Table SI. Multiple reaction monitoring settings in mass spectometry.

	ID	Chemical formula	Monoisotopic MW	Q1 Mass (Da)	Q3 Mass (Da)	DP (volts)	EP (volts)	CE (volts)	CXP (volts)
1	lysoPC a C14:0	C22H46NO7P	467.3011893	468.3	184	79	10	30	15
2	lysoPC a C16:1	C24H48NO7P	493.3168394	494.3	184	79	10	30	15
3	lysoPC a C16:0	C24H50NO7P	495.332	496.3	184	81	10	31	15
4	lysoPC a C17:0	C25H52NO7P	509.3481395	510.3	184	82	10	31	15
5	lysoPC a C18:2	C26H50NO7P	519.3324895	520.3	184	82	10	31	15
6	lysoPC a C18:1	C26H52NO7P	521.3481395	522.3	184	82	10	31	15
7	lysoPC a C18:0	C26H54NO7P	523.3637896	524.3	184	85	10	31	15
8	lysoPC a C20:4	C28H50NO7P	543.3324895	544.3	184	85	10	31	15
9	lysoPC a C20:3	C28H52NO7P	545.3481395	546.3	184	87	10	31	15
10	lysoPC a C24:0	C32H66NO7P	607.45769	608.4	184	96	10	33	15
11	PC aa C24:0	C32H64NO8P	621.4369546	622.4	184	98	10	33	15
12	lysoPC a C26:1	C34H68NO7P	633.473	634.4	184	98	10	33	15
13	lysoPC a C26:0	C34H70NO7P	635.489	636.5	184	101	10	34	15
14	PC aa C26:0	C34H68NO8P	649.4682548	650.5	184	103	10	35	15
15	lysoPC a C28:1	C36H72NO7P	661.505	662.5	184	103	10	35	15
16	lysoPC a C28:0	C36H74NO7P	663.52	664.5	184	105	10	35	15
17	PC aa C28:1	C36H70NO8P	675.4839048	676.5	184	106	10	35	15
18	PC ae C30:2	C38H74NO7P	687.5202903	688.5	184	108	10	36	15
19	SM (OH) C14:1	C37H73N2O7P	688.5155392	689.6	184	108	10	36	15
20	PC ae C30:1	C38H76NO7P	689.5359404	690.5	184	109	10	36	15

21	PC ae C30:0	C38H78NO7P	691.5515905	692.6	184	111	10	37	15
22	SM C16:1	C40H80N2O6P	715.5753998	701.6	184	111	10	37	15
23	PC aa C30:2	C38H72NO8P	701.4995549	702.5	184	111	10	37	15
24	SM C16:0	C39H80N2O6P	703.5753998	703.6	184	112	10	37	15
25	PC aa C30:0	C38H76NO8P	705.530855	706.5	184	114	10	37	15
26	PC ae C32:2	C40H78NO7P	715.5515905	716.6	184	114	10	37	15
27	SM (OH) C16:1	C39H77N2O7P	716.5468393	717.6	184	114	10	38	15
28	PC ae C32:1	C40H80NO7P	717.5672405	718.6	184	115	10	38	15
29	PC aa C32:3	C40H74NO8P	727.515205	728.5	184	117	10	38	15
30	SM C18:1	C41H81N2O6P	728.583	729.6	184	117	10	38	15
31	PC aa C32:2	C40H76NO8P	729.530855	730.5	184	117	10	38	15
32	SM C18:0	C41H84N2O6P	731.6067	731.6	184	117	10	38	15
33	PC aa C32:1	C40H78NO8P	731.5465051	732.6	184	118	10	39	15
34	PC aa C32:0	C40H80NO8P	733.5621552	734.6	184	119	10	39	15
35	PC ae C34:3	C42H80NO7P	741.5672405	742.6	184	120	10	39	15
36	PC ae C34:2	C42H82NO7P	743.5828906	744.6	184	120	10	39	15
37	PC ae C34:1	C42H84NO7P	745.5985407	746.6	184	121	10	39	15
38	PC ae C34:0	C42H86NO7P	747.6141907	748.6	184	122	10	40	15
39	PC aa C34:4	C42H76NO8P	753.530855	754.5	184	122	10	40	15
40	SM C20:2	C43H83N2O6P	754.5988749	755.6	184	123	10	40	15
41	PC aa C34:3	C42H78NO8P	755.5465051	756.6	184	123	10	40	15
42	PC aa C34:2	C42H80NO8P	757.5621552	758.6	184	123	10	40	15

