

Supplement Table 1. Characteristic results of dietary precursors by SVMR analysis

Table 1-1. Characteristic results of choline by SVMR analysis

Outcome	nSNP	Heterogeneity		Pleiotropy		MR-PRESSO	
		Q-statistic	P-value	SE	P-value	OR (95%CI)	P-value
CVD	57	156.6893	<0.001	0.0041	0.6318	1.0485 0.9901~1.1069	0.1176
MI	57	212.1111	<0.001	0.0096	0.4624	1.2203 1.0843~1.3562	0.0060
HF	53	243.0098	<0.001	0.0056	0.9340	1.0348 0.9636~1.1059	0.3508
AF	59	109.5044	<0.001	0.0029	0.3436	NA	NA
VHD	57	118.5896	<0.001	0.0041	0.1060	1.0808 1.0083~1.1533	0.0402

Table 1-2. Characteristic results of carnitine by SVMR analysis

Outcome	nSNP	Heterogeneity		Pleiotropy		MR-PRESSO	
		Q-statistic	P-value	SE	P-value	OR (95%CI)	P-value
CVD	17	46.9677	<0.001	0.0073	0.8824	1.3360 0.7665~1.9055	0.3370
MI	17	10.5372	0.8371	0.0083	0.8534	NA	NA
HF	16	17.1835	0.3080	0.0043	0.7440	NA	NA
AF	17	21.4130	0.1632	0.0037	0.5060	NA	NA
VHD	17	17.1242	0.3776	0.0052	0.5081	NA	NA

Table 1-3. Characteristic results of phosphatidylcholines by SVMR analysis

Outcome	nSNP	Heterogeneity		Pleiotropy		MR-PRESSO	
		Q-statistic	P-value	SE	P-value	OR (95%CI)	P-value
CVD	56	111.2240	<0.001	0.0033	0.3191	1.0438 0.9883~1.0993	0.1356
MI	56	164.4221	<0.001	0.0081	0.6561	1.1874 1.0534~1.3216	0.0150
HF	51	190.2368	<0.001	0.0048	0.7609	0.9952 0.9280~1.0625	0.8890
AF	56	87.0782	0.0038	0.0026	0.2654	0.9882 0.9429~1.0334	0.6094
VHD	56	113.6591	<0.001	0.0039	0.3113	1.0618 0.9943~1.1292	0.0872

SVMR results of choline with cardiovascular disease. Q: Cochran's Q statistic ; OR: odds ratio; CI: confidence interval; nSNP: number of single nucleotide polymorphism; NA: the calculation result cannot be obtained due to the shortage of SNP.

