Electronic Supplementary Material (ESI) for Food & Function.

Table S1. Identified ion information of serum biomarkers in AD model rats.

No.	Rt min	M/Z Determined	M/Z Calculated	Actual_M	Scan Mode	Proposed Composition	Proposed Identity	MS/MS fragment ion (m/z)	Change Trend
1	0.56	145.0975	145.0977	146.1055	ESI^-	$C_6H_{14}N_2O_2$	Lysine	145.0975[M-H]-,128.0319[M-H_3N-H]-,127.0497[M-H_2O-H]-	↑
2	0.57	177.0614	177.0624	176.0546	ESI^+	$C_4H_8N_4O_4$	Allantoic acid	177.0614[M+H]+,160.0358[M-H_3N+H]+,117.0300[M-CH_4N_2O+H]+,91.0508[M-$C_2H_2N_2O_2$+H]+	↑
3	0.63	296.0859	250.094	251.1018	ESI^-	$C_{10}H_{13}N_5O_3$	5'-Deoxyadenosine	296.0859[M-H]-,217.0600[M-CH_5O-H]-,115.0395[M-$C_5H_5N_5$-H]-,111.0320[M-$C_5H_7N_4O$-H]-	↑
4	0.68	243.0615	243.0617	244.0695	ESI^-	$C_9H_{12}N_2O_6$	Uridine	243.0615[M+H]+,228.0508[M-HN+H]+,153.0426[M-$C_2H_4NO_3$+H]+,110.0116[M-$C_5H_9O_4$+H]+	↓
5	0.70	189.1255	189.1239	188.1161	ESI^+	$C_8H_{16}N_2O_3$	N6-Acetyl-L-lysine	189.1255[M+H]+,128.0712[M-C_2H_5NO+H]+,111.0684[M-$C_2H_6NO_2$+H]+,87.0320[M-$C_5H_{10}NO$+H]+	↑
6	0.73	258.1104	258.1106	257.1028	ESI^+	$C_8H_{20}NO_6P$	Glycerophosphocholine	258.1104[M+H]+,213.0766[M-C_2H_5O+H]+,154.0031[M-$C_5H_{14}NO$+H]+,134.9847 [M-$C_5H_{17}NO_2$+H]+, 427.0059[M-H]-,201.0413[M-	↑

8	1.11	130.0866	130.0868	131.0946	ESI^-	$C_6H_{13}NO_2$	Leucine	$C_9H_5N_4O_2$-H]-,146.9847[M-$C_6H_9N_4O_7P$-H]-,128.0348[M-$C_5H_7N_3O_8P_2$-H]-427.0059[M-H]-,113.0841[M-HO-H]-,87.0320[M-C_3H_7-H]-,85.0891[M-CHO2-H]-	↓
9	1.14	164.0357	164.0348	165.0426	ESI^-	$C_8H_7NO_3$	Formylanthranilate	164.0357[M-H]-,147.0320[M-HO-H]-,103.0184[M-CH_3NO_2-H]-,91.0422[M-C_2HO_3-H]-	↓
10	2.54	136.0626	136.0623	135.0545	ESI^+	$C_5H_5N_5$	Adenine	136.0626[M+H]+,107.0358[M-CH_3N+H]+,93.0327[M-CH_3N_2+H]+,79.0170[M-$C_2H_5N_2$+H]+	↓
11	2.93	255.0662	255.0651	254.0573	ESI^+	$C_7H_{14}N_2O_6S$	5-L-Glutamyl-taurine	255.0662[M+H]+,237.0545[M-H_2O+H]+,209.0596[M-CH_2O_2+H]+,153.0096[M-$C_4H_8NO_2$+H]+	↑
12	3.63	514.2831	514.2838	513.2760	ESI^+	$C_{26}H_{43}NO_7S$	Sulfolithocholylglycine	514.2831[M+H]+,205.0535[M-$C_{18}H_{29}NO_3$+H]+,106.9439[M-$C_{25}H_{43}NO_3$+H]+,79.956[M-$C_{26}H_{42}NO_4$+H]+,	↑
13	4.02	213.0147	213.0164	214.0242	ESI^-	$C_5H_{11}O_7P$	Deoxyribose 5-phosphate	213.0147[M-H]-,197.0215[M-O-H]-,116.0473[M-H_2O_4P-H]-,79.9663[M-$C_5H_9O_4$-H]-	↑
14	4.13	157.0609	157.0613	156.0535	ESI^+	$C_6H_8N_2O_3$	4-Imidazolone-5-propionic acid	157.0609[M+H]+,141.0664[M-OH+H]+,129.0426[M-	↓

