Electronic Supplementary Information (ESI) for

Comparative Local Analysis of Metabolites, Lipids and Proteins in Intact Fish Tissues by LAESI Mass Spectrometry

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Table S1. Tentative assignments of metabolite and lipid ions observed in the gill glands of mature *A. anisitsi*. Lipid assignments included phosphatidylcholine (PC), phosphatidylserine (PS), phosphatidylinositol (PI), phosphatidylethanolamine (PE) sphingomyelin (SM) and phosphatidylglycerol (PG) species.

Metabolite and Lipid Ions[a]	$m/z_{calc.}$[b]	$m/z_{meas.}$	$\Delta m/z$
choline + NH_4^+	104.118	104.122	0.004
creatine + Na^+	131.081	131.058	0.023
acetylcholine + H^+	146.165	146.167	0.002
histidine + NH_4^+	155.092	155.068	0.024
-	-	131.058	-
lysine + H^+	146.165	146.167	0.002
-	-	149.060	-
-	-	165.052	-
-	-	118.994	-
tryptophan + Na^+	204.172	204.147	0.025
-	-	117.026	-
-	-	163.987	-
hexose + Na^+	180.097	180.050	0.047
acetylgalactosamine + H^+	221.128	221.135	0.007
thiamine (B1) + Na^+	300.998	300.961	0.037
-	-	219.079	-
coenzyme-A (CoA) + H^+	767.594	767.603	0.009
cholesterol + Na^+	369.349	369.356	0.007
dehydroepiandrosterone + H^+	288.424	288.379	0.045
-	-	286.124	-
dehydrotestosterone + H^+	290.442	290.522	0.080
-	-	289.665	-
-	-	300.115	-
11-ketotestosterone + H^+	302.407	302.397	0.010
5-androstenetriol + H^+	307.226	307.254	0.028
-	-	353.141	-
-	-	362.195	-

PC[32:0] + K$^+$	758.546	758.550	0.004
PC[34:4] + Na$^+$	760.525	760.575	0.050
PC[36:5] + H$^+$	780.553	780.556	0.003
PC[34:1] + K$^+$	782.546	782.560	0.014
PC[38:8] + H$^+$	802.538	802.534	0.004
PC[36:3] + Na$^+$	806.546	806.578	0.032
PC[40:10] + H$^+$	826.538	826.548	0.010
PC[40:9] + H$^+$	828.553	828.546	0.007
PC[40:5] + H$^+$	836.616	836.614	0.002
PC[38:6] + K$^+$	844.525	844.529	0.004
PC[42:11] + H$^+$	852.553	852.567	0.014
PS[38:2] + K$^+$	854.530	854.564	0.037
PS[38:1] + K$^+$	856.546	856.585	0.039
PI[35:2] + H$^+$	833.553	833.577	0.024
PI[33:1] + Na$^+$	845.517	845.522	0.005
PI[35:1] + Na$^+$	857.551	857.596	0.045
PI[40:1] + Na$^+$	929.645	929.622	0.023
PE[32:1] + H$^+$	732.553	732.546	0.007
PE[40:6] + H$^+$	808.548	808.582	0.034
PE[41:4] + H$^+$	810.600	810.611	0.011
PE[41:5] + Na$^+$	830.530	830.567	0.037
PE[42:11] + Na$^+$	832.525	832.570	0.045
PE[40:4] + K$^+$	834.541	834.496	0.047
PE[41:2] + Na$^+$	836.614	836.593	0.021
PE[40:6] + K$^+$	846.504	846.506	0.002
SM[34:1] + Na$^+$	725.556	725.561	0.005
SM[38:1] + H$^+$	835.589	835.605	0.016
SM[41:2] + K$^+$	837.624	837.645	0.021
PG[37:1] + K$^+$	829.535	829.561	0.026
PG[40:6] + Na$^+$	831.551	831.584	0.033
PG[40:4] + Na$^+$	835.584	835.605	0.021

[a]PC, PS, PI, PE, SM, and PG species are identified by the total length of the acyl chain(s) and the number of double bonds in parentheses.
[b]The monoisotopic masses were calculated using the NIST Isotope Calculator package (ISOFORM, Version 1.02), and the measured m/z values were obtained from typical mass spectra.