

Supplementary Material

Tryptophan modulatory role in European seabass (*Dicentrarchus labrax*) immune response to acute inflammation under stressful conditions

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Table S1. Head-kidney gene expression of European seabass reared at high density, fed dietary treatments for 15 days (0h), and sampled 4, 24, 48 and 72 hours post bacterial challenge.

Genes	Dietary treatments									
	CTRL									
	Ø					Stress				
	0h	4h	24h	48h	72h	0h	4h	24h	48h	72h
<i>tgfb</i>	0.97 ± 0.48 ABC	0.56 ± 0.27 B#	1.01 ± 0.28 AB#	1.38 ± 0.16 A#	0.07 ± 0.02 C	0.70 ± 0.15 BC	1.07 ± 0.22 B*	1.82 ± 0.30 aA*	0.28 ± 0.08 bC*	0.08 ± 0.03 D
<i>tnfa</i>	0.93 ± 0.27 B	2.06 ± 0.51 B	3.05 ± 0.88 bA#	4.68 ± 1.9 A*	0.34 ± 0.11 B	0.74 ± 0.26 C	3.34 ± 1.01 B	5.84 ± 1.52 aA*	0.53 ± 0.20 C#	0.27 ± 0.08 C
<i>cxc4</i>	1.03 ± 0.31 A	0.80 ± 0.1 A	0.59 ± 0.10 AB	0.71 ± 0.14 B	0.04 ± 0.01 B	0.95 ± 0.15 A	0.79 ± 0.17 B	0.69 ± 0.22 B	0.13 ± 0.02 bB	0.06 ± 0.02 C
<i>il1b</i>	0.94 ± 0.45	224.64 ± 103.91	43.55 ± 17.85	17.71 ± 8.33	1.06 ± 0.41	1.62 ± 0.58	427.65 ± 306.87	60.66 ± 17.11	2.65 ± 0.85	0.90 ± 0.38
<i>cd8a</i>	1.10 ± 0.59 B	1.83 ± 0.62 B	0.89 ± 0.26 C	3.06 ± 0.72 aA*	0.28 ± 0.22 C	0.79 ± 0.23 AB	1.29 ± 0.32 A	1.55 ± 0.64 A	0.36 ± 0.09 bB#	0.21 ± 0.09 B
<i>cd8b</i>	0.90 ± 0.42 B	0.82 ± 0.29 B#	0.65 ± 0.17 B	1.96 ± 0.57 A#	0.28 ± 0.03 B	0.57 ± 0.24 B	1.92 ± 1.27 aA*	1.23 ± 0.61 AB	0.27 ± 0.08 bB*	0.26 ± 0.08 B
<i>cd4</i>	1.22 ± 0.92	36.13 ± 28.26	35.92 ± 27.01 b	5.86 ± 3.15	0.29 ± 0.16	0.94 ± 0.35	28.47 ± 15.60	35.45 ± 19.66	0.61 ± 0.18	0.50 ± 0.14
<i>cd3zeta</i>	1.05 ± 0.37 A	1.20 ± 0.37 A	0.99 ± 0.42 A	1.14 ± 0.25 A*	0.06 ± 0.03 B	0.70 ± 0.16 B	1.33 ± 0.32 A	0.93 ± 0.30 A	0.21 ± 0.07 bB#	0.05 ± 0.02 C
<i>tcra</i>	1.00 ± 0.17 B	1.14 ± 0.26 B	1.12 ± 0.32 B	2.41 ± 0.89 A*	0.35 ± 0.16 B	0.60 ± 0.21 AB	1.28 ± 0.52 A	1.19 ± 0.13 AB	0.36 ± 0.11 bB#	0.37 ± 0.23 B
<i>mc2r</i>	0.92 ± 0.20	0.90 ± 0.58	0.39 ± 0.21	0.90 ± 0.70	0.05 ± 0.03	0.58 ± 0.27	0.75 ± 0.60	0.27 ± 0.24	0.10 ± 0.04	0.05 ± 0.02
<i>afmid</i>	1.38 ± 1.10 A	0.96 ± 0.36 AB#	1.51 ± 0.51 A	1.98 ± 0.50 A*	0.09 ± 0.03 B	0.51 ± 0.21 BC	2.08 ± 0.58 A*	1.27 ± 0.37 AB	0.44 ± 0.19 bBC#	0.16 ± 0.08 C
<i>ido2</i>	1.00 ± 0.16 C	2.04 ± 0.37 B	2.64 ± 0.98 A	4.60 ± 1.84 A*	0.42 ± 0.19 C	0.44 ± 0.14 B	3.39 ± 0.96 A	3.99 ± 0.97 A	0.74 ± 0.21 bB#	0.39 ± 0.15 B
Genes	Dietary treatments									
	TRP									

