

Table S1. Differentially expressed gene quantities compared across the two predominant eukaryotic compartments of the

***Pocillopora damicornis* coral holobiont.** When the “More responsive compartment” has been left blank, this indicates that the

differentially expressed gene (DEG) percentage (*i.e.*, “% DEGs;” #DEGs/total contig count x 100) from each compartment was

similar. C=control temperature (27°C), H=high temperature (30°C), C2=controls sampled after 2 weeks, H2=high temperature corals

sampled after 2 weeks, C36=control corals sampled after 36 weeks, H36=high temperature corals sampled after 36 weeks.

Comparison	α level	#contigs (%)	fold change or comparison	#contigs (%)	#coral contigs (% DEGs)	# <i>Symbiodinium</i> contigs (% DEGs)	Coral vs. <i>Symbiodinium</i> % DEGs two-sample proportion test Z-score	More responsive compartment	
C vs. H	10^0	236,435 (100%)	10	1,564 (0.661%)	564 (1.17%)	66 (0.429%)	8.070***	host coral	
	10^{-1}	35,773 (15.1%)	10	590 (0.250%)	157 (0.326%)	39 (0.254%)	1.40		
	10^{-2}	5,092 (2.15%)	10	133 (0.056%)	28 (0.058%)	9 (0.059%)	0.022		
	10^{-3}	897 (0.379%)	10	32 (0.014%)	4 (<0.01%)	3 (<0.01%)	1.15		
	10^{-4}	265 (0.112%)	2	49 (0.021%)	8 (0.017%)	6 (0.039%)	1.63		
	10^{-5}	109 (0.046%)	2	10 (<0.01%)	1 (<0.01%)	0	0.565		
	10^{-6}	80 (0.034%)	C=0, H>0	65 (0.028%)	1 (<0.01%)	6 (0.039%)	3.80*		<i>Symbiodinium</i>
			C>0, H=0	13 (<0.01%)	2 (<0.01%)	0	0.799		
	10^{-7}	58 (0.025%)	C=0, H>0	52 (0.022%)	1 (<0.01%)	6 (0.039%)	3.80**		<i>Symbiodinium</i>
			C>0, H=0	5 (<0.01%)	1 (<0.01%)	0	0.565		
10^{-8}	43 (0.018%)	C=0, H>0	40 (0.017%)	1 (<0.01%)	6 (0.039%)	3.80**	<i>Symbiodinium</i>		
		C>0, H=0	3 (<0.01%)	0	0	no annotated results			
10^{-9}	28 (0.012%)	C=0, H>0	25 (0.011%)	0	3 (<0.01%)	3.068*	<i>Symbiodinium</i>		
		C>0, H=0	3 (<0.01%)	0	0	no annotated results			
No annotated contigs were differentially expressed at an α level of 10^{-10} .									
C2 vs. H2	10^0	236,435 (100%)	10	1,260 (0.533%)	546 (1.13%)	63 (0.410%)	8.010***	host coral	
	10^{-1}	16,788 (7.10%)	10	208 (0.088%)	57 (0.118%)	15 (0.098%)	0.662		
	10^{-2}	1,546 (0.654%)	10	49 (0.021%)	13 (0.027%)	2 (0.013%)	0.981		
	10^{-3}	232 (0.098%)	10	9 (<0.01%)	2 (<0.01%)	1 (<0.01%)	0.371		
2			43 (0.018%)	9 (0.019%)	5 (0.032%)	1.01			

