

## Supplementary Materials

**Table S1.** List of reference genes used for normalization of transcript TPM values. Genes were obtained from Takahashi-Kariyazono et al., 2018.

Gene name	Accession
26S protease regulatory subunit	COG1222
ATPase, Ca transporting, plasma membrane	ENOG410XNNC
Calsyntenin	ENOG410XT2J
Cathepsin	COG4870
CDC42 small effector	ENOG4112ATR
Charged multivesicular body protein	COG5491
Component of the eukaryotic translation initiation factor 3 (eIF-3) complex	COG5354
Dishevelled, dsh homolog	ENOG410Y5G4
Far upstream element (FUSE) binding protein	ENOG410XZYE
GTPase activating protein (SH3 domain) binding protein	ENOG410YV57
Secretory carrier membrane protein	ENOG410XSJN
Syndecan binding protein (syntenin)	ENOG410YNPQ
Tetraspanin	ENOG4111IRY
Ubiquitin associated protein	ENOG4110RI8
Ubiquitin-conjugating enzyme	ENOG410XP8C
Ubiquitin-conjugating enzyme	COG5078

**Table S2.** Fluorescent protein nucleotide sequences included in the phylogenetic analysis. Most of the sequences were compiled from Alieva et al (2008) and retrieved from the NCBI. Additional sequences were obtained from the ReefGenomics database. The trimmed alignment is available as Supplementary File S2.

Database	Code	Species	Fluorescent Type	Accession
NCBI nucleotide database (compiled from Alieva et al., 2008)	aacu_AY646077	<i>Acropora aculeus</i>	Chromoprotein	AY646077
	aacu_AY646069	<i>Acropora aculeus</i>	Green	AY646069
	aacu_AY646066	<i>Acropora aculeus</i>	Green	AY646066
	adig_LC177541	<i>Acropora digitifera</i>	Cyan-Green	LC177541
	adig_XM_015895650	<i>Acropora digitifera</i>	Cyan	XM_015895650
	adig_EU498722	<i>Acropora eurystoma</i>	Green	EU498722
	ahya_AY646076	<i>Acropora hyacinthus</i>	Chromoprotein	AY646076
	amil_AY646070	<i>Acropora millepora</i>	Cyan	AY646070
	amil_AY646075	<i>Acropora millepora</i>	Chromoprotein	AY646075
	amil_AY646067	<i>Acropora millepora</i>	Green	AY646067
	amil_AY646073	<i>Acropora millepora</i>	Red	AY646073
	anob_AY646072	<i>Acropora nobilis</i>	Cyan	AY646072
	anob_AY646071	<i>Acropora nobilis</i>	Cyan	AY646071
	anob_AY646068	<i>Acropora nobilis</i>	Green	AY646068
	aten_AY646074	<i>Acropora tenuis</i>	Chromoprotein	AY646074
	acoe_AY151052	<i>Aequorea coerulescens</i>	Green	AY151052
	amac_AF435432	<i>Aequorea macrodactyla</i>	Green	AF435432
	GFP_X96418	<i>Aequorea victoria</i>	Green	X96418
	afra_AY647156	<i>Agaricia fragilis</i>	Green	AY647156
	amaj_AF168421	<i>Anemonia manjano</i>	Cyan	AF168421
	asul_EF587182	<i>Anemonia sulcata</i>	Chromoprotein	EF587182
	asul_AF545827	<i>Anemonia sulcata</i>	Green	AF545827
	asul_AF246709	<i>Anemonia sulcata</i>	Chromoprotein	AF246709
	anth_AY485334	<i>Anthomedusae sp</i>	Green	AY485334
	anth_AY485335	<i>Anthomedusae sp</i>	Green	AY485335
	anth_AY485336	<i>Anthomedusae sp</i>	Chromoprotein	AY485336
	alaj_AY508123	<i>Astrangia lajollaensis</i>	Green	AY508123
	alaj_AY508124	<i>Astrangia lajollaensis</i>	Green	AY508124
	alaj_AY508125	<i>Astrangia lajollaensis</i>	Green	AY508125
	cjar_EF186664	<i>Catalaphyllia jardinei</i>	Red	EF186664
	cmem_AF545830	<i>Cerianthus membranaceus</i>	Green	AF545830
	ceri_AY296063	<i>Cerianthus sp</i>	Red	AY296063
	cpop_AB185173	<i>Chiridius poppei</i>	Green	AB185173