	Ø					Stress				
	0h	4h	24h	48h	72h	0h	4h	24h	48h	72h
<i>tgfb</i>	1.10 ± 0.43 B	0.64 ± 0.35 B	1.03 ± 0.48 B	1.24 ± 0.18 B	0.09 ± 0.02 A	0.61 ± 0.16 B	1.12 ± 0.09 AB	0.97 ± 0.13 bAB	1.32 ± 0.30 aA	0.06 ± 0.02 C
<i>tnfa</i>	0.64 ± 0.25 C	1.68 ± 0.70 BC	5.05 ± 2.30 aA	3.65 ± 1.68 AB	0.65 ± 0.46 C	0.79 ± 0.24 B	3.21 ± 1.01 A	3.57 ± 1.23 bA	1.94 ± 0.78 AB	0.24 ± 0.05 B
<i>cxcr4</i>	0.89 ± 0.13 A	0.76 ± 0.11 A	0.69 ± 0.10 A	0.74 ± 0.18 A	0.05 ± 0.02 B	0.80 ± 0.21 A	0.73 ± 0.07 A	0.61 ± 0.19 A	0.85 ± 0.20 aA	0.06 ± 0.03 B
<i>il1b</i>	0.96 ± 0.24	176.78 ± 72.12	77.20 ± 48.06	17.79 ± 7.34	2.24 ± 2.12	1.35 ± 0.72	216.26 ± 65.30	52.94 ± 11.65	9.93 ± 2.59	0.98 ± 0.38
<i>cd8a</i>	0.74 ± 0.23 BC	1.17 ± 0.38 AB	0.82 ± 0.32 B	1.69 ± 0.83 bA	0.33 ± 0.21 C	0.82 ± 0.20 B	1.64 ± 0.31 AB	0.98 ± 0.44 B	1.90 ± 0.65 aA	0.22 ± 0.08 C
<i>cd8b</i>	0.71 ± 0.43 AB	0.92 ± 0.50 AB	0.95 ± 0.36 AB	1.41 ± 0.63 A	0.30 ± 0.08 B	0.60 ± 0.49 AB	0.78 ± 0.18 bAB	1.25 ± 0.70 A	1.41 ± 0.63 aA	0.28 ± 0.08 B
<i>cd4</i>	1.23 ± 0.34 B	35.12 ± 39.77 B	99.78 ± 65.52 aA*	5.89 ± 3.60 B	0.52 ± 0.25 B	1.13 ± 0.39	36.22 ± 29.04	38.83 ± 11.37 #	2.68 ± 1.42	0.47 ± 0.20
<i>cd3zeta</i>	1.01 ± 0.11 B	1.01 ± 0.34 A#	0.98 ± 0.48 A	1.12 ± 0.42 A	0.07 ± 0.02 A	0.71 ± 0.3 B	1.71 ± 0.27 A*	0.77 ± 0.25 B	1.11 ± 0.34 aB	0.05 ± 0.01 C
<i>tcra</i>	0.88 ± 0.33 BC	0.98 ± 0.34 BC	1.27 ± 0.44 B	2.15 ± 0.64 A	0.40 ± 0.14 C	0.64 ± 0.20 C	1.70 ± 0.51 AB	1.02 ± 0.41 B	1.95 ± 0.76 aA	0.36 ± 0.19 C
<i>mc2r</i>	0.82 ± 0.37	0.81 ± 0.83	1.04 ± 1.12	0.69 ± 0.60	0.04 ± 0.03	0.42 ± 0.20	0.63 ± 0.51	0.55 ± 0.18	0.49 ± 0.30	0.05 ± 0.02
<i>afmid</i>	1.72 ± 1.13 AB	0.67 ± 0.25 BC#	1.20 ± 0.42 ABC	2.05 ± 0.69 A	0.13 ± 0.03 C	0.72 ± 0.24 BC	1.92 ± 0.68 AB*	1.09 ± 0.29 B	2.26 ± 0.73 aA	0.10 ± 0.06 C
<i>ido2</i>	0.74 ± 0.42 C	1.65 ± 0.56 B	2.91 ± 1.30 AB	3.34 ± 1.55 A	0.59 ± 0.24 C	0.58 ± 0.23 B	2.62 ± 0.52 A	2.61 ± 0.78 A	3.03 ± 0.90 aA	0.39 ± 0.16 B

Multifactorial ANOVA

[illegible]

ido2 ns ns <0.001 ns ns <0.001 <0.001

Values represent means \pm SD (n = 10). Different symbols stand for statistically significant differences attributed to stress. Capital letters stand for statistically significant differences attributed to sampling time. Low case letters stand for significant differences attributed to dietary treatment (Multifactorial ANOVA; Tukey post-hoc test; ns: non-significant; $P \leq 0.05$).