		C=0, H>0	118 (0.050%)	5 (0.010%)	12 (0.078%)	4.47**	<i>Symbiodinium</i>	
		C>0, H=0	11 (<0.01%)	2 (<0.01%)	0	0.799		
	10 ⁻⁴	15 (<0.01%)	C=0, H>0	1 (<0.01%)	0	no annotated results		
			C>0, H=0	2 (<0.01%)	1 (<0.01%)	0.565		
	10 ⁻⁵	No annotated contigs were differentially expressed at an α level of 10 ⁻⁵ .						
C36 vs. H36	10 ⁰	236,435 (100%)	10	1,656 (0.700%)	579 (1.20%)	109 (0.709%)	5.13***	host coral
	10 ⁻¹	9,708 (4.11%)	10	265 (0.112%)	81 (0.168%)	31 (0.202%)	0.868	
	10 ⁻²	735 (0.311%)	10	56 (0.024%)	15 (0.031%)	9 (0.059%)	1.53	
	10 ⁻³	54 (0.023%)	10	12 (<0.01%)	5 (0.010%)	3 (<0.01%)	0.881	
			2	36 (0.015%)	8 (0.017%)	7 (0.046%)	2.04	
			C=0, H>0	5 (<0.01%)	4 (<0.01%)	0	1.13	
			C>0, H=0	5 (<0.01%)	2 (<0.01%)	0	0.799	
	10 ⁻⁴	6 (<0.01%)	2	1 (<0.01%)	0	0	no annotated results	
			C=0, H>0	2 (<0.01%)	2 (<0.01%)	0	0.799	
			C>0, H=0	0	0	0	no annotated results	
	10 ⁻⁵	No annotated contigs were differentially expressed at an α level of 10 ⁻⁵ .						
2 vs. 36	10 ⁰	236,435 (100%)	10	3,195 (1.35%)	911 (1.89%)	219 (1.42%)	3.80**	host coral
	10 ⁻¹	70,938 (30.0%)	10	2,008 (0.849%)	460 (0.954%)	169 (1.099%)	1.59	
	10 ⁻²	30,884 (13.1%)	10	529 (0.224%)	99 (0.205%)	52 (0.338%)	2.95*	<i>Symbiodinium</i>
	10 ⁻³	13,086 (5.53%)	10	139 (0.059%)	25 (0.052%)	13 (0.085%)	1.45	
	10 ⁻⁴	3,202 (1.35%)	10	39 (0.017%)	9 (0.019%)	5 (0.032%)	1.01	
	10 ⁻⁵	516 (0.218%)	10	8 (<0.01%)	2 (<0.01%)	2 (<0.01%)	1.21	
			2	360 (0.152%)	45 (0.093%)	108 (0.702%)	13.4***	<i>Symbiodinium</i>
	10 ⁻⁶	126 (0.053%)	2	36 (0.015%)	2 (<0.01%)	7 (0.046%)	3.76**	<i>Symbiodinium</i>
	10 ⁻⁷	60 (0.025%)	2	3 (<0.01%)	1 (<0.01%)	1 (<0.01%)	0.853	
			C=0, H>0	14 (<0.01%)	1 (<0.01%)	0	0.565	
			C>0, H=0	43 (0.018%)	1 (<0.01%)	6 (0.039%)	3.80**	<i>Symbiodinium</i>
	10 ⁻⁸	42 (0.018%)	C=0, H>0	3 (<0.01%)	0	0	no annotated results	
			C>0, H=0	39 (0.017%)	1 (<0.01%)	6 (0.039%)	3.80**	<i>Symbiodinium</i>
	10 ⁻⁹	28 (0.012%)	C=0, H>0	25	0	3 (0.02%)	3.10**	<i>Symbiodinium</i>
			C>0, H=0	3 (<0.01%)	0	0	no annotated results	
		No annotated contigs were differentially expressed at an α level of 10 ⁻¹⁰ .						

* $p < 0.01$. ** $p < 0.001$. *** $p < 0.0001$.

Table S2. Repeated-measures ANOVA results of host coral gene expression. Full gene names and the respective functional categories can be found in Table 1. Statistically significant differences ($p < 0.05$) have been underlined for emphasis. R^2 values between data derived from the two gene expression quantification techniques can be found in Figs. S1 and S2. “HSD” = honestly significant difference.

Gene	Illumina-derived data			Fig.	Real-time PCR-derived data			Fig.
	source of variation	Exact F	p		Tukey's HSD tests	Exact F	p	
<i>ca</i>				S1a				S1b
treatment	4.0	0.12			3.8	0.15		
time	15	<u>0.019</u>	36>2		0.29	0.63		
treatment x time	8.4	<u>0.044</u>	H36(A)>all others(B)		1.8	0.27		
<i>amylase</i>				S1d				S1e
treatment	42	<u>0.0029</u>	high>control		0.96 ^a	0.40		
time	79	<u><0.001</u>	2>36		59	<u><0.01</u>	2>36	
treatment x time	14	<u>0.020</u>	H2(A), C2(B), H36(BC), C36(C)		1.04	0.38		
<i>iontrans</i>				S1g				S1h
treatment	13	<u>0.022</u>	high>control		0.18 ^a	0.72		
time	43	<u><0.01</u>	36>2		0.078	0.81		
treatment x time	20.	<u>0.011</u>	H36(A), C36(B), C2(BC), H2(C)		10.3	0.084		
<i>sftase</i>				S1j				S1k
treatment	2.0 ^b	0.23			0.01	0.93		
time	30.	<u><0.01</u>	36>2		13	<u>0.038</u>		
treatment x time	4.5	0.102	C36(A), H36(AB), H2(BC), C2(C)		18	<u>0.024</u>		
<i>mcp</i>				S1m				S1n
treatment	1300	<u><0.001</u>	high>control		0.27 ^a	0.641		
time	42	<u><0.01</u>	2>36		260	<u><0.001</u>	2>36	
treatment x time	6.7	0.061	H2(A), C2(B), H36(BC), C36(C)		1.8	0.278		
<i>lectin</i>				S1p				S1q
treatment	150	<u><0.001</u>	high>control		6.0 ^a	0.071		
time	5.8	0.074	36>2		1.2	0.34		

