

**Supplementary Table 1.** Characteristics of selected SNPs

Exposure	SNP	CHR	POS	EA	NEA	Beta	SE	p-value	PMID
BMI	rs657452	1	49362434	A	G	0.023	0.003	5.48E-13	25673413
BMI	rs12286929	11	114527614	G	A	0.022	0.003	1.31E-12	25673413
BMI	rs7903146	10	114748339	C	T	0.023	0.003	1.11E-11	25673413
BMI	rs10132280	14	24998019	C	A	0.023	0.003	1.14E-11	25673413
BMI	rs17094222	10	102385430	C	T	0.025	0.004	5.94E-11	25673413
BMI	rs7599312	2	213121476	G	A	0.022	0.003	1.17E-10	25673413
BMI	rs2365389	3	61211502	C	T	0.020	0.003	1.63E-10	25673413
BMI	rs2820292	1	200050910	C	A	0.200	0.003	1.83E-10	25673413
BMI	rs12885454	14	28806589	C	A	0.021	0.003	1.94E-10	25673413
BMI	rs16851483	3	142758126	T	G	0.048	0.008	3.55E-10	25673413
BMI	rs1167827	7	75001105	G	A	0.020	0.003	6.33E-10	25673413
BMI	rs758747	16	3567359	T	C	0.023	0.004	7.47E-10	25673413
BMI	rs1928295	9	119418304	T	C	0.019	0.003	7.91E-10	25673413
BMI	rs9925964	16	31037396	A	G	0.019	0.003	8.11E-10	25673413
BMI	rs11126666	2	26782315	A	G	0.021	0.003	1.33E-09	25673413
BMI	rs2650492	16	28240912	A	G	0.021	0.004	1.92E-09	25673413
BMI	rs6804842	3	25081441	G	A	0.019	0.003	2.48E-09	25673413
BMI	rs4740619	9	15624326	T	C	0.018	0.003	4.56E-09	25673413
BMI	rs13191362	6	162953340	A	G	0.028	0.005	7.34E-09	25673413
BMI	rs3736485	15	49535902	A	G	0.018	0.003	1.20E-08	25673413
BMI	rs17001654	4	77348592	G	C	0.031	0.005	7.76E-09	25673413
BMI	rs11191560	10	104859028	C	T	0.031	0.005	8.45E-09	25673413
BMI	rs1528435	2	181259207	T	C	0.018	0.003	1.20E-08	25673413
BMI	rs1000940	17	5223976	G	A	0.019	0.003	1.28E-08	25673413
BMI	rs2033529	6	40456631	G	A	0.019	0.003	1.39E-08	25673413
BMI	rs11583200	1	50332407	C	T	0.018	0.003	1.48E-08	25673413
BMI	rs9400239	6	109084356	C	T	0.019	0.003	1.61E-08	25673413
BMI	rs10733682	9	128500735	A	G	0.017	0.003	1.83E-08	25673413
BMI	rs11688816	2	62906552	G	A	0.017	0.003	1.89E-08	25673413
BMI	rs11057405	12	121347850	G	A	0.031	0.006	2.02E-08	25673413
BMI	rs11727676	4	145878514	T	C	0.036	0.006	2.55E-08	25673413
BMI	rs3849570	3	81874802	A	C	0.019	0.003	2.60E-08	25673413
BMI	rs6477694	9	110972163	C	T	0.017	0.003	2.67E-08	25673413
BMI	rs7899106	10	87400884	G	A	0.040	0.007	2.96E-08	25673413
BMI	rs2176598	11	43820854	T	C	0.020	0.004	2.97E-08	25673413
BMI	rs2245368	7	76446079	C	T	0.032	0.006	3.19E-08	25673413
BMI	rs17724992	19	18315825	A	G	0.019	0.004	3.42E-08	25673413
BMI	rs7243357	18	55034299	T	G	0.022	0.004	3.86E-08	25673413
BMI	rs2033732	8	85242264	C	T	0.019	0.004	4.89E-08	25673413
BMI	rs1558902	16	52361075	A	T	0.082	0.003	7.5E-153	25673413
BMI	rs6567160	18	55980115	C	T	0.056	0.004	3.93E-53	25673413
BMI	rs13021737	2	622348	G	A	0.060	0.004	1.11E-50	25673413
BMI	rs10938397	4	44877284	G	A	0.040	0.003	3.21E-38	25673413
BMI	rs543874	1	176156103	G	A	0.048	0.004	2.62E-35	25673413
BMI	rs2207139	6	50953449	G	A	0.045	0.004	4.13E-29	25673413
BMI	rs11030104	11	27641093	A	G	0.041	0.004	5.56E-28	25673413
BMI	rs3101336	1	72523773	C	T	0.033	0.003	2.66E-26	25673413
BMI	rs7138803	12	48533735	A	G	0.032	0.003	8.15E-24	25673413
BMI	rs10182181	2	25003800	G	A	0.031	0.003	8.78E-24	25673413
BMI	rs3888190	16	28796987	A	C	0.031	0.003	3.14E-23	25673413
BMI	rs1516725	3	187306698	C	T	0.045	0.005	1.89E-22	25673413
BMI	rs12446632	16	19842890	G	A	0.040	0.005	1.48E-18	25673413
BMI	rs2287019	19	50894012	C	T	0.036	0.004	4.59E-18	25673413
BMI	rs16951275	15	65864222	T	C	0.031	0.004	1.91E-17	25673413
BMI	rs3817334	11	47607569	T	C	0.026	0.003	5.15E-17	25673413
BMI	rs2112347	5	75050998	T	G	0.026	0.003	6.19E-17	25673413
BMI	rs12566985	1	74774781	G	A	0.024	0.003	3.28E-15	25673413
BMI	rs3810291	19	52260843	A	G	0.028	0.004	4.81E-15	25673413
BMI	rs7141420	14	78969207	T	C	0.024	0.003	1.23E-14	25673413
BMI	rs13078960	3	85890280	G	T	0.030	0.004	1.74E-14	25673413
BMI	rs10968576	9	28404339	G	A	0.025	0.003	6.61E-14	25673413
BMI	rs17024393	1	109956211	C	T	0.066	0.009	7.03E-14	25673413
BMI	rs12429545	13	53000207	A	G	0.033	0.005	1.09E-12	25673413
BMI	rs13107325	4	103407732	T	C	0.048	0.007	1.83E-12	25673413
BMI	rs11165643	1	96696685	T	C	0.022	0.003	2.07E-12	25673413