Supplement Table 2. F-statistic of dietary precursors

Table 2-1. F-statistic of choline

	id.exposure	SNP	se.exposure	beta.exposure	pos.exposure	maf.exposure	N	SD	R2	F OF ONE	F-statistic
1	met-d-Cholines	rs1002687	0.004057	0.072981	62963737	0.644748	114999	1.375793	0.001289	2.317921	41.13472
2	met-d-Cholines	rs3768321	0.004896	-0.02815	40035928	0.196522	114999	1.660148	9.08E-05	0.163036	
3	met-d-Cholines	rs660240	0.004727	0.031259	109817838	0.78472	114999	1.603061	0.000128	0.230741	
4	met-d-Cholines	rs2642438	0.004254	0.031832	220970028	0.703815	114999	1.442517	0.000203	0.364667	
5	met-d-Cholines	rs496654	0.003885	0.022248	234851165	0.517239	114999	1.317618	0.000142	0.255738	
6	met-d-Cholines	rs7551124	0.005863	0.035204	23785760	0.875389	114999	1.988072	6.84E-05	0.122855	
7	met-d-Cholines	rs4846921	0.003985	0.025827	230304352	0.613253	114999	1.35137	0.000173	0.311195	
8	met-d-Cholines	rs1260326	0.003969	-0.06394	27730940	0.60401	114999	1.34611	0.001079	1.940221	
9	met-d-Cholines	rs672889	0.00559	0.067173	21319016	0.860091	114999	1.895738	0.000302	0.542815	
10	met-d-Cholines	rs1189535	0.003898	-0.03472	20367135	0.475398	114999	1.321874	0.000344	0.618351	
11	met-d-Cholines	rs3770586	0.003902	-0.02229	169828995	0.48397	114999	1.323088	0.000142	0.254698	
12	met-d-Cholines	rs4860948	0.004532	0.032407	69340991	0.244353	114999	1.536995	0.000164	0.294881	
13	met-d-Cholines	rs1310732	0.007405	-0.05009	103188709	0.074275	114999	2.511021	5.47E-05	0.098275	
14	met-d-Cholines	rs7707394	0.004047	0.022698	74472939	0.357106	114999	1.372378	0.000126	0.225579	
15	met-d-Cholines	rs5744672	0.003992	0.03213	74877803	0.384185	114999	1.353676	0.000267	0.478841	
16	met-d-Cholines	rs6882345	0.004024	0.02915	156397673	0.632863	114999	1.364728	0.000212	0.380822	
17	met-d-Cholines	rs7983416	0.010734	-0.06315	34889423	0.033987	114999	3.640162	1.98E-05	0.03549	
18	met-d-Cholines	rs1131285	0.00406	0.032702	31323953	0.648355	114999	1.376732	0.000257	0.462138	
19	met-d-Cholines	rs1866962	0.016388	-0.11706	161111700	0.014358	114999	5.557417	1.26E-05	0.022551	
20	met-d-Cholines	rs1401450	0.005787	0.031398	32597435	0.135289	114999	1.962506	5.99E-05	0.107554	
21	met-d-Cholines	rs1065344	0.004378	0.02554	73016541	0.715017	114999	1.484595	0.000121	0.21662	
22	met-d-Cholines	rs1057558	0.004689	-0.03307	1062366	0.220332	114999	1.590093	0.000149	0.266927	
23	met-d-Cholines	rs1992442	0.004407	0.032985	19853389	0.265042	114999	1.494334	0.00019	0.340962	
24	met-d-Cholines	rs2737214	0.003943	0.024119	116624987	0.558538	114999	1.337209	0.00016	0.288168	
25	met-d-Cholines	rs9987289	0.006758	0.092483	9183358	0.909151	114999	2.291831	0.000269	0.483198	
26	met-d-Cholines	rs1128756	0.004033	-0.0529	126506694	0.392346	114999	1.3676	0.000713	1.281902	
27	met-d-Cholines	rs2066714	0.005773	0.032646	107586753	0.128936	114999	1.957799	6.25E-05	0.112171	
28	met-d-Cholines	rs2740488	0.00441	-0.04836	107661742	0.265321	114999	1.495524	0.000408	0.732397	
29	met-d-Cholines	rs4008004	0.004695	0.031948	15300968	0.221842	114999	1.59225	0.000139	0.249657	
30	met-d-Cholines	rs1178960	0.006251	0.05369	107647019	0.108831	114999	2.119757	0.000124	0.223499	
31	met-d-Cholines	rs635634	0.005035	0.036102	136155000	0.183554	114999	1.707312	0.000134	0.24071	