<i>selectin</i>	treatment x time	6.1	0.069	H36(A)>all others(B)	S1s	1.4	0.31		S1t
	treatment	5.7	0.075			1.0 ^a	0.38		
	time	8.2	<u>0.046</u>	2>36		21	<u>0.020</u>	2>36	
<i>hsp70</i>	treatment x time	10.	<u>0.034</u>	H2(A)>all others (B)	S2a	0.90	0.41	H2(A), C2(AB), H36(AB), C36(B)	S2b
	treatment	1.2	0.34			0.36	0.58		
	time	8.6	<u>0.043</u>	36>2		0.27	0.63		
<i>cu-zn-sod</i>	treatment x time	0.90	0.40		S2d	0.015	0.91		S2e
	treatment	5.0	0.090	control>high		9.1 ^b	0.057		
	time	24	<u><0.01</u>	36>2		0.6	0.50		
<i>vwfa</i>	treatment x time	0.039	0.85		S2g	1.4	0.33		S2h
	treatment	17	<u>0.015</u>	high>control		0.12 ^b	0.75		
	time	0.28	0.63			0.39	0.58		
<i>DNAp</i>	treatment x time	71	<u>0.001</u>	H36(A), C2(A), H2(B), C36(B)	S2j	0.20	0.69		S2k
	treatment	102	<u><0.001</u>	control>high		1.5 ^a	0.29		
	time	32	<u><0.01</u>	36>2		8.3	<u>0.045</u>	36>2	
<i>smc-csp</i>	treatment x time	<0.01	0.93	C36(A), C2(B), H36(B), H2(C)	S2m	0.42	0.55		S2n
	treatment	150	<u><0.001</u>	control>high		0.25	0.65		
	time	2.2	0.21			21	<u>0.019</u>		
<i>gfp-like cp</i>	treatment x time	0.65	0.47	C2(A), C36(A), H2(B), H36(B)	S2p	21	<u>0.019</u>		S2q
	treatment	6.6	0.062			3.2 ^a	0.17		
	time	7.1	0.056	36>2		0.046	0.84		
	treatment x time	5.7	<u>0.076</u>	H36(A)>all others(B)		4.7	0.12	H36(A), C2(AB), H2(AB), C36(B)	

^alog-transformed data. ^brank-transformed data.

Table S3. Repeated-measures ANOVA results of *Symbiodinium* gene expression. Full gene names and the respective functional categories can be found in Table 1. Statistically significant differences ($p < 0.05$) are underlined for emphasis. R^2 values between data derived from the two gene expression quantification techniques can be found in Figs. S3 and S4. Genes for which both techniques yielded significant temperature treatment effects (in the model as a whole or in the post-hoc tests) have been emphasized in bold font.

“HSD” = honestly significant difference.

Gene	Illumina-derived data			Fig.	Real-time PCR-derived data			Fig.
	source of variation	Exact <i>F</i>	<i>p</i>		Tukey’s HSD tests	Exact <i>F</i>	<i>p</i>	
<i>transketolase</i>				S3a				S3b
treatment	22 ^a	<u>0.043</u>			1.0 ^a	0.42		
time	13	0.071	2>36		32	<u>0.030</u>	2>36	
treatment x time	0.033	0.87	C2(A), H2(AB), H36(BC), C36(C)		5.2	0.15	C2(A), H2(AB), H36(B), C36(B)	
<i>zifIII</i>				S3d				S3e
treatment	21	<u><0.01</u>	control>high		15 ^a	<u>0.060</u>	control>high	
time	32	<u><0.01</u>	2>36		12	0.076	2>36	
treatment x time	11	<u>0.029</u>	C2(A)>all others(B)		2.0	0.29	C2(A)>all others (B)	
<i>nrt2</i>				S3g				S3h
treatment	0.031	0.87			0.18	0.69		
time	81	<u><0.001</u>	2>36		22	<u><0.01</u>		
treatment x time	0.015	0.91	C2(A), H2(A), C36 (B), H36(B)		0.21	0.67	C2(A), H2(AB), H36(BC), C36(C)	
<i>vdic</i>				S3j				S3k
treatment	25	<u><0.01</u>	high>control		0.077	0.81		
time	78	<u><0.001</u>	2>36		28	<u>0.035</u>	2>36	
treatment x time	9.4	<u>0.038</u>	H2(A), C2(B), H36(C), C36(C)		2.0	0.29	C2(AB), H2(A), H36(AB), C36(A)	
<i>K⁺ channel</i>				S3m				S3n
treatment	2.9 ^b	0.16			<0.01	0.98		
time	88	<u><0.001</u>	2>36		27	<u>0.036</u>	2>36	
treatment x time	4.6	0.099	H2(A), C2(A), C36(B), H36(B)		0.81	0.46		
<i>Ca²⁺ channel</i>				S3p				S3q