15	4.28	464.3004	464.3012	465.3090	ESI^-	$C_{26}H_{43}NO_6$	Glycocholic acid	$CH_2N+H]+$,116.0473[M-CHN_2+H]+ 464.3004[M-H]-,446.2906 [M-H_2O-H]-,420.3114[M-CO_2-H]- ,288.2089[M-$C_7H_{14}NO_4$-H]-	↑
16	4.29	448.3064	448.3063	449.3141	ESI^-	$C_{26}H_{43}NO_5$	Glycoursodeoxycholic acid	448.3064[M-H]-,464.2906[M-H_2O-H]-,436.3114[M-CO_2-H]- ,341.2531[M-$C_3H_9NO_5$-H]-	↑
17	4.34	369.2257	369.2277	370.2355	ESI^-	$C_{20}H_{34}O_6$	Thromboxane B2	369.2257[M-H]-,317.1753[M-CH_4-H]- ,285.1491[M-C_2H_8O-H]-,205.0865[M-$C_8H_{16}O$-H]-	↑
18	4.42	159.1015	159.1021	160.1099	ESI^-	$C_8H_{16}O_3$	3-Hydroxyoctanoic acid	159.1015[M-H]-,141.0916[M-H_2O-H]-,115.0395[M-C_3H_8-H]- ,113.0954[M-CH_2O_2-H]-	↑
19	4.42	353.2306	353.2328	354.2406	ESI^-	$C_{20}H_{34}O_5$	Prostaglandin F2a	353.2306[M-H]-,335.2222 [M-H_2O-H]-,309.2430[M-CO_2-H]- ,111.0446[M-$C_{14}H_{26}O_3$-H]-	↑
20	4.47	165.0542	165.0552	166.0630	ESI^-	$C_9H_{10}O_3$	Homovanillin	165.0542[M-H]-,149.0239[M-CH_4-H]- ,136.0524[M-CHO-H]-,133.0290[M-CH_4O-H]-	↓
21	4.50	241.1319	241.1301	240.1222	ESI^+	$C_{10}H_{16}N_4O_3$	Anserine	241.1319[M+H]+,225.1113[M-H_2N+H]+,155.0821[M-$C_3H_6N_2O$+H]+,121.0640[M-$C_4H_{10}NO_3$+H]+	↑
22	4.52	295.2253	295.2273	294.2195	ESI^+	$C_{18}H_{30}O_3$	9-OxoODE	295.2253[M+H]+,279.1960[M-CH_4+H]+,196.1099[M-	↑

