

Table S1.1. The qualitative analysis of Lyso-PC, Lyso-PE and Lyso-PS in mice serum by positive LC-MS/MS.

No.	RT (min)	Structures	RDB	Formula	Q1	Q3
Lysophosphatidylcholine (Lyso-PC)						
1	10.47	Lyso-PC/14:0	1	C ₂₂ H ₄₇ NO ₇ P	468.3	104.1/184.1
2	11.05	14:0/Lyso-PC	1	C ₂₂ H ₄₇ NO ₇ P	468.3	104.1/184.1
3	11.78	Lyso-PC/15:0	2	C ₂₃ H ₄₉ NO ₇ P	482.3	104.1/184.1
4	12.2	Lyso-PC/15:0	2	C ₂₃ H ₄₉ NO ₇ P	482.3	104.1/184.1
5	12.61	15:0/Lyso-PC	2	C ₂₃ H ₄₉ NO ₇ P	482.3	104.1/184.1
6	13.14	Lyso-PC/15:0	2	C ₂₃ H ₄₉ NO ₇ P	482.3	104.1/184.1
7	11.48	Lyso-PC/16:1	2	C ₂₄ H ₄₉ NO ₇ P	494.3	104.1/184.1
8	11.70	Lyso-PC/16:1	2	C ₂₄ H ₄₉ NO ₇ P	494.3	104.1/184.1
9	12.20	16:1/Lyso-PC	2	C ₂₄ H ₄₉ NO ₇ P	494.3	104.1/184.1
10	12.44	16:1/Lyso-PC	2	C ₂₄ H ₄₉ NO ₇ P	494.3	104.1/184.1
11	14.94	Lyso-PC/16:0	1	C ₂₄ H ₅₁ NO ₇ P	496.3	104.1/184.1
12	16.46	16:0/Lyso-PC	1	C ₂₄ H ₅₁ NO ₇ P	496.3	104.1/184.1
13	13.67	Lyso-PC/17:1	2	C ₂₅ H ₅₁ NO ₇ P	508.3	104.1/184.1
14	14.77	17:1/Lyso-PC	2	C ₂₅ H ₅₁ NO ₇ P	508.3	104.1/184.1
15	18.27	Lyso-PC/17:0	1	C ₂₅ H ₅₃ NO ₇ P	510.4	104.1/184.1
16	19.42	17:0/Lyso-PC	1	C ₂₅ H ₅₃ NO ₇ P	510.4	104.1/184.1
17	20.44	17:0/Lyso-PC	1	C ₂₅ H ₅₃ NO ₇ P	510.4	104.1/184.1
18	21.83	17:0/Lyso-PC	1	C ₂₅ H ₅₃ NO ₇ P	510.4	104.1/184.1
19	10.91	Lyso-PC/18:3	4	C ₂₆ H ₄₉ NO ₇ P	518.3	104.1/184.1
20	11.25	Lyso-PC/18:3	4	C ₂₆ H ₄₉ NO ₇ P	518.3	104.1/184.1
21	11.47	18:3/Lyso-PC	4	C ₂₆ H ₄₉ NO ₇ P	518.3	104.1/184.1
22	11.85	18:3/Lyso-PC	4	C ₂₆ H ₄₉ NO ₇ P	518.3	104.1/184.1
23	12.99	Lyso-PC/18:2	3	C ₂₆ H ₅₁ NO ₇ P	520.3	104.1/184.1
24	13.94	18:2/Lyso-PC	3	C ₂₆ H ₅₁ NO ₇ P	520.3	104.1/184.1
25	16.88	Lyso-PC/18:1	2	C ₂₆ H ₅₃ NO ₇ P	522.4	104.1/184.1
26	17.20	Lyso-PC/18:1	2	C ₂₆ H ₅₃ NO ₇ P	522.4	104.1/184.1
27	18.63	18:1/Lyso-PC	2	C ₂₆ H ₅₃ NO ₇ P	522.4	104.1/184.1
28	18.95	18:1/Lyso-PC	2	C ₂₆ H ₅₃ NO ₇ P	522.4	104.1/184.1
29	26.57	Lyso-PC/18:0	1	C ₂₆ H ₅₅ NO ₇ P	524.4	104.1/184.1
30	29.97	18:0/Lyso-PC	1	C ₂₆ H ₅₅ NO ₇ P	524.4	104.1/184.1
31	15.80	Lyso-PC/19:2	3	C ₂₇ H ₅₃ NO ₇ P	534.4	104.1/184.1
32	17.26	19:2/Lyso-PC	3	C ₂₇ H ₅₃ NO ₇ P	534.4	104.1/184.1
33	20.78	19:2/Lyso-PC	3	C ₂₇ H ₅₃ NO ₇ P	534.4	104.1/184.1
34	22.17	Lyso-PC/19:1	2	C ₂₇ H ₅₅ NO ₇ P	536.4	104.1/184.1
35	22.87	Lyso-PC/19:1	2	C ₂₇ H ₅₅ NO ₇ P	536.4	104.1/184.1
36	24.95	19:1/Lyso-PC	2	C ₂₇ H ₅₅ NO ₇ P	536.4	104.1/184.1
37	25.73	19:1/Lyso-PC	2	C ₂₇ H ₅₅ NO ₇ P	536.4	104.1/184.1
38	32.31	Lyso-PC/19:0	1	C ₂₇ H ₅₇ NO ₇ P	538.4	104.1/184.1
39	33.44	Lyso-PC/19:0	1	C ₂₇ H ₅₇ NO ₇ P	538.4	104.1/184.1