treatment	9.5	<u>0.037</u>	control>high	0.10 ^b	0.78		
time	34	<u><0.01</u>	2>36	7.8	0.11	2>36	
treatment x time	3.8	0.12	C2(A)>all others(B)	0.17	0.72	C2(A), H2(AB), H36(AB), C36(B)	
<i>rbcL</i>							S3s S3t
treatment	11 ^c	<u>0.030</u>	high>control	0.32	0.60		
time	45	<u><0.01</u>	2>36	24	<u><0.01</u>	2>36	
treatment x time	0.058	0.82	H2(A), C2(A), H36(B), C36(B)	0.019	0.90	H2(A), C2(AB), H36(BC), C36(C)	
<i>psl</i>							S3v S3w S3z
treatment	12	<u>0.027</u>	high>control	6.7 ^a	0.061		
time	49	<u>0.002</u>	2>36	26	<u><0.01</u>	2>36	
treatment x time	0.17	0.70	H2(A), C2(AB), H36(BC), C36(C)	1.9	0.24	H2(A), C2(A), H36(AB), C36(B)	
<i>pgpase</i>							S3y
treatment	3.0	0.16		0.32	0.60		
time	16	<u>0.016</u>	2>36	15	<u>0.018</u>	2>36	
treatment x time	0.29	0.62	H2(A), C2(A), H36(AB), C36(B)	0.034	0.86	H2(A), C2(AB), H36(AB), C36(B)	
<i>hsp40</i>							S4a S4b
treatment	0.068 ^c	0.81		0.63 ^a	0.49		
time	32	<u><0.01</u>	36>2	5.2	0.11		
treatment x time	0.39	0.57		0.064	0.82		
<i>hsp70</i>							S4d S4e
treatment	9.3	<u>0.038</u>	high>control	7.4	0.053		
time	34	<u><0.01</u>	2>36	30	<u><0.01</u>	2>36	
treatment x time	<0.01	0.94	H2(A), C2(AB), H36(BC), C36(C)	2.8	0.17	C2(A), H2(A), H36(B), C36(B)	
<i>hsp90</i>							S4g S4h
treatment	13	<u>0.023</u>	high>control	0.66 ^a	0.48		
time	32	<u><0.01</u>	2>36	66	<u><0.01</u>		
treatment x time	0.17	0.71	H2(A), C2(B), H36(B), C36(C)	2.7	0.20	C2(A), H2(A), H36(B), C36(B)	
<i>apx1</i>							S4j S4k
treatment	0.14	0.49		0.16 ^a	0.71		
time	17	<u>0.014</u>	2>36	34	<u><0.01</u>	2>36	
treatment x time	0.17	0.70	C2(A), H2(A), H36(AB), C36(B)	0.901	0.40	C2(A), H2(A), H36(B), C36(B)	
<i>ubiq1g</i>							S4m S4n
treatment	32	<u><0.01</u>	high>control	14	<u>0.033</u>	high>control	

time	1900	<u><0.001</u>	2>36	26	<u>0.015</u>	2>36
treatment x time	102	<u><0.001</u>	H2(A), C2(B), H36(B), C36(C)	0.31	0.62	H2(A), C2(AB), H36(BC), C36(C)
<i>cildyn</i>				S4p		S4q
treatment	8.7	<u>0.042</u>	high>control	1.1 ^a	0.36	
time	48	<u><0.01</u>	2>36	5.2	0.11	2>36
treatment x time	8.7	<u>0.042</u>	H2(A)>all others(B)	1.2	0.36	
RNA helicase				S4s		S4t
treatment	35	<u><0.01</u>	high>control	0.23 ^a	0.68	
time	73	<u><0.001</u>	2>36	1300	<u><0.01</u>	2>36
treatment x time	34	<u><0.01</u>	H2(A), C2(B), H36(B), C36(C)	75	<u>0.013</u>	H2(A), C2(A), H36(AB), C36(B)

^alog-transformed data. ^bsquare root-transformed data. ^crank-transformed data.

Supplemental figure captions

Fig. S1. Host coral metabolism, transport, and cell adhesion gene expression. mRNA expression levels of genes (see full names in Table 1.) involved in metabolism (a-f), transport (g-o), and cell adhesion (p-u) were determined with either Illumina RNA-Seq (fragments per kilobases mapped [fpkm]; a, d, g, j, m, p, and s) or real-time PCR (inverse-log threshold cycle [C_t] values normalized to recovery of the Solaris™ [Thermo-Scientific] RNA spike; b, e, h, k, n, q, and t) in both control (hollow diamonds of a, b, d, e, g, h, j, k, m, n, p, q, s, and t) and high temperature (black triangles of a, b, d, e, g, h, j, k, m, n, p, q, s, and t) samples. The correlation between these two techniques was also assessed for both the control (white and black diamonds at the 2 and 36-week sampling times, respectively) and high temperature (white and black triangles at the time 2 and 36-week sampling times, respectively) samples (c, f, i, l, o, r, and u), and linear regression *t*-tests were conducted to determine the significance of the correlations. In a, b, d, e, g, h, j, k, m, n, p, q, s, and t, error bars represent standard error of the mean. Letters adjacent to either control or high temperature icons in certain panels denote significance at $p < 0.05$ by Tukey's honestly significant difference tests. One biological replicate from the control treatment group sampled after two weeks was considered to be an outlier and was neither analyzed nor plotted.