clav_AF168424	<i>Clavularia sp</i>	Cyan-Green	AF168424
cgig_AF363775	<i>Condylactis gigantea</i>	Chromoprotein	AF363775
cgig_AY037776	<i>Condylactis gigantea</i>	Green	AY037776
cpas_AF383155	<i>Condylactis passiflora</i>	Chromoprotein	AF383155
dend_AF420591	<i>Dendronephthya sp</i>	Red	AF420591
DsRed_AF168419	<i>Discosoma sp</i>	Red	AF168419
disc_AF272711	<i>Discosoma sp.</i>	Red	AF272711
dstr_AF168420	<i>Discosoma striata</i>	Cyan	AF168420
eech_DQ206383	<i>Echinophyllia echinata</i>	Green	DQ206383
eech_DQ206395	<i>Echinophyllia echinata</i>	Green	DQ206395
eech_DQ206396	<i>Echinophyllia echinata</i>	Green	DQ206396
eech_DQ206387	<i>Echinophyllia echinata</i>	Red	DQ206387
Dronpa_AB180726	<i>Echinophyllia sp</i>	Green	AB180726
efor_EU498726	<i>Echinopora forskaliana</i>	Chromo-red	EU498726
equa_AY130757	<i>Entacmaea quadricolor</i>	Red	AY130757
efas_DQ206397	<i>Eusmilia fastigiata</i>	Cyan	DQ206397
efas_DQ206385	<i>Eusmilia fastigiata</i>	Green	DQ206385
KikG_AB193294	<i>Favia favius</i>	Green	AB193294
fabd_EU498723	<i>Favites abdita</i>	Green	EU498723
Azami_AB107915	<i>Galaxea fascicularis</i>	Green	AB107915
gfas_DQ206394	<i>Galaxea fascicularis</i>	Chromoprotein	DQ206394
gfas_DQ206389	<i>Galaxea fascicularis</i>	Green	DQ206389
gdji_DQ206376	<i>Goniopora djiboutiensis</i>	Chromoprotein	DQ206376
gten_AF383156	<i>Goniopora tenuidens</i>	Chromoprotein	AF383156
hcri_AF363776	<i>Heteractis crispa</i>	Chromoprotein	AF363776
hcri_AF420592	<i>Heteractis crispa</i>	Green	AF420592
hmag_AY461714	<i>Heteractis magnifica</i>	Chromoprotein	AY461714
laes_AY268073	<i>Labidocera aestiva</i>	Green	AY268073
KO_AB128820	<i>Lithophyllon concinna</i>	Red	AB128820
EosFP_AY765217	<i>Lobophyllia hemprichii</i>	Red	AY765217
mmea_AY155344	<i>Meandrina meandrites</i>	Green	AY155344
mann_AY037766	<i>Montastraea annularis</i>	Green	AY037766
mcav_AY181552	<i>Montastraea cavernosa</i>	Red	AY181552
mcav_AY181553	<i>Montastraea cavernosa</i>	Green	AY181553
mcav_AY181554	<i>Montastraea cavernosa</i>	Green	AY181554
mcav_AY181555	<i>Montastraea cavernosa</i>	Green	AY181555
mcav_AY181556	<i>Montastraea cavernosa</i>	Cyan	AY181556
mfav_AY679112	<i>Montastraea faveolata</i>	Green	AY679112
mfav_AF401282	<i>Montastraea faveolata</i>	Green	AF401282
meff_DQ206381	<i>Montipora efflorescens</i>	Cyan	DQ206381