40	34.15	19:0/Lyso-PC	1	C ₂₇ H ₅₇ NO ₇ P	538.4	104.1/184.1
41	35.11	19:0/Lyso-PC	1	C ₂₇ H ₅₇ NO ₇ P	538.4	104.1/184.1
42	11.08	Lyso-PC/20:5	6	C ₂₈ H ₄₉ NO ₇ P	542.3	104.1/184.1
43	11.60	20:5/Lyso-PC	6	C ₂₈ H ₄₉ NO ₇ P	542.3	104.1/184.1
44	13.17	Lyso-PC/20:4	5	C ₂₈ H ₅₁ NO ₇ P	544.3	104.1/184.1
45	14.05	20:4/Lyso-PC	5	C ₂₈ H ₅₁ NO ₇ P	544.3	104.1/184.1
46	15.33	Lyso-PC/20:3	4	C ₂₈ H ₅₃ NO ₇ P	546.4	104.1/184.1
47	15.86	Lyso-PC/20:3	4	C ₂₈ H ₅₃ NO ₇ P	546.4	104.1/184.1
48	16.67	20:3/Lyso-PC	4	C ₂₈ H ₅₃ NO ₇ P	546.4	104.1/184.1
49	17.26	20:3/Lyso-PC	4	C ₂₈ H ₅₃ NO ₇ P	546.4	104.1/184.1
50	18.83	20:3/Lyso-PC	4	C ₂₈ H ₅₃ NO ₇ P	546.4	104.1/184.1
51	20.19	Lyso-PC/20:2	3	C ₂₈ H ₅₅ NO ₇ P	548.4	104.1/184.1
52	21.39	Lyso-PC/20:2	3	C ₂₈ H ₅₅ NO ₇ P	548.4	104.1/184.1
53	22.46	20:2/Lyso-PC	3	C ₂₈ H ₅₅ NO ₇ P	548.4	104.1/184.1
54	23.75	20:2/Lyso-PC	3	C ₂₈ H ₅₅ NO ₇ P	548.4	104.1/184.1
55	30.14	Lyso-PC/20:1	2	C ₂₈ H ₅₇ NO ₇ P	550.4	104.1/184.1
56	32.29	20:1/Lyso-PC	2	C ₂₈ H ₅₇ NO ₇ P	550.4	104.1/184.1
57	36.6	Lyso-PC/20:0	1	C ₂₈ H ₅₉ NO ₇ P	552.4	104.1/184.1
58	37.41	Lyso-PC/20:0	1	C ₂₈ H ₅₉ NO ₇ P	552.4	104.1/184.1
59	37.97	20:0/Lyso-PC	1	C ₂₈ H ₅₉ NO ₇ P	552.4	104.1/184.1
60	38.70	20:0/Lyso-PC	1	C ₂₈ H ₅₉ NO ₇ P	552.4	104.1/184.1