Fig. S2. Expression of host coral genes involved in the stress response and other processes. mRNA expression levels of genes (see full names in Table 1.) involved in the stress response (a-f) and other processes (g-r) were determined with either Illumina RNA-Seq (fragments per kilobases mapped [fpkm]; a, d, g, j, m, and p) or real-time PCR (inverse-log threshold cycle [C_t] values normalized to recovery of the Solaris™ [Thermo-Scientific] RNA spike; b, e, h, k, n, and q) in both control (hollow diamonds of a, b, d, e, g, h, j, k, m, n, p, and q) and high temperature (black triangles of a, b, d, e, g, h, j, k, m, n, p, and q) samples. The correlation between these two

techniques was also assessed for both the control (white and black diamonds at the 2 and 36-week sampling times, respectively) and high temperature (white and black triangles at the time 2 and 36-week sampling times, respectively) samples (c, f, i, l, o, and r), and linear regression t -tests were conducted to determine the significance of the correlations. In a, b, d, e, g, h, j, k, m, n, p, and q, error bars represent standard error of the mean. Letters adjacent to either control or high temperature icons in certain panels denote significance at $p < 0.05$ by Tukey's honestly significant difference tests. One biological replicate from the control treatment group sampled after two weeks was considered to be an outlier and was neither analyzed nor plotted.

Fig. S3. *Symbiodinium* metabolism, ion transport, and photosynthesis gene expression.

mRNA expression of genes (see full names in Table 1.) involved in metabolism (a-i), ion transport (j-r), and photosynthesis (s-aa) was determined with either Illumina RNA-Seq (fragments per kilobases mapped [fpkm]; a, d, g, j, m, p, s, v, and y) or real-time PCR (inverse-log threshold cycle [C_t] values normalized to recovery of the Solaris™ [Thermo-Scientific] RNA spike; b, e, h, k, n, q, t, w, and z) in both control (hollow diamonds of a, b, d, e, g, h, j, k, m, n, p, q, s, t, v, w, y, and z) and high temperature (black triangles of a, b, d, e, g, h, j, k, m, n, p, q, s, t, v, w, y, and z) samples. The correlation between these techniques was assessed for both control (white and black diamonds at the 2 and 36-week sampling times, respectively) and high temperature (white and black triangles at the time 2 and 36-week sampling times, respectively) samples (c, f, i, l, o, r, u, x, and aa), and linear regression t -tests were conducted to determine the significance of the correlations. In a, b, d, e, g, h, j, k, m, n, p, q, s, t, v, w, y, and z, error bars represent standard error of the mean. Letters adjacent to either control or high temperature icons in certain panels denote significance ($p < 0.05$) by Tukey's honestly significant difference tests. One biological replicate from the control treatment group sampled after two weeks was considered to be an outlier and was neither analyzed nor plotted.

Fig. S4. Expression of *Symbiodinium* genes involved in the stress response and other processes. mRNA expression of genes (see full names in Table 1.) involved in the stress response (a-o) and other processes (p-u) was determined with either Illumina RNA-Seq (fragments per kilobases mapped [fpkm]; a, d, g, j, m, p, and s) or real-time PCR (inverse-log threshold cycle [C_t] values normalized to recovery of the Solaris™ [Thermo-Scientific, USA] RNA spike; b, e, h, k, n, q, and t) in both control (hollow diamonds of a, b, d, e, g, h, j, k, m, n, p, q, s, and t) and high temperature (black triangles of a, b, d, e, g, h, j, k, m, n, p, q, s, and t) samples. The correlation between these two techniques was assessed across the control (white and black diamonds at the 2 and 36-week sampling times, respectively) and high temperature (white and black triangles at the time 2 and 36-week sampling times, respectively) samples (c, f, i, l, o, and r), and linear regression *t*-tests were conducted to determine the significance of the correlations. In a, b, d, e, g, h, j, k, m, n, p, q, s, and t error bars represent standard error of the mean. Letters adjacent to either control or high temperature icons in certain panels denote significance at $p < 0.05$ by Tukey's honestly significant difference tests. One biological replicate from the control treatment group sampled after two weeks was considered to be an outlier and was neither analyzed nor plotted.