32	met-d-Cholines	rs1480636	0.004666	-0.0324	45998984	0.763414	114999	1.58227	0.000152	0.272118	
33	met-d-Cholines	rs2792735	0.004326	-0.03567	113921825	0.720377	114999	1.467144	0.000238	0.427799	
34	met-d-Cholines	rs1174882	0.006018	-0.03837	5261832	0.131681	114999	2.040787	8.08E-05	0.145202	
35	met-d-Cholines	rs102275	0.004061	-0.03804	61557803	0.349755	114999	1.377292	0.000347	0.623404	
36	met-d-Cholines	rs5603082	0.00415	-0.03367	47397353	0.323119	114999	1.407348	0.00025	0.449872	
37	met-d-Cholines	rs7299761	0.006685	-0.06646	75474195	0.094064	114999	2.267092	0.000146	0.263032	
38	met-d-Cholines	rs525028	0.004293	-0.06665	116705516	0.708543	114999	1.455912	0.000866	1.555713	
39	met-d-Cholines	rs6606717	0.003881	0.028037	109873227	0.52317	114999	1.315963	0.000226	0.406795	
40	met-d-Cholines	rs1769673	0.003926	-0.02403	112486818	0.430221	114999	1.331508	0.00016	0.286836	
41	met-d-Cholines	rs7139079	0.003963	-0.03182	121415293	0.592501	114999	1.34376	0.000271	0.486257	
42	met-d-Cholines	rs3741521	0.004207	-0.02858	125264293	0.669712	114999	1.426559	0.000178	0.318857	
43	met-d-Cholines	rs1287821	0.004151	0.023112	24826201	0.670136	114999	1.407636	0.000119	0.214065	
44	met-d-Cholines	rs3466361	0.005752	0.042181	58569330	0.137654	114999	1.95061	0.000111	0.199393	
45	met-d-Cholines	rs261290	0.004089	-0.14661	58678720	0.654653	114999	1.386787	0.005054	9.121398	
46	met-d-Cholines	rs633695	0.004281	0.108287	58725839	0.292348	114999	1.451877	0.002302	4.142974	
47	met-d-Cholines	rs7591153	0.011454	-0.08176	57049137	0.032871	114999	3.884359	2.82E-05	0.050586	
48	met-d-Cholines	rs4986970	0.010762	-0.06314	67976320	0.033926	114999	3.649658	1.96E-05	0.035234	
49	met-d-Cholines	rs3764261	0.004147	0.098519	56993324	0.324455	114999	1.406357	0.002151	3.871637	
50	met-d-Cholines	rs7283656	0.011123	-0.08628	41926126	0.031483	114999	3.771841	3.19E-05	0.057311	
51	met-d-Cholines	rs2071379	0.003954	-0.02452	26695832	0.596255	114999	1.340986	0.000161	0.28909	
52	met-d-Cholines	rs7796034	0.01696	0.313193	47109955	0.013239	114999	5.751289	7.75E-05	0.139153	
53	met-d-Cholines	rs1176875	0.018471	0.115223	47147524	0.012011	114999	6.26376	8.03E-06	0.014423	
54	met-d-Cholines	rs9304381	0.005041	0.084939	47158234	0.818434	114999	1.709492	0.000734	1.318598	
55	met-d-Cholines	rs5854292	0.007407	-0.08844	19379549	0.074383	114999	2.511761	0.000171	0.306613	
56	met-d-Cholines	rs1421589	0.006086	-0.06161	11190534	0.116705	114999	2.06402	0.000184	0.329994	
57	met-d-Cholines	rs8103923	0.005818	-0.02949	46402383	0.129369	114999	1.972937	5.03E-05	0.090398	
58	met-d-Cholines	rs602662	0.003897	0.025674	49206985	0.534418	114999	1.321494	0.000188	0.337379	
59	met-d-Cholines	rs1065853	0.007165	-0.12628	45413233	0.080578	114999	2.429881	0.0004	0.718957	
60	met-d-Cholines	rs7223511	0.004512	-0.04143	45444524	0.705067	114999	1.530141	0.000305	0.547648	
61	met-d-Cholines	rs1769903	0.010748	-0.11681	11330942	0.033705	114999	3.644808	6.69E-05	0.120147	
62	met-d-Cholines	rs1883711	0.011414	0.061957	39179822	0.031191	114999	3.870625	1.55E-05	0.027809	
63	met-d-Cholines	rs1800961	0.011345	-0.09532	43042364	0.030192	114999	3.847226	3.6E-05	0.064564	
64	met-d-Cholines	rs5754102	0.00508	-0.03616	21916272	0.183245	114999	1.722535	0.000132	0.236883	