61	11.47	Lyso-PC/22:7	8	C ₃₀ H ₄₉ NO ₇ P	566.3	104.1/184.1
62	12.00	22:7/Lyso-PC	8	C ₃₀ H ₄₉ NO ₇ P	566.3	104.1/184.1
63	12.80	Lyso-PC/22:7	8	C ₃₀ H ₄₉ NO ₇ P	566.3	104.1/184.1
64	13.57	22:7/Lyso-PC	8	C ₃₀ H ₄₉ NO ₇ P	566.3	104.1/184.1
65	13.19	Lyso-PC/22:6	7	C ₃₀ H ₅₁ NO ₇ P	568.3	104.1/184.1
66	13.99	22:6/Lyso-PC	7	C ₃₀ H ₅₁ NO ₇ P	568.3	104.1/184.1
67	14.65	Lyso-PC/22:5	6	C ₃₀ H ₅₃ NO ₇ P	570.4	104.1/184.1
68	15.71	22:5/Lyso-PC	6	C ₃₀ H ₅₃ NO ₇ P	570.4	104.1/184.1
69	16.68	Lyso-PC/22:5	6	C ₃₀ H ₅₃ NO ₇ P	570.4	104.1/184.1
70	17.98	22:5/Lyso-PC	6	C ₃₀ H ₅₃ NO ₇ P	570.4	104.1/184.1
71	19.06	Lyso-PC/22:4	5	C ₃₀ H ₅₅ NO ₇ P	572.4	104.1/184.1
72	20.89	22:4/Lyso-PC	5	C ₃₀ H ₅₅ NO ₇ P	572.4	104.1/184.1
73	24.99	Lyso-PC/22:3	4	C ₃₀ H ₅₇ NO ₇ P	574.4	104.1/184.1
74	28.00	22:3/Lyso-PC	4	C ₃₀ H ₅₇ NO ₇ P	574.4	104.1/184.1
75	33.26	Lyso-PC/22:2	3	C ₃₀ H ₅₉ NO ₇ P	576.4	104.1/184.1
76	34.79	22:2/Lyso-PC	3	C ₃₀ H ₅₉ NO ₇ P	576.4	104.1/184.1
77	38.32	Lyso-PC/22:1	2	C ₃₀ H ₆₁ NO ₇ P	578.4	104.1/184.1
78	39.18	22:1/Lyso-PC	2	C ₃₀ H ₆₁ NO ₇ P	578.4	104.1/184.1
79	18.05	Lyso-PC/24:6	7	C ₃₂ H ₅₅ NO ₇ P	596.4	104.1/184.1
80	18.66	24:6/Lyso-PC	7	C ₃₂ H ₅₅ NO ₇ P	596.4	104.1/184.1
81	22.51	Lyso-PC/24:5	6	C ₃₂ H ₅₇ NO ₇ P	598.4	104.1/184.1