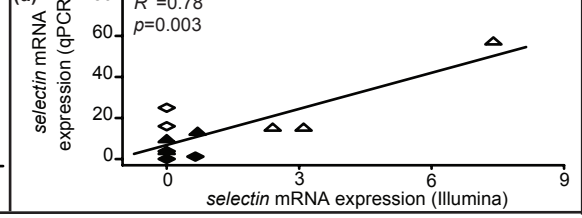
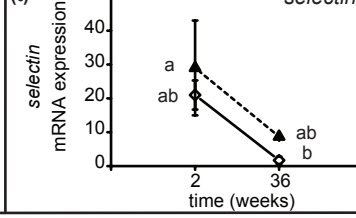
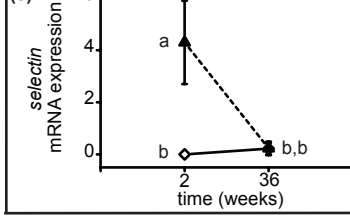
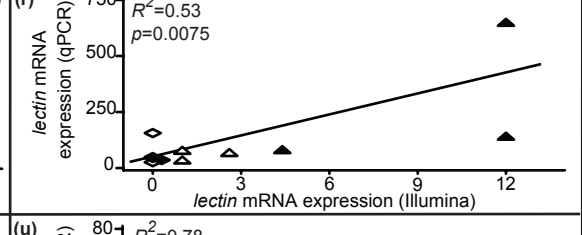
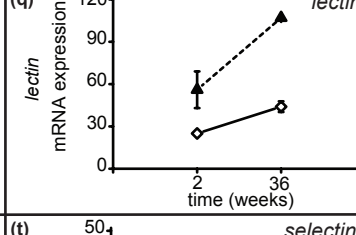
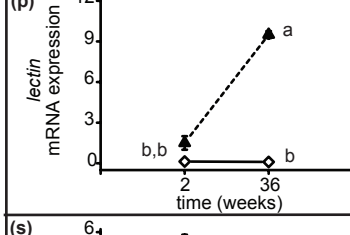
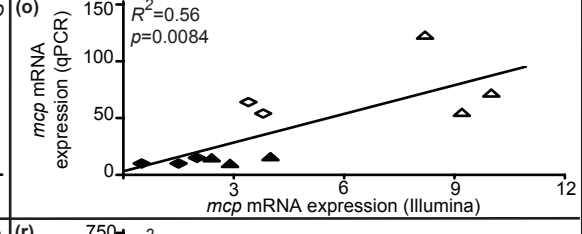
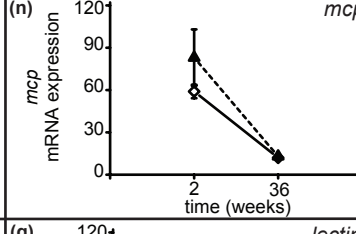
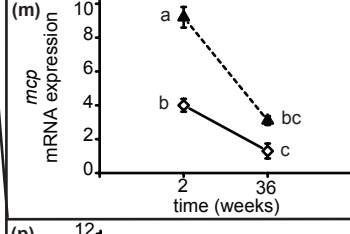
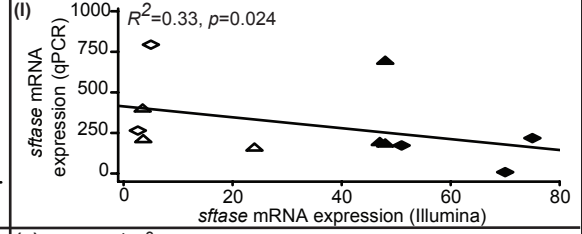
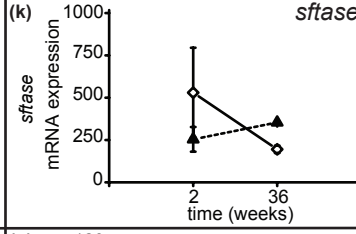
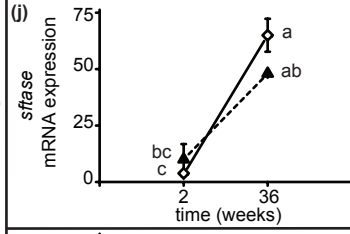