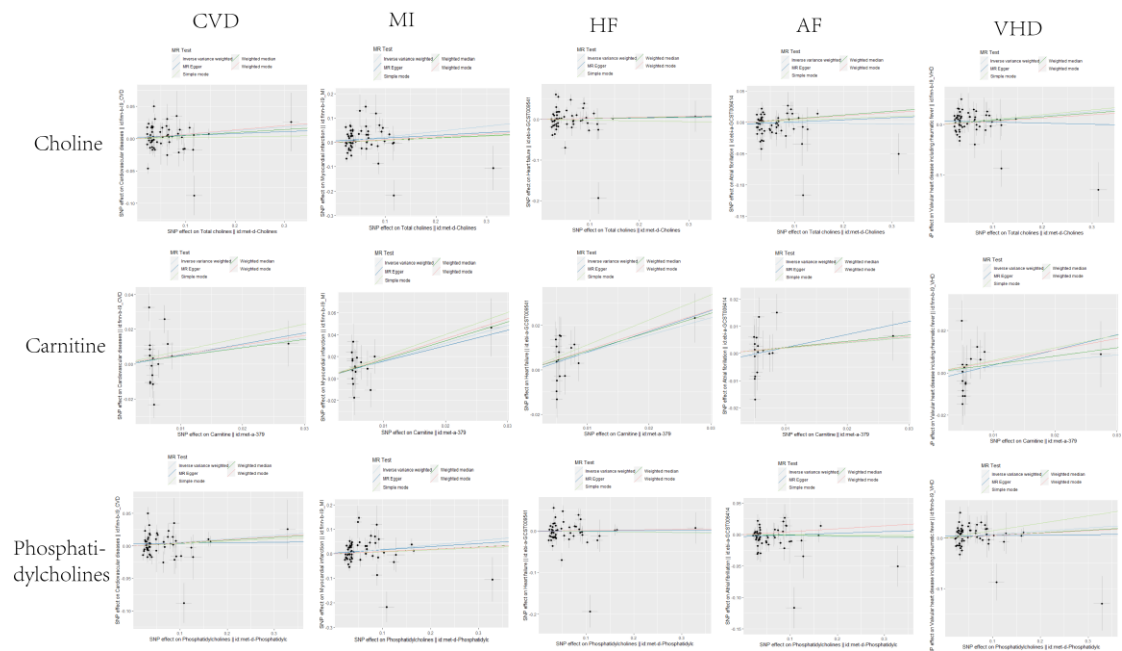
Table 2-2. F-statistic of Carnitine

	SNP	id.exposur	pval.expos	beta.expos	se.exposur	pos.exposur	eaf.exposu	N	SD	R2	F OF ONE	SNP	F-statistic
1	rs1466788	met-a-37	3.05E-16	0.0074	9.00E-04	110618730	0.5932	7797	7.95E-02	4.18E-03	1.92E+00	24.03579738	
2	rs735315	met-a-37	1.87E-09	-0.0054	9.00E-04	51331157	0.5057	7797	7.95E-02	2.31E-03	1.06E+00		
3	rs2279014	met-a-37	4.86E-08	-0.005	9.00E-04	219261176	0.367	7797	7.95E-02	1.84E-03	8.43E-01		
4	rs9842133	met-a-37	4.20E-12	-0.0064	9.00E-04	179664102	0.3351	7797	7.95E-02	2.89E-03	1.33E+00		
5	rs4860022	met-a-37	9.60E-10	-0.0055	9.00E-04	167693875	0.3362	7797	7.95E-02	2.14E-03	9.80E-01		
6	rs419291	met-a-37	3.10E-18	-0.0079	9.00E-04	131633355	0.6333	7797	7.95E-02	4.59E-03	2.11E+00		
7	rs1318251	met-a-37	3.36E-08	0.005	9.00E-04	78573790	0.6194	7797	7.95E-02	1.87E-03	8.56E-01		
8	rs6862024	met-a-37	8.99E-10	-0.0055	9.00E-04	150428871	0.3691	7797	7.95E-02	2.23E-03	1.02E+00		
9	rs2396004	met-a-37	4.31E-08	-0.0049	9.00E-04	43355851	0.5611	7797	7.95E-02	1.87E-03	8.58E-01		
10	rs1082158	met-a-37	1.28E-21	-0.0086	9.00E-04	61516587	0.4124	7797	7.95E-02	5.68E-03	2.61E+00		
11	rs1235619	met-a-37	3.69E-63	-0.0274	0.0016	61413353	0.1638	7797	1.41E-01	1.03E-02	4.76E+00		
12	rs1118362	met-a-37	3.00E-08	-0.005	9.00E-04	47212370	0.5324	7797	7.95E-02	1.97E-03	9.04E-01		
13	rs1162095	met-a-37	1.63E-08	0.0051	9.00E-04	65491255	0.5233	7797	7.95E-02	2.05E-03	9.42E-01		
14	rs1162097	met-a-37	2.35E-08	0.0051	9.00E-04	96018052	0.3674	7797	7.95E-02	1.91E-03	8.78E-01		
15	rs2114713	met-a-37	2.67E-08	0.005	9.00E-04	80528373	0.42	7797	7.95E-02	1.93E-03	8.84E-01		
16	rs3736438	met-a-37	3.19E-10	0.0057	9.00E-04	45486651	0.6111	7797	7.95E-02	2.45E-03	1.12E+00		
17	rs1270939	met-a-37	6.41E-09	-0.0053	9.00E-04	55292115	0.3714	7797	7.95E-02	2.08E-03	9.52E-01		