23	4.53	185.1174	185.1178	186.1256	ESI^-	$C_{10}H_{18}O_3$	3-Oxodecanoic acid	C_7H_{15}+H]+,181.1229[M-$C_7H_{14}O$+H]+ 185.1174[M-H]-,167.1072[M-H_2O-H]-,155.0708[M-C_2H_6-H]- ,113.0239[M-C_5H_{12}-H]-	↓
24	4.54	343.1254	343.124	342.1162	ESI^+	$C_{12}H_{22}O_{11}$	Epimelibiose	343.1254[M+H]+,312.1057[M-CH_3O+H]+,284.1107[M-$C_2H_3O_2$+H]+,181.0712[M-$C_6H_{10}O_5$+H]+	↓
25	4.68	151.0383	151.0395	152.0473	ESI^-	$C_8H_8O_3$	3, 4-Dihydroxyphenylacetaldehyde	151.0383[M-H]-,136.0524[M-O-H]- ,121.0290[M-CH_2O-H]-,108.0211[M-C_2H_3O-H]-	↓
26	4.71	249.1123	249.1127	250.1205	ESI^-	$C_{14}H_{18}O_4$	Ubiquinone-1	249.1123[M-H]-,233.0814[M-CH_4-H]- ,205.0865[M-C_2H_4O-H]-,111.0082[M-$C_9H_{14}O$-H]-	↑
27	4.72	407.2796	407.2797	408.2876	ESI^-	$C_{24}H_{40}O5$	Cholic acid	407.2796[M-H]-,389.2692[M-H_2O-H]-,C24H35O3[M-H_4O_2-H]- ,289.2168[M-$C_5H_{10}O_3$-H]-	↑
28	4.89	321.2061	321.2066	320.1988	ESI^+	$C_{19}H_{28}O_4$	QH2	321.2061[M+H]+,306.1831[M-CH_3+H]+,265.1440[M-C_4H_8+H]+,251.1283[M-C_5H_{10}+H]+,	↑
29	5.11	318.2987	318.3008	318.2987	ESI^+	$C_{18}H_{39}NO_3$	Phytosphingosine	318.2987[M+H]+,303.2752[M-CH_3+H]+,286.2725 M-CH_3-OH+H]+	↓
30	5.35	311.2194	311.2222	312.2301	ESI^-	$C_{18}H_{32}O_4$	8(R)-Hydroperoxylinoleic acid	311.2194[M-H]-,293.2117[M-H_2O-H]-,195.1385[M-$C_6H_{12}O_2$-H]- ,155.0708[M-$C_{10}H_{20}O$-H]-	↑

31	5.80	311.2219	311.2222	312.2301	ESI^-	$C_{18}H_{32}O_4$	9(S)-HPODE	311.2219[M-H]-,293.2117[M-H_2O-H]-,267.1596[M-C_3H_8-H]-,179.1436[M-$C_6H_{12}O_3$-H]-	↑
32	5.80	333.2039	333.2066	334.2144	ESI^-	$C_{20}H_{30}O_4$	Prostaglandin J2	333.2039[M-H]-,317.1753[M-CH_4-H]-,285.1491[M-C_2H_8O-H]-,273.1855[M-$C_2H_4O_2$-H]-	↑
33	5.84	269.2111	269.2117	270.2195	ESI^-	$C_{16}H_{30}O_3$	3-Oxohexadecanoic acid	269.2111[M-H]-,253.1804[M-CH_4-H]-,167.1436[M-$C_5H_{10}O_2$-H]-100.0160[M-$C_{12}H_{25}$-H]-	↓
34	5.89	303.2319	303.2324	304.2402	ESI^-	$C_{20}H_{32}O_2$	Arachidonic acid	303.2319[M-H]-,286.2297[M-HO-H]-,273.1855[M-C_2H_6-H]-,151.0759[M-$C_{11}H_{20}$-H]-	↑
35	5.94	311.2214	311.2222	312.2301	ESI^-	$C_{18}H_{32}O_4$	13(S)-HPODE	311.2214[M-H]-,279.1960[M-CH_4-H]-,155.1072[M-$C_9H_{16}O$-H]-,127.0759[M-$C_{11}H_{20}O$-H]-	↑
36	5.96	333.2035	333.2066	334.2144	ESI^-	$C_{20}H_{30}O_4$	Prostaglandin A2	333.2035[M-H]-,317.1753[M-CH_4-H]-,299.1647[M-CH_6O-H]-,231.1021[M-$C_6H_{14}O$-H]-	↑
37	6.39	295.2269	295.2273	296.2351	ESI^-	$C_{18}H_{32}O_3$	12, 13-EpOME	295.2269[M-H]-,279.1960[M-CH_4-H]-,155.1072[M-$C_9H_{16}O$-H]-,141.0916[M-$C_{10}H_{18}O$-H]-	↓
38	7.18	376.3205	376.3216	375.3137	ESI^+	$C_{24}H_{41}NO_2$	Adrenoyl ethanolamide	376.3205[M+H]+,264.1964[M-C_8H_{16}+H]+,177.1643[M-$C_{11}H_{21}NO_2$+H]+,141.1154[M-$C_{16}H_{27}O$+H]+	↓