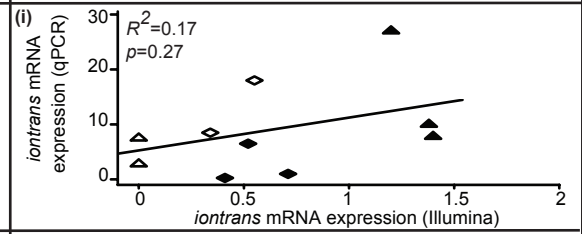
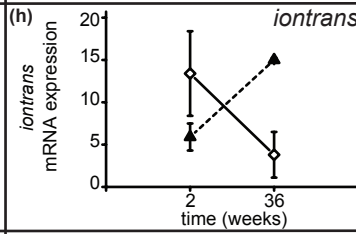
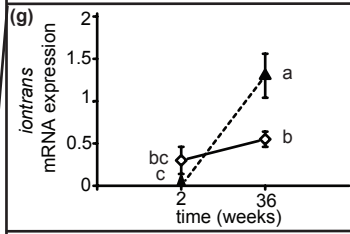
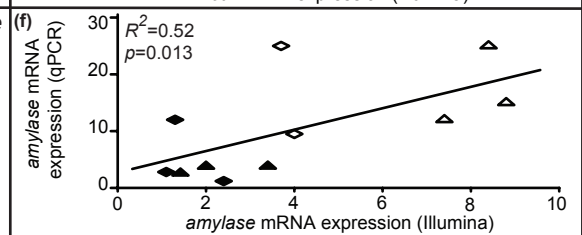
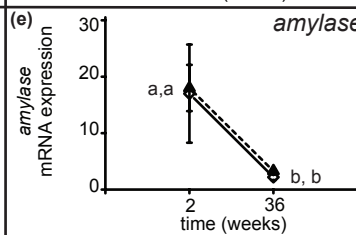
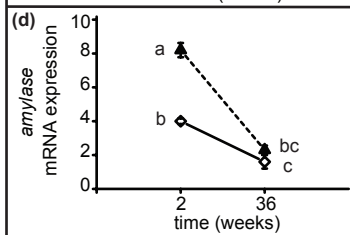
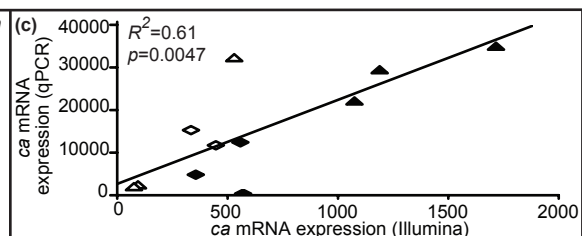
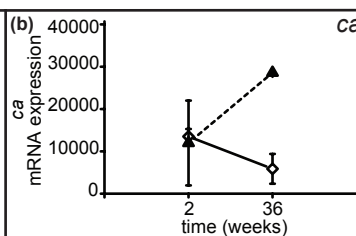
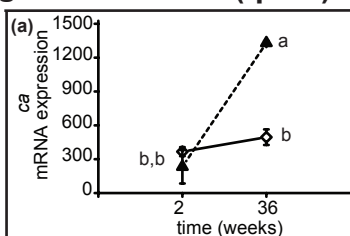
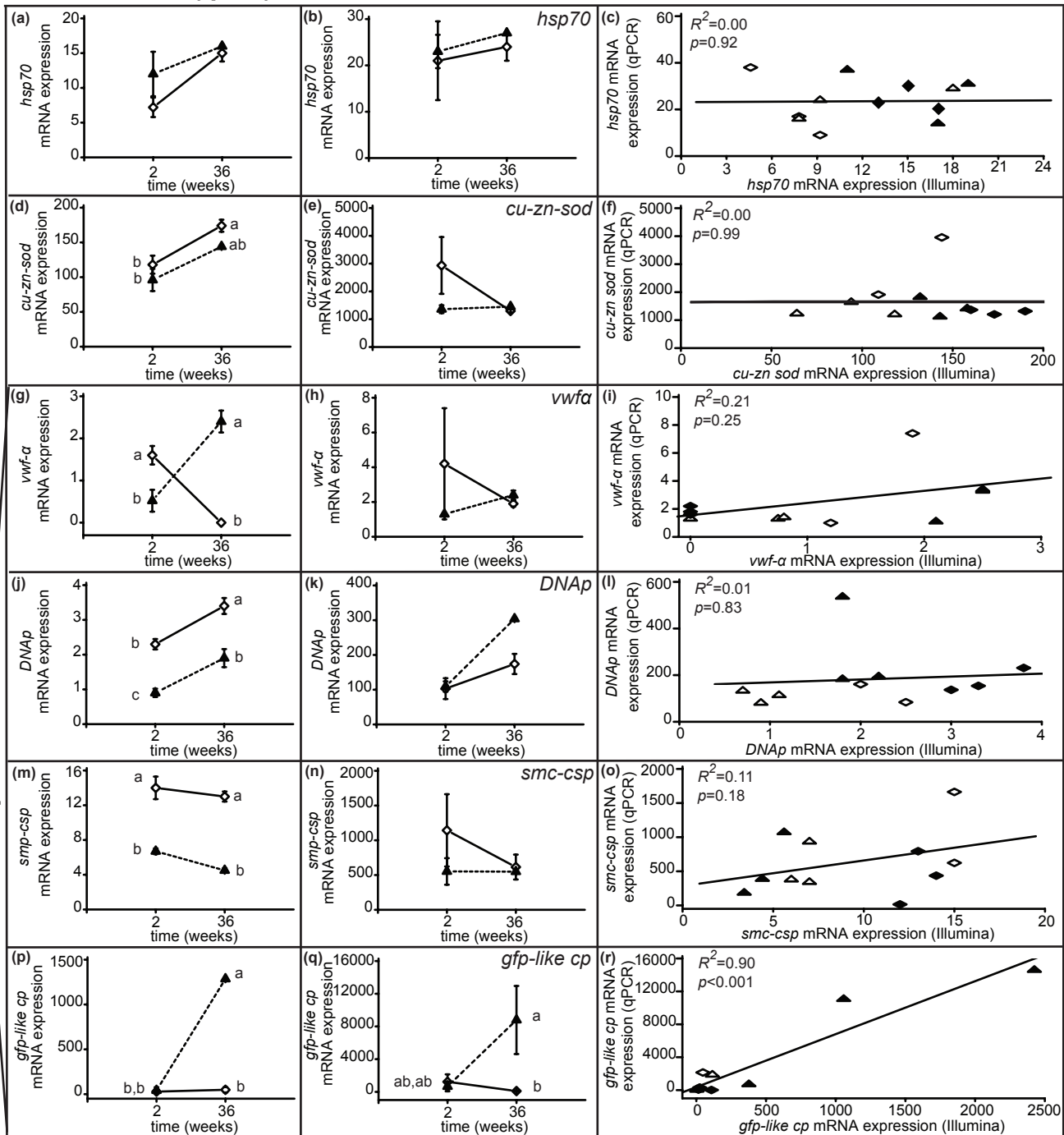
Fig. S1 Illumina (fpkm)**real-time PCR****correlation****metabolism****transport****cell adhesion**