Table 2-3. F-statistic of Phosphatidylcholine

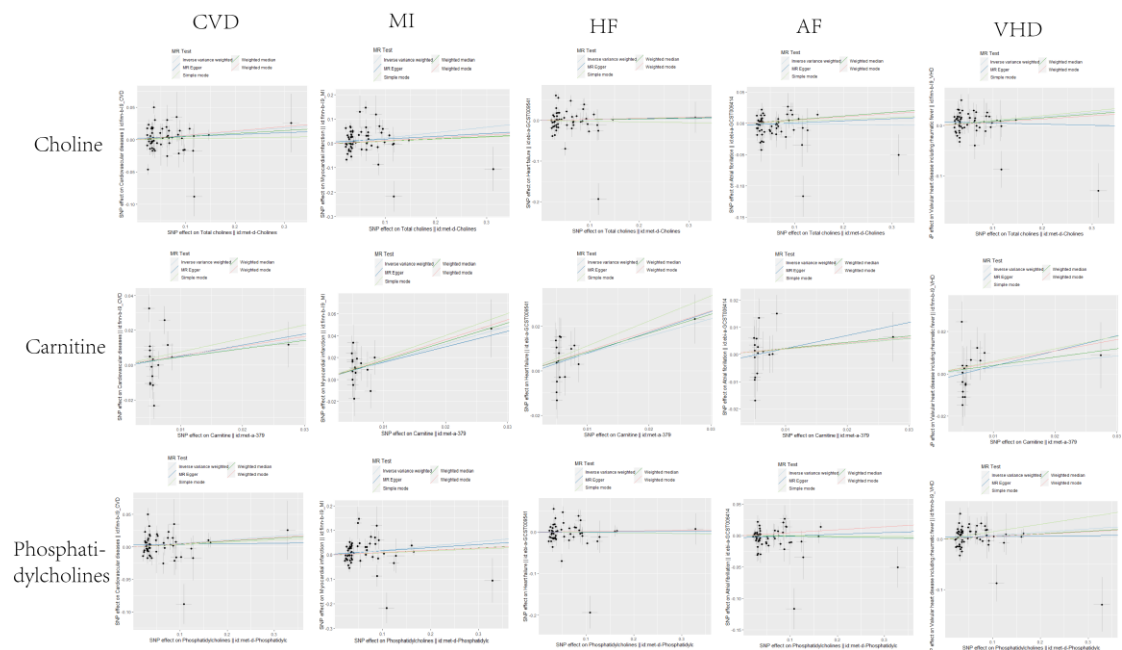
	exposure	beta.expos	se.exposur	pos.expos	pval.expos	chr.exposur	id.exposur	SNP	eaf.exposu	N	SD	R2	F OF ONE	F-statistic
1	Phosphatic	0.028366	0.00397	2.3E+08	3.30E-13	1	met-d-Phirs	1321257	0.613244	114999	1.346412	0.000211	0.396788	46.30915
2	Phosphatic	0.03396	0.00584	23785760	1.40E-09	1	met-d-Phirs	7551124	0.875389	114999	1.9805	6.41E-05	0.120873	
3	Phosphatic	0.078719	0.004042	62963737	2.00E-87	1	met-d-Phirs	1002687	0.644748	114999	1.37055	0.001511	2.851735	
4	Phosphatic	0.030407	0.004238	2.21E+08	3.20E-14	1	met-d-Phirs	2642438	0.703815	114999	1.437024	0.000187	0.351786	
5	Phosphatic	-0.06469	0.003955	27730940	6.40E-61	2	met-d-Phirs	1260326	0.60401	114999	1.341057	0.001113	2.099945	
6	Phosphatic	-0.03656	0.003883	20367135	1.30E-21	2	met-d-Phirs	1189535	0.475398	114999	1.316913	0.000385	0.724807	
7	Phosphatic	0.023053	0.003915	1.7E+08	1.50E-09	2	met-d-Phirs	2389602	0.448608	114999	1.327622	0.000149	0.281098	
8	Phosphatic	-0.0667	0.005684	21271707	8.20E-33	2	met-d-Phirs	3472231	0.136132	114999	1.927665	0.000282	0.530788	
9	Phosphatic	-0.04874	0.007377	1.03E+08	6.70E-12	4	met-d-Phirs	1310732	0.074275	114999	2.501716	5.22E-05	0.098345	
10	Phosphatic	0.034842	0.004516	69340991	2.50E-15	4	met-d-Phirs	4860948	0.244353	114999	1.531298	0.000191	0.360298	
11	Phosphatic	0.027979	0.00401	1.56E+08	2.40E-12	5	met-d-Phirs	6882345	0.632863	114999	1.359777	0.000197	0.370766	
12	Phosphatic	0.033764	0.004758	74925162	1.40E-12	5	met-d-Phirs	9293656	0.210218	114999	1.613357	0.000145	0.274056	
13	Phosphatic	0.031238	0.004045	31323953	1.80E-12	6	met-d-Phirs	1131285	0.648355	114999	1.371707	0.000236	0.445678	
14	Phosphatic	-0.10795	0.016328	1.61E+08	5.50E-12	6	met-d-Phirs	1866962	0.014358	114999	5.537138	1.08E-05	0.020269	
15	Phosphatic	-0.06391	0.010695	34889423	9.00E-10	6	met-d-Phirs	7983416	0.033987	114999	3.626869	2.04E-05	0.038424	
16	Phosphatic	-0.03586	0.004698	1090505	5.90E-15	7	met-d-Phirs	1270171	0.216755	114999	1.593173	0.000172	0.324215	
17	Phosphatic	0.029076	0.004361	73016541	3.00E-11	7	met-d-Phirs	1065344	0.715017	114999	1.479033	0.000157	0.296801	
18	Phosphatic	-0.05204	0.004018	1.27E+08	6.80E-39	8	met-d-Phirs	1128756	0.392346	114999	1.362517	0.000696	1.311471	
19	Phosphatic	0.030744	0.004388	19855600	8.60E-12	8	met-d-Phirs	1741116	0.265213	114999	1.488057	0.000166	0.313526	
20	Phosphatic	0.025079	0.004326	1.44E+08	5.00E-09	8	met-d-Phirs	5696066	0.277751	114999	1.467059	0.000117	0.220944	
21	Phosphatic	0.085011	0.006733	9183358	8.60E-37	8	met-d-Phirs	9987289	0.909151	114999	2.283309	0.000229	0.431556	
22	Phosphatic	0.025802	0.003929	1.17E+08	5.10E-11	8	met-d-Phirs	2737214	0.558538	114999	1.332234	0.000185	0.348609	
23	Phosphatic	0.034104	0.005045	15305378	2.20E-12	9	met-d-Phirs	581080	0.820407	114999	1.710822	0.000117	0.220669	
24	Phosphatic	0.030712	0.005752	1.08E+08	1.80E-08	9	met-d-Phirs	2066714	0.128936	114999	1.95064	5.57E-05	0.104923	
25	Phosphatic	0.053646	0.006228	1.08E+08	8.90E-18	9	met-d-Phirs	1178960	0.108831	114999	2.112005	0.000125	0.235838	
26	Phosphatic	0.023497	0.004224	15303822	1.00E-08	9	met-d-Phirs	1043572	0.303277	114999	1.432269	0.000114	0.214333	
27	Phosphatic	-0.04801	0.004394	1.08E+08	1.20E-28	9	met-d-Phirs	2740488	0.265321	114999	1.490058	0.000405	0.762805	
28	Phosphatic	0.031529	0.005016	1.36E+08	4.40E-11	9	met-d-Phirs	635634	0.183554	114999	1.701069	0.000103	0.194026	
29	Phosphatic	-0.03592	0.00431	1.14E+08	3.80E-17	10	met-d-Phirs	2792735	0.720377	114999	1.461718	0.000243	0.458535	
30	Phosphatic	-0.03972	0.005996	5261832	1.30E-11	10	met-d-Phirs	1174882	0.131681	114999	2.033235	8.73E-05	0.164416	