	meff_DQ206377	<i>Montipora efflorescens</i>	Chromoprotein	DQ206377
	meff_DQ206393	<i>Montipora efflorescens</i>	Green	DQ206393
	meff_DQ206379	<i>Montipora efflorescens</i>	Red	DQ206379
	mmil_DQ206392	<i>Montipora millepora</i>	Cyan	DQ206392
	Keima_AB209967	<i>Montipora sp</i>	Chromoprotein	AB209967
	mont_LC029025	<i>Montipora sp</i>	Green	LC029025
	mele_DQ206382	<i>Mycedium elephantotus</i>	Cyan	DQ206382
	RFP_DQ206386	<i>Mycedium elephantotus</i>	Red	DQ206386
	phia_AY485333	<i>Phialidium sp</i>	Yellow	AY485333
	plam_EU498724	<i>Platygira lamellina</i>	Green	EU498724
	pdam_AY679113	<i>Pocillopora damicornis</i>	Cyan	AY679113
	pmea_AY268074	<i>Pontella meadi</i>	Green	AY268074
	pmea_AY268075	<i>Pontella meadi</i>	Green	AY268075
	pont_AY268076	<i>Pontellidae sp</i>	Green	AY268076
	pplu_AY268071	<i>Pontellina plumata</i>	Green	AY268071
	pplu_AY268072	<i>Pontellina plumata</i>	Green	AY268072
	ppor_DQ206391	<i>Porites porites</i>	Green	DQ206391
	ppor_DQ206380	<i>Porites porites</i>	Red	DQ206380
	psam_EU498721	<i>Psammocora sp</i>	Cyan	EU498721
	ptil_AY015995	<i>Ptilosarcus sp</i>	Green	AY015995
	rmue_AY015996	<i>Renilla muelleri</i>	Green	AY015996
	rren_AF372525	<i>Renilla reniformis</i>	Green	AF372525
	rflo_AY037772	<i>Ricordea florida</i>	Green	AY037772
	rflo_AY037773	<i>Ricordea florida</i>	Red	AY037773
	sarc_EU498725	<i>Sarcophyton sp</i>	Green	EU498725
	scle_GQ385210	<i>Scleractinia sp</i>	Green	GQ385210
	scle_GQ385223	<i>Scleractinia sp</i>	Green	GQ385223
	scub_AY037767	<i>Scolymia cubensis</i>	Green	AY037767
	scub_AY646064	<i>Scolymia cubensis</i>	Red	AY646064
	styl_DQ206378	<i>Stylocoeniella sp</i>	Chromoprotein	DQ206378
	styl_DQ206390	<i>Stylocoeniella sp</i>	Green	DQ206390
	spis_DQ206398	<i>Stylphora pistillata</i>	Chromoprotein	DQ206398
	Kaede_AB085641	<i>Trachyphyllia geoffroyi</i>	Red	AB085641
	zoa_AY059642	<i>Zoanthus sp</i>	Red	AY059642
	zoa_AF168422	<i>Zoanthus sp</i>	Green	AF168422
	zoa_AF168423	<i>Zoanthus sp</i>	Yellow	AF168423
Blast matches from the Reefgenomics database (Liew et al., 2016)	aten_6634	<i>Acropora tenuis</i>	-	Acropora_tenuis_6634
	aten_9401	<i>Acropora tenuis</i>	-	Acropora_tenuis_9401
	aten_19218	<i>Acropora tenuis</i>	-	Acropora_tenuis_19218
	favia_44353	<i>Seriatopora hystrix</i>	-	Favia_sp_44353