Fig. S2 Illumina (fpkm)**real-time PCR****correlation****stress response****other processes**

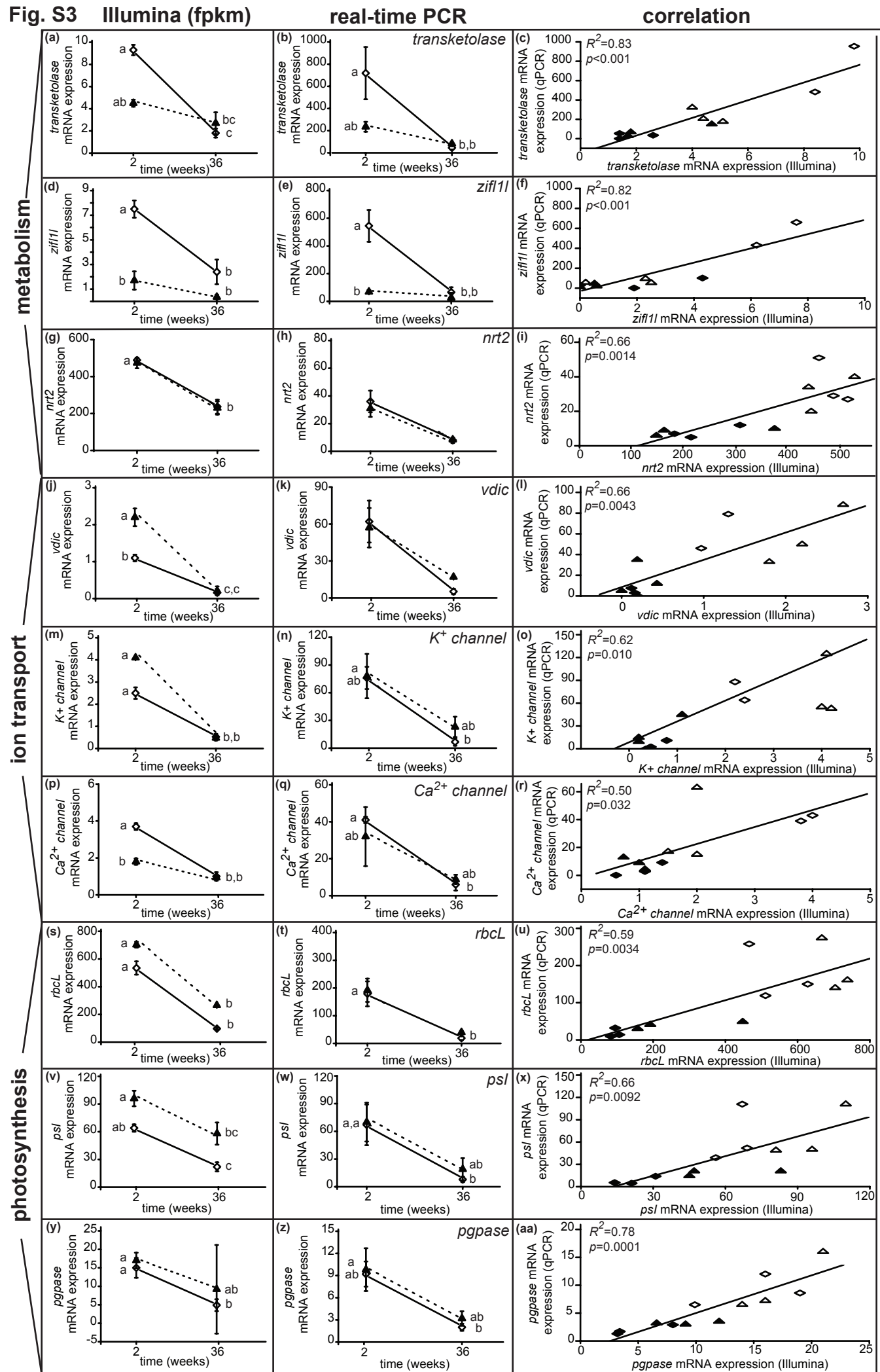


Fig. S4 Illumina (fpkm)

real-time PCR

correlation

stress response

other processes

