

Supplementary Materials

Evolutionary Conservation of Photophore Ultrastructure in Sharks: The Case of a Dalatiid Squalomorph

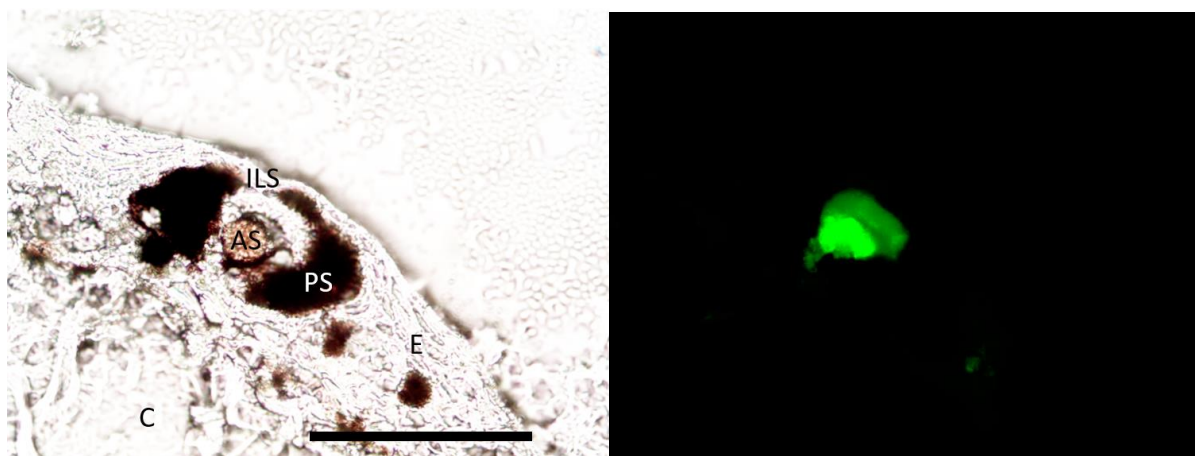
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Supplementary Figure S1: Autofluorescence visualization of *Dalatias licha* photophore. Cross-section in a ventral skin photophore (left) and 495 nm excitation wavelength epifluorescence visualization of the same photophore underlying the green autofluorescence around and within the acidophilic vesicle of *D. licha* photocyte (right). Scale bars = 60 μ m. AS, acidophilic secretion; C, connective tissue; E, epidermis; ILS, iris-like structure cells; PS, pigmented sheath.

Supplementary File S1: Morphological measures of (A) photophore diameter (μm), (B) photocyte diameter (μm) and (C) pigmented zone area (μm^2) performed on semi-thin sections of *Dalatias licha* photophores (N=44 observed photophores). Treatments: control (CT), melatonin (MT), α -melanocyte stimulating hormone (α -MSH).

(A)

Observation number	CT	MT	α -MSH
1	66.55	51.40	57.59
2	71.05	54.47	55.46
3	63.33	54.32	60.01
4	70.71	61.56	61.59
5	70.32	58.77	62.32
6	70.01	56.68	67.26
7	54.17	50.53	58.75
8	60.49	58.18	44.74
9	72.05	57.08	53.20
10	81.01	50.49	55.45
11	82.84	57.75	65.49
12	63.86	58.34	58.35
13	57.39	66.03	
14	70.64	56.53	
15	56.17	45.98	
16	74.03	55.01	
Mean	67.79 ± 2.06	55.82 ± 1.19	58.35 ± 1.72
Total mean		60.86 ± 1.26	

(B)

Observation number	CT	MT	α -MSH
1	36.71	25.72	36.41
2	45.41	31.66	35.75
3	36.49	30.25	41.34
4	38.76	39.98	39.50
5	37.46	36.31	39.80
6	47.15	33.22	41.72
7	26.29	32.70	35.62
8	26.29	34.31	23.86
9	43.41	34.92	23.32
10	54.44	32.50	36.84
11	54.48	36.45	34.36
12	35.44	31.26	35.32
13	31.59	47.50	
14	42.88	39.96	
15	31.15	29.51	
16	41.44	34.13	
Mean	39.34 ± 2.13	34.40 ± 1.26	35.32 ± 1.73
Total mean		36.45 ± 1.05	

(C)

Observation number	CT	MT	α -MSH
1	2420.11	1555.53	1563.91
2	2345.55	1550.56	1411.34
3	2103.95	1598.41	1486.45
4	2746.63	1721.08	1754.14
5	2781.83	1677.78	1806.02
6	1969.40	1656.95	2186.34
7	1761.61	1165.63	1714.56
8	1973.52	1734.09	1124.81
9	2596.78	1601.66	1796.14
10	2825.54	1172.72	1348.94
11	3058.39	1576.08	2441.42
12	2217.11	1905.62	1694.44
13	1803.17	1652.32	
14	2474.69	1255.40	
15	1715.45	976.20	
16	2955.40	1461.46	
Mean	2359.32 \pm 110.51	1516.34 \pm 62.23	1694.04 \pm 103.39
Total mean		1871.34 \pm 77.88	

Supplementary File S2: Morphological data and statistics performed on the granular inclusions present within the granular area of *Dalatias licha* ultrastructurally-depicted photocytes according to different treatments: control, melatonin (MT), and α -melanocyte stimulating hormone (α -MSH). Data and statistics for (A) the granular inclusion coverage (expressed in %), (B) the granular inclusion density (μm^{-2}), and (C) the granular inclusion surface (μm^2). *** represents statistical differences (ns, non-significant, * $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$).

(A)

	Observation number						Mean
	1	2	3	4	5	6	
CT	18.27	9.30	19.14	5.16	15.18	1.12	11.36 \pm 3.00
MT	67.80	57.44	62.82	61.33	65.66	62.27	62.89 \pm 1.46
α -MSH	35.30	38.31	54.47	49.63	53.80	38.62	45.02 \pm 3.50
Control							α -MSH
α -MSH	2.613 e ⁻⁰⁵ ***						/
MT	2.674 e ⁻⁰⁸ ***						0.0008328 ***

(B)

	Observation number						Mean
	1	2	3	4	5	6	
CT	5.33	2.62	0.67	3.08	3.01	2.01	2.79 \pm 0.63
MT	4.47	11.69	6.99	10.39	6.58	6.02	7.69 \pm 1.13
α -MSH	4.94	15.74	7.27	10.22	10.39	19.80	11.39 \pm 2.24
CT							α -MSH
α -MSH	0.004098 ***						/
MT	0.003463 ***						0.1707

(C)

	Observation number						Mean
	1	2	3	4	5	6	
CT	0.035	0.030	0.029	0.015	0.065	0.006	0.030 \pm 0.008
MT	0.152	0.053	0.091	0.078	0.100	0.103	0.096 \pm 0.013
α -MSH	0.071	0.024	0.075	0.052	0.052	0.020	0.049 \pm 0.009
CT							α -MSH
α -MSH	0.1559						/
MT	0.001807 ***						0.01638 ***