43	PC aa C34:1	C42H82NO8P	759.5778052	760.6	184	125	10	41	15
44	PC ae C36:5	C44H80NO7P	765.5672405	766.6	184	125	10	41	15
45	PC ae C36:4	C44H82NO7P	767.5828906	768.6	184	126	10	41	15
46	PC ae C36:3	C44H84NO7P	769.5985407	770.6	184	126	10	41	15
47	PC ae C36:2	C44H86NO7P	771.6141907	772.6	184	127	10	41	15
48	PC ae C36:1	C44H88NO7P	773.6298408	774.6	184	127	10	41	15
49	PC ae C36:0	C44H90NO7P	775.6454909	776.7	184	128	10	42	15
50	PC aa C36:6	C44H76NO8P	777.530855	778.5	184	128	10	42	15
51	PC aa C36:5	C44H78NO8P	779.5465051	780.6	184	128	10	42	15
52	SM C22:3	C45H85N2O6P	780.614525	781.6	184	129	10	42	15
53	PC aa C36:4	C44H80NO8P	781.5621552	782.6	184	129	10	42	15
54	PC aa C36:3	C44H82NO8P	783.5778052	784.6	184	130	10	42	15
55	PC aa C36:2	C44H84NO8P	785.5934553	786.6	184	130	10	42	15
56	PC aa C36:1	C44H86NO8P	787.6091053	788.6	184	131	10	43	15
57	PC aa C36:0	C44H88NO8P	789.6247554	790.6	184	131	10	43	15
58	PC ae C38:6	C46H82NO7P	791.5828906	792.6	184	132	10	43	15
59	PC ae C38:5	C46H84NO7P	793.5985407	794.6	184	132	10	43	15
60	PC ae C38:4	C46H86NO7P	795.6141907	796.6	184	133	10	43	15
61	PC ae C38:3	C46H88NO7P	797.6298408	798.6	184	133	10	43	15
62	SM (OH) C22:2	C45H87N2O7P	798.6250897	799.7	184	133	10	43	15
63	PC ae C38:2	C46H90NO7P	799.6454909	800.7	184	133	10	43	15
64	SM (OH) C22:1	C45H89N2O7P	800.6407397	801.7	184	134	10	43	15

65	PC ae C38:1	C46H92NO7P	801.6611409	802.7	184	134	10	44	15
66	PC ae C38:0	C46H94NO7P	803.676791	804.7	184	135	10	44	15
67	PC aa C38:6	C46H80NO8P	805.5621552	806.6	184	135	10	44	15
68	PC aa C38:5	C46H82NO8P	807.5778052	808.6	184	136	10	44	15
69	PC aa C38:4	C46H84NO8P	809.5934553	810.6	184	136	10	44	15
70	PC aa C38:3	C46H86NO8P	811.6091053	812.6	184	136	10	44	15
71	SM C24:1	C47H93N2O6P	812.677	813.7	184	137	10	45	15
72	SM C24:0	C47H95N2O6P	814.6928	815.7	184	137	10	45	15
73	PC aa C38:1	C46H90NO8P	815.6404055	816.7	184	138	10	45	15
74	PC aa C38:0	C46H92NO8P	817.6560555	818.7	184	138	10	45	15
75	PC ae C40:6	C48H86NO7P	819.6141907	820.6	184	139	10	45	15
76	PC ae C40:5	C48H88NO7P	821.6298408	822.6	184	139	10	45	15
77	PC ae C40:4	C48H90NO7P	823.6454909	824.7	184	140	10	45	15
78	PC ae C40:3	C48H92NO7P	825.6611408	826.7	184	140	10	46	15
79	PC ae C40:2	C48H94NO7P	827.6767909	828.7	184	141	10	46	15
80	SM (OH) C24:1	C47H94N2O7P	829.6799	829.7	184	141	10	46	15
81	PC ae C40:1	C48H96NO7P	829.692441	830.7	184	141	10	46	15
82	PC aa C40:6	C48H84NO8P	833.5934552	834.6	184	143	10	46	15
83	PC aa C40:5	C48H86NO8P	835.6091053	836.6	184	143	10	47	15
84	PC aa C40:4	C48H88NO8P	837.6247553	838.6	184	144	10	47	15
85	PC aa C40:3	C48H90NO8P	839.6404054	840.7	184	144	10	47	15
86	SM C26:1	C49H98N2O6P	841.7163	841.7	184	144	10	47	15