31	Phosphatic	-0.03338	0.004649	45998984	2.70E-13	10	met-d-Phirs	1480636	0.763414	114999	1.576417	0.000162	0.305214	
32	Phosphatic	-0.07343	0.004277	1.17E+08	5.80E-69	11	met-d-Phirs	525028	0.708543	114999	1.450541	0.001058	1.996521	
33	Phosphatic	-0.06706	0.006661	75474195	2.30E-23	11	met-d-Phirs	7299761	0.094064	114999	2.258726	0.00015	0.283107	
34	Phosphatic	-0.03177	0.004056	47527052	2.10E-15	11	met-d-Phirs	1083872	0.368821	114999	1.375596	0.000248	0.468152	
35	Phosphatic	-0.03406	0.005812	61591636	1.10E-09	11	met-d-Phirs	174565	0.127746	114999	1.970859	6.66E-05	0.125426	
36	Phosphatic	0.032284	0.004311	1.25E+08	8.30E-14	12	met-d-Phirs	1077311	0.720441	114999	1.461952	0.000196	0.370193	
37	Phosphatic	-0.02614	0.004284	1.25E+08	1.90E-10	12	met-d-Phirs	838886	0.696986	114999	1.452657	0.000137	0.257704	
38	Phosphatic	-0.02102	0.003902	1.04E+08	2.40E-08	12	met-d-Phirs	2292996	0.474903	114999	1.323091	0.000126	0.237214	
39	Phosphatic	0.029267	0.003866	1.1E+08	4.40E-15	12	met-d-Phirs	6606717	0.52317	114999	1.311076	0.000249	0.468558	
40	Phosphatic	-0.03502	0.004007	1.21E+08	1.20E-18	12	met-d-Phirs	979473	0.612971	114999	1.358793	0.000315	0.593894	
41	Phosphatic	-0.16448	0.004072	58678720	1.00E-200	15	met-d-Phirs	261290	0.654653	114999	1.381039	0.006413	12.16211	
42	Phosphatic	-0.16012	0.00554	58737341	1.50E-186	15	met-d-Phirs	473224	0.853925	114999	1.878663	0.001812	3.420956	
43	Phosphatic	-0.07548	0.004769	58577163	4.30E-59	15	met-d-Phirs	1016264	0.210115	114999	1.617273	0.000723	1.363132	
44	Phosphatic	0.102238	0.004131	56993324	1.70E-140	16	met-d-Phirs	3764261	0.324455	114999	1.401003	0.002334	4.408902	
45	Phosphatic	-0.0873	0.011411	57049137	6.00E-16	16	met-d-Phirs	7591153	0.032871	114999	3.869574	3.24E-05	0.060973	
46	Phosphatic	-0.03533	0.004911	72079657	2.30E-13	16	met-d-Phirs	7730355	0.19269	114999	1.665479	0.00014	0.263896	
47	Phosphatic	-0.0268	0.00394	26695832	7.20E-11	17	met-d-Phirs	2071379	0.596255	114999	1.336066	0.000194	0.365017	
48	Phosphatic	-0.08817	0.011082	41926126	5.20E-16	17	met-d-Phirs	7283656	0.031483	114999	3.758005	3.36E-05	0.063258	
49	Phosphatic	0.127471	0.018402	47147524	3.50E-12	18	met-d-Phirs	1176875	0.012011	114999	6.240293	9.9E-06	0.01866	
50	Phosphatic	0.328841	0.016896	47109955	1.00E-85	18	met-d-Phirs	7796034	0.013239	114999	5.729755	8.61E-05	0.162168	
51	Phosphatic	0.090752	0.005022	47158234	2.10E-74	18	met-d-Phirs	9304381	0.818434	114999	1.70309	0.000844	1.591414	
52	Phosphatic	-0.09847	0.00714	45413233	1.40E-44	19	met-d-Phirs	1065853	0.080578	114999	2.421129	0.000245	0.461915	
53	Phosphatic	0.024908	0.003883	49206985	2.10E-10	19	met-d-Phirs	602662	0.534418	114999	1.316733	0.000178	0.335578	
54	Phosphatic	-0.05082	0.006065	11190534	2.40E-17	19	met-d-Phirs	1421589	0.116705	114999	2.056587	0.000126	0.237259	
55	Phosphatic	-0.02939	0.005797	46402383	3.70E-08	19	met-d-Phirs	8103923	0.129369	114999	1.965833	5.04E-05	0.094885	
56	Phosphatic	-0.0448	0.004496	45444524	4.90E-24	19	met-d-Phirs	7223511	0.705067	114999	1.524631	0.000359	0.67695	
57	Phosphatic	-0.12348	0.010506	11347657	2.80E-32	19	met-d-Phirs	737338	0.035186	114999	3.562607	8.16E-05	0.153697	
58	Phosphatic	-0.08374	0.00738	13795949	6.70E-33	19	met-d-Phirs	5854292	0.074383	114999	2.502713	0.000154	0.29053	
59	Phosphatic	0.028179	0.00479	46340596	4.50E-09	20	met-d-Phirs	4239651	0.794242	114999	1.624371	9.84E-05	0.185355	
60	Phosphatic	-0.09188	0.011303	43042364	4.70E-16	20	met-d-Phirs	1800961	0.030192	114999	3.833119	3.36E-05	0.063396	
61	Phosphatic	-0.03648	0.005061	21916272	1.00E-13	22	met-d-Phirs	5754102	0.183245	114999	1.716251	0.000135	0.254788	

