbB1.v1.2.012436.t1	Q	E	S	N	M	P	L	R	D	H	R	V	A	G	C	I	I	F	P	A	E	G	Y	L	E
Emiliania huxleyi CCMP1516 gb|EOD11673.1	G	P	L	L	A	L	V	A	D	H	V	V	R	G	R	V	V	F	P	A	A	A	Y	L	E

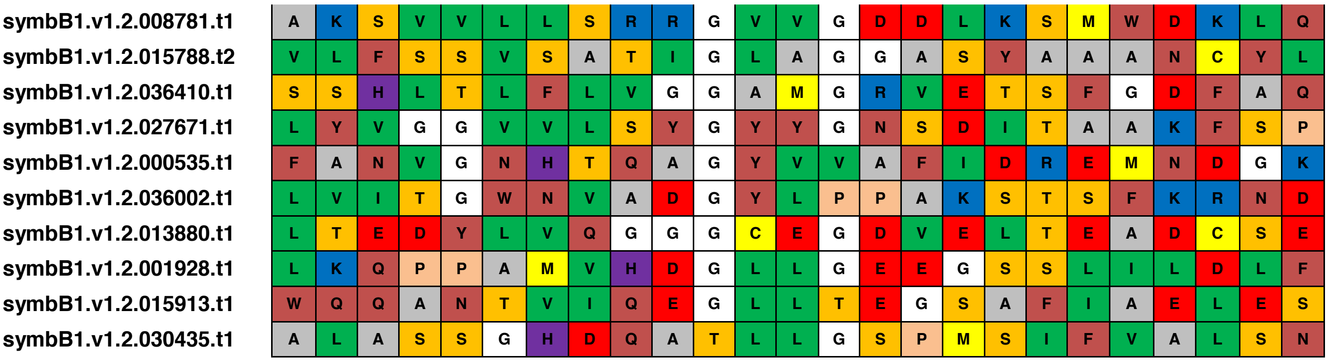
Figure S5. (A) Multiple alignment of the truncated, conserved, N-termini of dinoflagellate KSs (B) Additional Symbiodinium sequences with the divergent signatures. Lower panel: Maximum likelihood tree of the N-termini computed with 1000 bootstrap replicates. Bootstrap values ≥ 50% are marked at appropriate nodes.

A



A.spinosum AS3D902	L	G	R	L	A	Q	E	V	E	E	G	Y	L	G	K	N	G	R	A	K	V	M	W	L	D
A. spinosum AS3D901	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	M	W	L	D
A.ostenfeldii Ac0019	F	G	R	L	C	M	E	V	E	E	G	Y	L	G	K	N	G	R	A	K	V	M	W	V	D
A. spinosum AS3D906	L	Q	R	F	P	E	E	V	E	E	G	Y	L	G	Q	G	G	R	G	K	V	A	W	M	D
H. triquetra 5908	L	F	R	L	P	E	E	V	E	E	G	Y	L	G	F	G	A	K	G	K	V	A	W	L	D
K. brevis KB5361	F	V	R	L	P	S	E	L	E	P	G	Y	L	G	K	D	C	T	A	K	T	M	N	L	D
K. brevis KB2006	F	G	R	L	A	V	E	F	E	P	G	Y	L	G	R	G	A	G	A	K	V	L	H	L	D
A. ostenfeldii Ac0038	F	S	R	L	A	V	E	F	E	R	G	Y	L	G	K	E	G	S	A	K	T	L	L	L	D
H. triquetra 6310	F	S	R	L	A	V	E	F	E	S	G	Y	L	G	K	E	S	T	A	K	T	L	L	L	D
symbB1.v1.2.019160.t1	F	A	R	L	P	T	E	F	E	L	G	Y	L	G	R	G	S	R	T	D	R	V	A	M	L
symbB1.v1.2.022565.t1	S	S	A	L	R	R	E	F	L	P	D	Y	L	G	K	D	S	H	S	K	V	G	I	L	D
symbB1.v1.2.001307.t1	W	G	V	F	P	S	E	T	E	E	E	Y	L	G	A	S	Q	N	R	L	R	M	F	D	I
symbB1.v1.2.028834.t1	F	F	R	M	K	Q	E	V	E	T	G	Y	M	G	F	D	S	N	N	K	I	A	W	L	Q
A. ostenfeldii 10-X J14	F	E	K	M	K	A	E	F	E	V	G	Y	L	G	N	E	N	I	T	R	C	A	V	I	E
A. spinosum AS3D903	Y	E	G	L	R	A	E	M	E	E	A	F	L	G	K	E	N	N	S	R	V	G	L	I	E

B



symbB1.v1.2.008781.t1	A	K	S	V	V	L	L	S	R	R	G	V	V	G	D	D	L	K	S	M	W	D	K	L	Q
symbB1.v1.2.015788.t2	V	L	F	S	S	V	S	A	T	I	G	L	A	G	G	A	S	Y	A	A	A	N	C	Y	L
symbB1.v1.2.036410.t1	S	S	H	L	T	L	F	L	V	G	G	A	M	G	R	V	E	T	S	F	G	D	F	A	Q
symbB1.v1.2.027671.t1	L	Y	V	G	G	V	V	L	S	Y	G	Y	Y	G	N	S	D	I	T	A	A	K	F	S	P
symbB1.v1.2.000535.t1	F	A	N	V	G	N	H	T	Q	A	G	Y	V	V	A	F	I	D	R	E	M	N	D	G	K
symbB1.v1.2.036002.t1	L	V	I	T	G	W	N	V	A	D	G	Y	L	P	P	A	K	S	T	S	F	K	R	N	D
symbB1.v1.2.013880.t1	L	T	E	D	Y	L	V	Q	G	G	G	C	E	G	D	V	E	L	T	E	A	D	C	S	E
symbB1.v1.2.001928.t1	L	K	Q	P	P	A	M	V	H	D	G	L	L	G	E	E	G	S	S	L	I	L	D	L	F
symbB1.v1.2.015913.t1	W	Q	Q	A	N	T	V	I	Q	E	G	L	L	T	E	G	S	A	F	I	A	E	L	E	S
symbB1.v1.2.030435.t1	A	L	A	S	S	G	H	D	Q	A	T	L	L	G	S	P	M	S	I	F	V	A	L	S	N