87	PC aa C40:2	C48H92NO8P	841.6560554	842.7	184	144	10	47	15
88	SM C26:0	C49H100N2O6P	843.7319	843.7	184	145	10	47	15
89	PC aa C40:1	C48H94NO8P	843.6717055	844.7	184	145	10	47	15
90	PC ae C42:5	C50H92NO7P	849.6611408	850.7	184	147	10	48	15
91	PC ae C42:4	C50H94NO7P	851.6767909	852.7	184	148	10	48	15
92	PC ae C42:3	C50H96NO7P	853.6924409	854.7	184	148	10	48	15
93	PC ae C42:2	C50H98NO7P	855.708091	856.7	184	149	10	48	15
94	PC ae C42:1	C50H100NO7P	857.7237411	858.7	184	141	10	46	15
95	PC ae C42:0	C50H102NO7P	859.7393911	860.8	184	150	10	49	15
96	PC aa C42:6	C50H88NO8P	861.6247553	862.6	184	150	10	49	15
97	PC aa C42:5	C50H90NO8P	863.6404054	864.7	184	151	10	49	15
98	PC aa C42:4	C50H92NO8P	865.6560554	866.7	184	152	10	50	15
99	PC aa C42:2	C50H96NO8P	869.6873556	870.7	184	153	10	50	15
100	PC aa C42:1	C50H98NO8P	871.7030056	872.7	184	153	10	50	15
101	PC aa C42:0	C50H100NO8P	873.7186557	874.7	184	154	10	50	15
102	PC ae C44:6	C52H94NO7P	875.6767909	876.7	184	154	10	50	15
103	PC ae C44:5	C52H96NO7P	877.6924409	878.7	184	155	10	51	15
104	PC ae C44:4	C52H98NO7P	879.708091	880.7	184	156	10	51	15
105	PC ae C44:3	C52H100NO7P	881.7237411	882.7	184	156	10	51	15

Table SII. Enrichment analysis of proteome.

Pathway	Hits	P-value	FDR
Basal transcription factors	60	4.68×10^{-50}	1.57×10^{-47}
Apoptosis - multiple species	30	2.18×10^{-6}	1.05×10^{-4}
MicroRNAs in cancer	29	5.86×10^{-3}	6.22×10^{-2}
Human immunodeficiency virus 1 infection	29	1.57×10^{-6}	1.05×10^{-4}
Cocaine addiction	24	1.94×10^{-9}	3.26×10^{-7}
Glutamatergic synapse	21	2.80×10^{-5}	7.24×10^{-4}
Renal cell carcinoma	20	1.16×10^{-5}	4.35×10^{-4}
Gap junction	20	1.00×10^{-5}	4.21×10^{-4}
Nicotine addiction	19	2.25×10^{-5}	6.31×10^{-4}
Proteoglycans in cancer	18	2.51×10^{-4}	5.26×10^{-3}
Chemical carcinogenesis	18	1.28×10^{-4}	2.87×10^{-3}
Herpes simplex virus 1 infection	17	1.39×10^{-3}	1.87×10^{-2}
Oxidative phosphorylation	17	1.85×10^{-6}	1.05×10^{-4}
Pathways in cancer	16	2.69×10^{-3}	3.35×10^{-2}
Endometrial cancer	16	1.30×10^{-3}	1.82×10^{-2}
Human papillomavirus infection	16	5.70×10^{-5}	1.37×10^{-3}
Amphetamine addiction	16	1.92×10^{-5}	6.04×10^{-4}
mTOR signaling pathway	15	4.24×10^{-4}	7.51×10^{-3}
Human T-cell leukemia virus 1 infection	15	3.26×10^{-4}	6.45×10^{-3}
Progesterone-mediated oocyte maturation	14	1.20×10^{-2}	9.36×10^{-2}
Yersinia infection	14	7.38×10^{-3}	7.09×10^{-2}
Hepatitis B	14	1.98×10^{-5}	6.04×10^{-4}
Central carbon metabolism in cancer	14	1.89×10^{-6}	1.05×10^{-4}
Signaling pathways regulating pluripotency of stem cells	14	1.09×10^{-6}	1.05×10^{-4}
Transcriptional misregulation in cancer	13	9.41×10^{-3}	8.11×10^{-2}
DNA replication	13	3.48×10^{-3}	4.18×10^{-2}
Cell cycle	13	4.17×10^{-4}	7.51×10^{-3}
Notch signaling pathway	12	7.25×10^{-3}	7.09×10^{-2}
Apoptosis	12	4.85×10^{-3}	5.43×10^{-2}
Maturity onset diabetes of the young	11	1.11×10^{-2}	8.91×10^{-2}