Supplement Figure 1



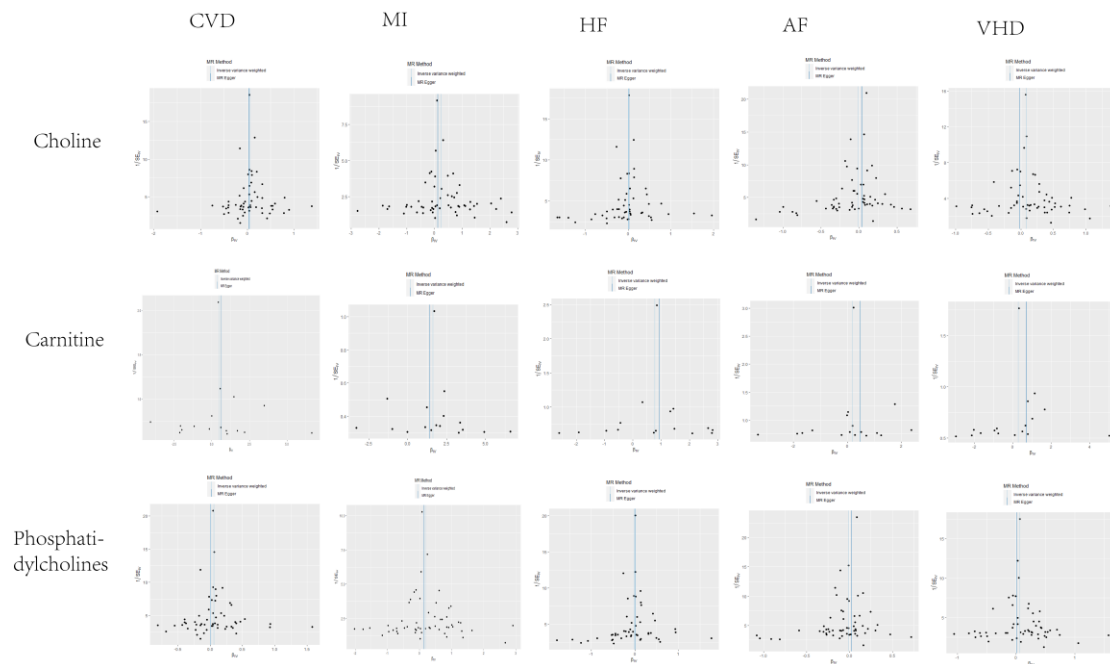
Supplemental Fig S1. The scatter plots of three dietary precursors for their effects (β values) on the risk of cardiovascular disease by SVMR. The horizontal axis represents the ability of SNPs to influence each dietary precursor, and the vertical axis represents the ability of each SNP to influence. Different lines represent the results from the specified analysis methods. CVD: cardiovascular disease; MI: myocardial infarction; HF: heart failure; AF: atrial fibrillation; VHD: valvular heart disease.