82	24.95	24:5/Lyso-PC	6	C ₃₂ H ₅₇ NO ₇ P	598.4	104.1/184.1
83	27.34	24:5/Lyso-PC	6	C ₃₂ H ₅₇ NO ₇ P	598.4	104.1/184.1
84	30.91	Lyso-PC/24:4	5	C ₃₂ H ₅₉ NO ₇ P	600.4	104.1/184.1
85	32.66	24:4/Lyso-PC	5	C ₃₂ H ₅₉ NO ₇ P	600.4	104.1/184.1

Lysophosphatidylethanolamine (Lyso-PE)

1	12.01	16:1/Lyso-PE	2	C ₂₁ H ₄₃ NO ₇ P	452.3	141.0/311.3
2	14.69	Lyso-PE/16:0	1	C ₂₁ H ₄₅ NO ₇ P	454.3	141.0/313.3
3	16.14	16:0/Lyso-PE	1	C ₂₁ H ₄₅ NO ₇ P	454.3	141.0/313.3
4	19.00	Lyso-PE/17:0	1	C ₂₂ H ₄₇ NO ₇ P	468.3	141.0/327.3
5	21.29	17:0/Lyso-PE	1	C ₂₂ H ₄₇ NO ₇ P	468.3	141.0/327.3
6	12.81	Lyso-PE/18:2	3	C ₂₃ H ₄₅ NO ₇ P	478.3	141.0/337.3
7	13.73	18:2/Lyso-PE	3	C ₂₃ H ₄₅ NO ₇ P	478.3	141.0/337.3
8	16.90	Lyso-PE/18:1	2	C ₂₃ H ₄₇ NO ₇ P	480.3	141.0/339.3
9	18.61	18:1/Lyso-PE	2	C ₂₃ H ₄₇ NO ₇ P	480.3	141.0/339.3
10	25.90	Lyso-PE/18:0	1	C ₂₃ H ₄₉ NO ₇ P	482.3	141.0/341.3
11	29.42	18:0/Lyso-PE	1	C ₂₃ H ₄₉ NO ₇ P	482.3	141.0/341.3
12	13.01	Lyso-PE/20:4	5	C ₂₅ H ₄₅ NO ₇ P	502.3	141.0/361.3
13	13.84	20:4/Lyso-PE	5	C ₂₅ H ₄₅ NO ₇ P	502.3	141.0/361.3
14	15.10	Lyso-PE/20:3	4	C ₂₅ H ₄₇ NO ₇ P	504.3	141.0/363.3
15	16.39	20:3/Lyso-PE	4	C ₂₅ H ₄₇ NO ₇ P	504.3	141.0/363.3
16	13.07	Lyso-PE/22:6	7	C ₂₇ H ₄₅ NO ₇ P	526.3	141.0/385.3
17	13.77	22:6/Lyso-PE	7	C ₂₇ H ₄₅ NO ₇ P	526.3	141.0/385.3
18	14.39	Lyso-PE/22:5	6	C ₂₇ H ₄₇ NO ₇ P	528.3	141.0/387.3
19	15.45	22:5/Lyso-PE	6	C ₂₇ H ₄₇ NO ₇ P	528.3	141.0/387.3
20	16.39	Lyso-PE/22:5	6	C ₂₇ H ₄₇ NO ₇ P	528.3	141.0/387.3
21	17.65	22:5/Lyso-PE	6	C ₂₇ H ₄₇ NO ₇ P	528.3	141.0/387.3
22	18.70	Lyso-PE/22:4	5	C ₂₇ H ₄₉ NO ₇ P	530.3	141.0/389.3
23	20.45	22:4/Lyso-PE	5	C ₂₇ H ₄₉ NO ₇ P	530.3	141.0/389.3

Lysophosphatidylserine (Lyso-PS)

1	12.03	Lyso-PS/18:2	3	C ₂₄ H ₄₅ NO ₉ P	522.3	105.0/337.3
2	12.96	18:2/Lyso-PS	3	C ₂₄ H ₄₅ NO ₉ P	522.3	105.0/337.3
3	22.95	Lyso-PS/18:0	1	C ₂₄ H ₄₉ NO ₉ P	526.3	105.0/341.3
4	26.8	18:0/Lyso-PS	1	C ₂₄ H ₄₉ NO ₉ P	526.3	105.0/341.3
5	13.22	20:4/Lyso-PS	5	C ₂₆ H ₄₅ NO ₉ P	546.3	105.0/361.3

Table S1.2. The qualitative analysis of Lyso-PA, Lyso-PI and Lyso-PG in mice serum by negative LC-MS/MS.