Neuroactive ligand-receptor interaction	11	$9.99x10^{-4}$	$1.53x10^{-2}$
Kaposi sarcoma-associated herpesvirus infection	10	$1.71x10^{-2}$	$1.22x10^{-1}$
Autophagy - animal	10	$1.56x10^{-2}$	$1.16x10^{-1}$
Autophagy - other	10	$1.05x10^{-2}$	$8.66x10^{-2}$
SNARE interactions in vesicular transport	10	$8.45x10^{-3}$	$7.68x10^{-2}$
Rheumatoid arthritis	10	$7.30x10^{-4}$	$1.17x10^{-2}$
Estrogen signaling pathway	9	$3.99x10^{-2}$	$2.16x10^{-1}$
Toxoplasmosis	9	$1.89x10^{-2}$	$1.29x10^{-1}$
Cytosolic DNA-sensing pathway	9	$1.1x10^{-3}$	$1.61x10^{-2}$
Natural killer cell mediated cytotoxicity	9	$4.97x10^{-4}$	$8.35x10^{-3}$
Ferroptosis	8	$4.75x10^{-2}$	$2.31x10^{-1}$
Vasopressin-regulated water reabsorption	8	$4.56x10^{-2}$	$2.31x10^{-1}$
TNF signaling pathway	8	$2.66x10^{-2}$	$1.65x10^{-1}$
RNA polymerase	8	$2.40x10^{-2}$	$1.52x10^{-1}$
Aldosterone-regulated sodium reabsorption	8	$1.85x10^{-2}$	$1.29x10^{-1}$
Basal cell carcinoma	8	$3.71x10^{-3}$	$4.29x10^{-2}$
Legionellosis	8	$2.20x10^{-3}$	$2.85x10^{-2}$
Ribosome	7	$4.54x10^{-2}$	$2.31x10^{-1}$
Chronic myeloid leukemia	7	$4.33x10^{-2}$	$2.28x10^{-1}$
Fc epsilon RI signaling pathway	7	$3.75x10^{-2}$	$2.14x10^{-1}$
Platelet activation	7	$9.26x10^{-3}$	$8.11x10^{-2}$
Aldosterone synthesis and secretion	7	$7.95x10^{-3}$	$7.42x10^{-2}$
Ribosome biogenesis in eukaryotes	6	$4.82x10^{-2}$	$2.31x10^{-1}$
Amoebiasis	6	$4.11x10^{-2}$	$2.19x10^{-1}$
Bladder cancer	6	$3.89x10^{-2}$	$2.16x10^{-1}$
Salmonella infection	6	$3.48x10^{-2}$	$2.05x10^{-1}$
Inflammatory bowel disease (IBD)	6	$2.73x10^{-2}$	$1.67x10^{-1}$
Leishmaniasis	6	$2.40x10^{-2}$	$1.52x10^{-1}$
Choline metabolism in cancer	6	$2.25x10^{-2}$	$1.51x10^{-1}$
Malaria	6	$1.06x10^{-2}$	$8.66x10^{-2}$
Osteoclast differentiation	6	$6.11x10^{-3}$	$6.22x10^{-2}$

Pertussis	6	6.11×10^{-3}	6.22×10^{-2}
Focal adhesion	5	4.66×10^{-2}	2.31×10^{-1}
Cysteine and methionine metabolism	5	2.31×10^{-2}	1.52×10^{-1}
Breast cancer	4	4.70×10^{-2}	2.31×10^{-1}
Fluid shear stress and atherosclerosis	4	3.70×10^{-2}	2.14×10^{-1}
Citrate cycle (TCA cycle)	4	1.69×10^{-2}	1.22×10^{-1}
Homologous recombination	3	3.99×10^{-2}	2.16×10^{-1}

Kyoto Encyclopedia of Genes and Genomes pathways which related to specific six proteins (Q61704, P32261, Q922R8, P56480, Q9D8E6, P27773) were analyzed by OmicsNet 2.0. FDR, false discovery rate.