Supplement Figure 2



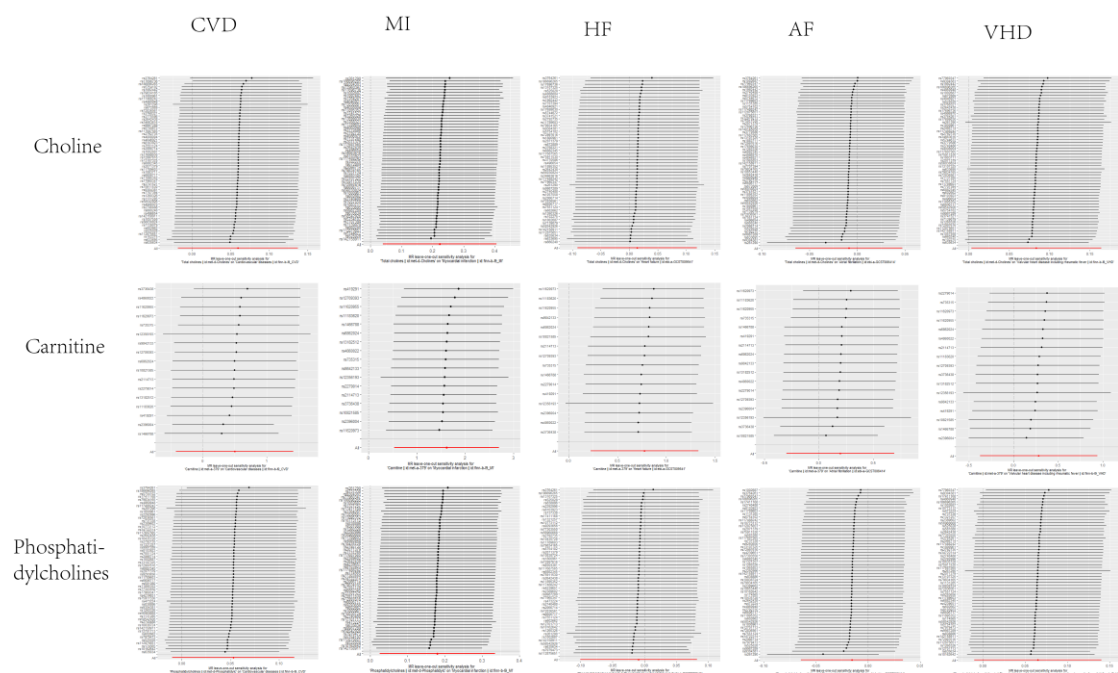
Supplemental Fig S2. The forest maps showing the effect of three dietary precursors on the risk of cardiovascular disease by SVMR analysis of SNPs. The abscissa represents the P value, and the ordinate is the ID number of each SNP. Line segments represent 95% confidence intervals for each SNP. CVD: cardiovascular disease; MI: myocardial infarction; HF: heart failure; AF: atrial fibrillation; VHD: valvular heart disease.

Supplement Figure 3



Supplemental Fig S3. The funnel plots of SVMR analysis of SNPs for the effect of three dietary precursors on cardiovascular disease by SVMR analysis. The abscissa represents the β value of each SNP, and the ordinate represents the reciprocal SE value. Dark blue lines represent the results of MR-Egger analysis and light blue line represent the results of IVW analysis. CVD: cardiovascular disease; MI: myocardial infarction; HF: heart failure; AF: atrial fibrillation; VHD: valvular heart disease.

Supplement Figure 4



Supplemental Fig S4. The results of Leave-one-out sensitivity analyses. The abscissa represents the P value obtained by Leave-one-out method. The ordinate represents the ID number of each SNP. The red line shows the integration results of all SNPs. PC: phosphatidylcholine; CVD: cardiovascular disease; MI: myocardial infarction; HF: heart failure; AF: atrial fibrillation; VHD: valvular heart disease.