39	7.33	337.2356	337.2379	336.2301	ESI^+	$C_{20}H_{32}O_4$	11H-14, 15-EETA	337.2356[M+H]+,335.2222[M-H_2O+H]+,309.2430[M-CO_2+H]+,291.1960[M-$C_2H_6O_2$+H]+	↑
40	7.40	300.2892	300.2903	299.2824	ESI^+	$C_{18}H_{37}NO_2$	Sphingosine	300.2892[M+H]+,282.2797[M-H_2O+H]+,183.1623[M-$C_7H_{17}O$+H]+,155.1310[M-$C_9H_{21}O$+H]+	↓
41	7.47	277.2166	277.2168	278.2246	ESI^-	$C_{18}H_{30}O_2$	Gamma-Linolenic acid	277.2166[M-H]-,259.2062[M-H_2O-H]-,233.1542[M-C_3H_8-H]-,189.1643[M-$C_4H_8O_2$-H]-	↓
42	7.74	256.2641	256.264	255.2562	ESI^+	$C_{16}H_{33}NO$	Palmitic amide	256.2641[M+H]+,238.2297[M-H_3N+H]+,167.1436[M-$C_5H_{15}N$+H]+,116.1075[M-$C_{10}H_{20}$+H]+	↓
43	7.92	282.2798	282.2797	281.2719	ESI^+	$C_{18}H_{35}NO$	Oleamide	282.2798[M+H]+,265.2531[M-H_3N+H]+,240.2327[M-C_3H_6+H]+,114.1408[M-$C_{10}H_{18}NO$+H]+	↓
44	7.97	279.2325	279.2324	280.2402	ESI^-	$C_{18}H_{32}O_2$	Linoleic acid	279.2325[M-H]-,261.2218[M-H_2O-H]-,233.2269[M-CH_2O_2-H]-,141.0916[M-$C_{10}H_{18}$-H]-	↓
45	8.69	465.3033	465.3039	466.3117	ESI^-	$C_{27}H_{46}O_4S$	Cholesterol sulfate	465.3033[M-H]-,449.2726[M-CH_4-H]-,381.2100[M-C_6H_{12}-H]-,255.1749[M-$C_9H_{22}O_3S$-H]-	↑
46	9.10	417.3398	417.3369	418.3447	ESI^-	$C_{27}H_{46}O_3$	17a, 20a-Dihydroxycholesterol	417.3398[M-H]-,351.3052[M-CH_6O_3-H]-,349.2895[M-CH_8O_3-H]-,283.2062[M-$C_7H_{18}O_2$-H]-	↑
								393.2974[M+H]+,329.2844[M-	

48	10.94	864.6223	864.6235	863.6156	ESI^+	$C_{46}H_{89}NO_{11}S$	Sulfatide	CH_4O_3+H]+,149.0966[M-$C_{14}H_{28}O_3$+H]+,121.1017 [M-$C_{15}H_{28}O_4$+H]+ 864.6223[M+H]+,662.3938[M-C_3H_8O+H]+,283.2147[M-$C_{20}H_{39}O_8S$+H]+,171.0895[M-$C_{28}H_{55}O_8S$+H]+	↑

↑ or ↓ represents the level of compound in serum that was increased or decreased in the AD model group compared with the control group, respectively.