

**Table S1** Total amount of light emitted ( $10^9 \text{ q g}^{-1}$ ), coelenterazine content ( $\text{ng g}^{-1}$ ) and luciferase activity ( $10^9 \text{ q s}^{-1}\text{g}^{-1}$ ) in arm tissue of *Amphiura filiformis* (A) maintained in captivity without exogenous coelenterazine supply, (B) after exogenous coelenterazine supply. Data are means  $\pm$  s.e.m. Asterisks indicate: (A) that a statistical difference has been found between groups and first month of captivity with Kruskal-Wallis test and Wilcoxon-Mann-Whitney test; (B) statistical difference between groups and day 0 (control) with a one-way ANOVA and Dunnett's multiple comparison's tests. (\* $P<0.05$ ; \*\* $P<0.01$ ; \*\*\* $P<0.001$ ).

**A**

Month in captivity	N	Total light ( $10^9 \text{ q g}^{-1}$ )	Coelenterazine content ( $\text{ng g}^{-1}$ )	Luciferase activity ( $10^9 \text{ q s}^{-1}\text{g}^{-1}$ )
1	12	$6222 \pm 1335$	$5.4 \pm 0.8$	$69 \pm 10$
2	12	$5172 \pm 1117$	$3.3 \pm 0.8$	$87 \pm 15$
3	12	$4449 \pm 1329$	$3.4 \pm 0.9$	$507 \pm 61$ ***
4	10	$1883 \pm 344$ ***	$1.8 \pm 0.6$ ***	$585 \pm 142$ ***
5	12	$397 \pm 179$ ***	$0.9 \pm 0.4$ ***	$160 \pm 59$
14	11	$173 \pm 90$ ***	$0.08 \pm 0.03$ ***	$67 \pm 15$
15	13	$286 \pm 86$ ***	$0.1 \pm 0.02$ ***	$38 \pm 3.4$

**B**

<b>Days after exogenous coelenterazine supply</b>	<b>N</b>	<b>Total light (<math>10^9</math> q g<math>^{-1}</math>)</b>	<b>Coelenterazine content (ng g<math>^{-1}</math>)</b>	<b>Luciferase activity (<math>10^9</math> q s<math>^{-1}</math>g<math>^{-1}</math>)</b>
<b>0</b>	12	173 ± 91	0.08 ± 0.04	68 ± 16
<b>3</b>	8	4260 ± 1151 **	0.7 ± 0.14 ***	59 ± 7
<b>6</b>	11	5145 ± 1146 ***	0.6 ± 0.16 ***	86 ± 12
<b>9</b>	12	4594 ± 658 ***	0.5 ± 0.1 ***	66 ± 9
<b>12</b>	12	7565 ± 1825 ***	1.3 ± 0.4 ***	35 ± 6
<b>15</b>	12	8876 ± 1854 ***	2.6 ± 0.4 ***	40 ± 6
<b>18</b>	11	9612 ± 1948 ***	4.8 ± 1.4 ***	38 ± 12
<b>21</b>	11	10715 ± 2784 ***	4.1 ± 1.3 ***	36 ± 6
<b>25</b>	9	6816 ± 1606 ***	3.6 ± 0.6 ***	28 ± 8
<b>30</b>	12	10134 ± 1952 ***	2.5 ± 0.6 ***	34 ± 6

**Table S2 (A)** Total amount of light emitted ( $10^9 \text{ q g}^{-1}$ ), coelenterazine content ( $\text{ng g}^{-1}$ ) and luciferase activity ( $10^9 \text{ q s}^{-1}\text{g}^{-1}$ ), in arm tissue of *A. filiformis*. Groups correspond to the first month of measurements in captivity (M1), the third to ninth days after coelenterazine exogenous supply (P1) and the twelfth to thirtieth days after coelenterazine exogenous supply (P2). **(B)** Groups correspond to the first month of measurements in captivity (M1), the third to ninth days after coelenterazine exogenous supply (P1) and the twelfth to thirtieth days after coelenterazine exogenous supply (P2). Asterisks indicate that a statistical difference has been found between groups with Kruskal-Wallis test and Wilcoxon-Mann-Whitney test (\* $P<0.05$ ; \*\* $P<0.01$ ; \*\*\* $P<0.001$ ). **(C)** Total amount of light emitted ( $10^9 \text{ q g}^{-1}$ ), coelenterazine content ( $\text{ng g}^{-1}$ ) and luciferase activity ( $10^9 \text{ q s}^{-1}\text{g}^{-1}$ ), in arm tissue of *Amphiura filiformis* and *Amphiura chiajei* after exogenous coelenterazine supply. Data are means for *A. filiformis* and single value for *A. chiajei*. Data are means  $\pm$  s.e.m.

**A**

Groups	N	Total light ( $10^9 \text{ q g}^{-1}$ )	Coelenterazine content ( $\text{ng g}^{-1}$ )	Luciferase activity ( $10^9 \text{ q s}^{-1}\text{g}^{-1}$ )
M1	12	$6222 \pm 1335$	$5.4 \pm 0.8$	$69 \pm 10$
P1	31	$4704 \pm 548$	$0.6 \pm 0.07$	$71 \pm 6$
P2	62	$9013 \pm 820$	$3.1 \pm 0.4$	$35 \pm 3$

**B**

	Total light	Coelenterazine content	Luciferase activity
M1 vs P1	NS	***	NS
M1 vs P2	NS	**	**
P1 vs P2	**	***	***

C

Days after exogenous coelenterazine supply	Total light ( $10^9$ q g $^{-1}$ )		Coelenterazine content (ng g $^{-1}$ )		Luciferase activity ( $10^9$ q s $^{-1}$ g $^{-1}$ )	
	<i>A.</i> <i>chiajei</i>	<i>A.</i> <i>filiformis</i>	<i>A.</i> <i>chiajei</i>	<i>A.</i> <i>filiformis</i>	<i>A.</i> <i>chiajei</i>	<i>A.</i> <i>filiformis</i>
0	0.04	173	0.008	0.08	0.04	68
15	0	8876	0.065	2.6	0.2	40
25	0	6816	0.001	3.6	0.003	28