No.	RT (min)	Structures	RDB	Formula	Q1	Q3
Lyso-phosphatidic acid (Lyso-PA)						
1	14.12	16:1/Lyso-PA	2	C ₁₉ H ₃₆ O ₇ P	407.2	153.0/171.0
2	18.44	Lyso-PA/16:0	1	C ₁₉ H ₃₈ O ₇ P	409.2	153.0/171.0
3	20.31	16:0/Lyso-PA	1	C ₁₉ H ₃₈ O ₇ P	409.2	153.0/171.0
4	15.42	Lyso-PA/18:2	3	C ₂₁ H ₃₈ O ₇ P	433.2	153.0/171.0
5	16.6	18:2/Lyso-PA	3	C ₂₁ H ₃₈ O ₇ P	433.2	153.0/171.0
6	21.77	Lyso-PA/18:1	2	C ₂₁ H ₄₀ O ₇ P	435.2	153.0/171.0
7	24.01	18:1/Lyso-PA	2	C ₂₁ H ₄₀ O ₇ P	435.2	153.0/171.0
8	32.83	Lyso-PA/18:0	1	C ₂₁ H ₄₂ O ₇ P	437.2	153.0/171.0
9	34.56	18:0/Lyso-PA	1	C ₂₁ H ₄₂ O ₇ P	437.2	153.0/171.0
10	15.71	Lyso-PA/20:4	5	C ₂₃ H ₃₈ O ₇ P	457.2	153.0/171.0
11	16.74	20:4/Lyso-PA	5	C ₂₃ H ₃₈ O ₇ P	457.2	153.0/171.0
12	18.85	Lyso-PA/20:3	4	C ₂₃ H ₄₀ O ₇ P	459.2	153.0/171.0
13	20.47	20:3/Lyso-PA	4	C ₂₃ H ₄₀ O ₇ P	459.2	153.0/171.0
14	15.62	Lyso-PA/22:6	7	C ₂₅ H ₃₈ O ₇ P	481.2	153.0/171.0
15	16.52	22:6/Lyso-PA	7	C ₂₅ H ₃₈ O ₇ P	481.2	153.0/171.0
Lyso-phosphatidylinositol (Lyso-PI)						
1	11.21	16:1/Lyso-PI	2	C ₂₅ H ₄₆ O ₁₂ P	569.3	253.2/389.2
2	13.18	Lyso-PI/16:0	1	C ₂₅ H ₄₈ O ₁₂ P	571.3	255.2/391.2
3	14.50	16:0/Lyso-PI	1	C ₂₅ H ₄₈ O ₁₂ P	571.3	255.2/391.2
4	11.81	Lyso-PI/18:2	3	C ₂₇ H ₄₈ O ₁₂ P	595.3	279.2/415.2
5	12.65	18:2/Lyso-PI	3	C ₂₇ H ₄₈ O ₁₂ P	595.3	279.2/415.2
6	14.97	Lyso-PI/18:1	2	C ₂₇ H ₅₀ O ₁₂ P	597.3	281.2/417.2
7	16.52	18:1/Lyso-PI	2	C ₂₇ H ₅₀ O ₁₂ P	597.3	281.1/417.2
8	21.88	Lyso-PI/18:0	1	C ₂₇ H ₅₂ O ₁₂ P	599.3	283.3/419.3
9	25.27	18:0/Lyso-PI	1	C ₂₇ H ₅₂ O ₁₂ P	599.3	283.3/419.3
10	12.05	Lyso-PI/20:4	5	C ₂₉ H ₄₈ O ₁₂ P	619.3	303.2/439.2
11	12.86	20:4/Lyso-PI	5	C ₂₉ H ₄₈ O ₁₂ P	619.3	303.2/439.2
12	13.75	Lyso-PI/20:3	4	C ₂₉ H ₅₀ O ₁₂ P	621.3	305.3/441.2
13	14.91	20:3/Lyso-PI	4	C ₂₉ H ₅₀ O ₁₂ P	621.3	305.3/441.2
14	12.07	Lyso-PI/22:6	7	C ₃₁ H ₄₈ O ₁₂ P	643.3	327.2/463.2
15	12.83	22:6/Lyso-PI	7	C ₃₁ H ₄₈ O ₁₂ P	643.3	327.2/463.2
16	14.13	22:5/Lyso-PI	6	C ₃₁ H ₅₀ O ₁₂ P	645.3	329.3/465.2
17	16.04	Lyso-PI/22:5	6	C ₃₁ H ₅₀ O ₁₂ P	645.3	329.3/465.2
18	16.52	Lyso-PI/22:4	5	C ₃₁ H ₅₂ O ₁₂ P	647.3	331.3/467.3
19	18.25	22:4/Lyso-PI	5	C ₃₁ H ₅₂ O ₁₂ P	647.3	331.3/467.3
Lyso-phosphatidylglycerol (Lyso-PG)						
1	14.03	Lysp-PG/18:2	3	C ₂₄ H ₄₄ O ₉ P	507.3	227.0/279.2
2	15.24	18:2/Lyso-PG	3	C ₂₄ H ₄₄ O ₉ P	507.3	227.0/279.2
3	18.93	Lysp-PG/18:1	2	C ₂₄ H ₄₆ O ₉ P	509.3	227.0/281.3

4	21.31	18:1/Lyso-PG	2	C ₂₄ H ₄₆ O ₉ P	509.3	227.0/281.3
5	29.97	Lysp-PG/18:0	1	C ₂₄ H ₄₈ O ₉ P	511.3	227.0/283.3
6	32.56	18:0/Lyso-PG	1	C ₂₄ H ₄₈ O ₉ P	511.3	227.0/283.3