Table SIII. Enrichment analysis of lipidome.

Pathway	Hits	P-value	FDR
Glycerophospholipid metabolism	38	$5.44x10^{-73}$	$1.83x10^{-70}$
EGFR tyrosine kinase inhibitor resistance	33	$1.54x10^{-17}$	$6.49x10^{-16}$
Ether lipid metabolism	30	$2.54x10^{-63}$	$4.27x10^{-61}$
Cytokine-cytokine receptor interaction	22	$1.01x10^{-23}$	$4.86x10^{-22}$
alpha-Linolenic acid metabolism	21	$2.34x10^{-47}$	$2.62x10^{-45}$
Linoleic acid metabolism	21	$7.85x10^{-45}$	$6.60x10^{-43}$
Arachidonic acid metabolism	21	$4.65x10^{-35}$	$3.13x10^{-33}$
Axon guidance	19	$7.70x10^{-24}$	$4.31x10^{-22}$
Alzheimer disease	11	$4.67x10^{-17}$	$1.74x10^{-15}$
Systemic lupus erythematosus	11	$1.36x10^{-12}$	$4.55x10^{-11}$
Vitamin digestion and absorption	11	$2.13x10^{-12}$	$6.49x10^{-11}$
Circadian entrainment	10	$2.51x10^{-11}$	$7.04x10^{-10}$
Prolactin signaling pathway	9	$7.33x10^{-10}$	$1.89x10^{-8}$
Long-term depression	9	$4.57x10^{-9}$	$1.02x10^{-7}$
Ubiquitin mediated proteolysis	9	$4.56x10^{-8}$	$7.66x10^{-7}$
Ovarian steroidogenesis	8	$3.28x10^{-8}$	$6.13x10^{-7}$
Thyroid hormone synthesis	7	$4.24x10^{-9}$	$1.02x10^{-7}$
Focal adhesion	7	$1.62x10^{-8}$	$3.41x10^{-7}$
Regulation of actin cytoskeleton	7	$1.83x10^{-8}$	$3.62x10^{-7}$
Circadian rhythm	7	$4.46x10^{-8}$	$7.66x10^{-7}$
Taste transduction	7	$1.69x10^{-6}$	$2.70x10^{-5}$
RIG-I-like receptor signaling pathway	7	$2.80x10^{-6}$	$4.28x10^{-5}$
Relaxin signaling pathway	7	$1.13x10^{-5}$	$1.65x10^{-4}$
Wnt signaling pathway	7	$1.64x10^{-5}$	$2.30x10^{-4}$
cGMP-PKG signaling pathway	7	$6.98x10^{-4}$	$9.01x10^{-3}$
p53 signaling pathway	4	$3.19x10^{-3}$	$3.97x10^{-2}$
Phosphonate and phosphinate metabolism	2	$3.87x10^{-4}$	$5.20x10^{-3}$
Amyotrophic lateral sclerosis	2	$6.71x10^{-3}$	$8.05x10^{-2}$
Sphingolipid metabolism	2	$2.44x10^{-2}$	$2.82x10^{-1}$

Kyoto Encyclopedia of Genes and Genomes pathways which related to two type of lipids, PCs and lyso PCs (C00157 and C04230), were analyzed by OmicsNet 2.0. FDR, false discovery rate.

Table SIV. Functional of predictive targeted genes from 24 miRNAs by Gene Ontology (Cellular component).

Function name	Number of predictive genes	P-value
Integral to organelle membrane	3	$2.42x10^{-2}$
Intrinsic to organelle membrane	3	$3.27x10^{-2}$
Integral to Golgi membrane	2	$7.05x10^{-3}$
Intrinsic to Golgi membrane	2	$7.05x10^{-2}$
Ubiquitin ligase complex	2	$8.10x10^{-2}$
Golgi membrane	2	$1.08x10^{-1}$
Basolateral plasma membrane	2	$1.17x10^{-1}$
Chromosome, centromeric region	2	$1.33x10^{-1}$
Small nuclear ribonucleoprotein complex	1	$8.38x10^{-2}$
Spindle microtubule	1	$1.16x10^{-1}$