	shys_88065	<i>Favia sp</i>	-	Seriatopora_hystrix_88065
Coral transcriptomes (this study)	AdigFP1	<i>Acropora digitifera</i>	-	TRINITY_DN61146_c0_g1_i3
	AdigFP2	<i>Acropora digitifera</i>	-	TRINITY_DN61146_c0_g1_i8
	FcolFP1	<i>Favites colemani</i>	-	TRINITY_DN106261_c1_g1_i1
	FcolFP2	<i>Favites colemani</i>	-	TRINITY_DN106261_c1_g2_i2
	FcolFP3	<i>Favites colemani</i>	-	TRINITY_DN106261_c1_g5_i1
	FcolFP4	<i>Favites colemani</i>	-	TRINITY_DN106261_c1_g5_i3
	FcolFP5	<i>Favites colemani</i>	-	TRINITY_DN108026_c3_g1_i1
	FcolFP6	<i>Favites colemani</i>	-	TRINITY_DN108026_c3_g3_i1
	FcolFP7	<i>Favites colemani</i>	-	TRINITY_DN108701_c1_g1_i3
	FcolFP8	<i>Favites colemani</i>	-	TRINITY_DN111964_c2_g4_i8
	MdigFP1	<i>Montipora digitata</i>	-	TRINITY_DN58575_c0_g1_i1
	MdigFP2	<i>Montipora digitata</i>	-	TRINITY_DN71210_c0_g1_i1
	MdigFP3	<i>Montipora digitata</i>	-	TRINITY_DN79654_c2_g1_i1
	ScalFP1	<i>Seriatopora caliendrum</i>	-	TRINITY_DN63255_c0_g3_i1
	ScalFP2	<i>Seriatopora caliendrum</i>	-	TRINITY_DN63255_c0_g3_i3
	ScalFP3	<i>Seriatopora caliendrum</i>	-	TRINITY_DN63255_c0_g3_i4

**Table S3.** Primer sequences used for QPCR amplification.

Species	Target/s	Transcript ID	Primers	
			Forward	Reverse
<i>A. digitifera</i>	AdigFP1/2	TRINITY_DN61146_c0_g1_i3/i8	TCAAGCAAGCATTCCC AGATG	GCAATCTCTCTCAAGA CGAATG
	Actin	TRINITY_DN58531_c3_g1_i2	CATCTATGAAGGCTAC GCTCTT	GCGGTGGTGGTGAATG AGTA
<i>F. colemani</i>	FcolFP7	TRINITY_DN108701_c1_g1_i3	TACCCACCAGACATAC CGGA	AAACGCCTCCGTCATC GAAA
	Actin	TRINITY_DN94341_c0_g3_i1	TGCAATCCTCCGTCTTG ATTTG	CAGTTGTTGTGAACGA GTAACC
<i>M. digitata</i>	MdigFP3	TRINITY_DN79654_c2_g1_i1	GACTGGTTGGGAGCCA TCTT	CGCGTACCATCCTTTAG CAG
	Actin	TRINITY_DN72672_c4_g2_i8	TGCAATCCTCCGTCTTG ATTTG	CAGTTGTTGTGAACGA GTAACC
<i>S. caliendrum</i>	ScalFP1/2/3	TRINITY_DN63255_c0_g3_i1/i3/i4	GGCAAGCAAACAGGG ACATT	ACTTTAAGGTCGGTGC CACTA
	Actin	TRINITY_DN67614_c0_g1_i1	GGTTACGCCCTGCCTC AT	GCAGTGGTTGTGAAGG AGTAC

**Table S4.** R-squared ( $R^2$ ) and Pearson's product moment coefficient (Pearson's  $r$ ) correlating the relative fold change in the expression of transcripts as measured by qPCR and the fold change in photochemical efficiency (Fv/Fm) of corals subjected to 32°C for 4, 24, 48, and 72 hours relative to controls at 28°C. Fv/Fm data was obtained from Da-Anoy et al. (2019).

<b>Species</b>	<b>Transcript</b>	<b>R<sup>2</sup></b>	<b>Pearson's r</b>
<i>F. colemani</i>	<i>FcolFP7</i>	0.3543	0.595
<i>A. digitifera</i>	<i>AdigFP1/2</i>	0.2543	0.504
<i>M. digitata</i>	<i>MdigFP3</i>	0.0146	0.121
<i>S. caliendrum</i>	<i>ScalFP1/2/3</i>	0.0091	-0.095

**Figure S1.** Relative standard curves for quantification of FP and actin expression.