CHR: chromosome; POS: position; EA: effect allele; NEA: non-effect allele; BMI: body mass index; WHRadjBMI: waist-hip ratio adjusted by BMI; HbA1C: glycated hemoglobin; MUFA: mono-unsaturated fatty acid; HDL: high-density lipoprotein; LDL: low-density lipoprotein; CRP: C-reactive protein; SBP: systolic blood pressure; DBP: diastolic blood pressure; PP: pulse pressure; TC: total cholesterol.

**Supplementary Table 1.** Characteristics of selected SNPs (cont.)

Exposure	SNP	CHR	POS	EA	NEA	Beta	SE	<i>p</i> -value	PMID
BMI	rs17405819	8	76969139	T	C	0.022	0.003	2.07E-11	25673413
BMI	rs1016287	2	59159129	T	C	0.023	0.003	2.25E-11	25673413
BMI	rs4256980	11	8630515	G	C	0.021	0.003	2.90E-11	25673413
BMI	rs12401738	1	78219349	A	G	0.021	0.003	1.15E-10	25673413
BMI	rs205262	6	34671142	G	A	0.022	0.004	1.75E-10	25673413
BMI	rs12016871	13	26915782	T	C	0.030	0.005	2.29E-10	25673413
BMI	rs12940622	17	76230166	G	A	0.018	0.003	2.49E-09	25673413
BMI	rs11847697	14	29584863	T	C	0.049	0.008	3.99E-09	25673413
BMI	rs2075650	19	50087459	A	G	0.026	0.005	1.25E-08	25673413
BMI	rs2121279	2	142759755	T	C	0.025	0.004	2.31E-08	25673413
BMI	rs29941	19	39001372	G	A	0.018	0.003	2.41E-08	25673413
BMI	rs1808579	18	19358886	C	T	0.017	0.003	4.17E-08	25673413
Body fat	rs1558902	16	52361075	A	T	0.051	0.005	3.80E-27	26833246
Body fat	rs2943652	2	226816690	C	T	0.034	0.005	1.50E-12	26833246
Body fat	rs6567160	18	55980115	C	T	0.034	0.005	1.30E-10	26833246
Body fat	rs6755502	2	625721	C	T	0.039	0.006	1.40E-10	26833246
Body fat	rs6738627	2	165252696	A	G	0.030	0.005	5.70E-09	26833246
Body fat	rs693839	13	79856289	C	T	0.028	0.005	6.60E-09	26833246
Body fat	rs6857	19	50084094	C	T	0.048	0.008	6.80E-09	26833246
Body fat	rs4788099	16	28763228	G	A	0.027	0.005	1.20E-08	26833246
Body fat	rs9906944	17	44446419	C	T	0.033	0.006	2.90E-08	26833246
Body fat	rs543874	1	176156103	G	A	0.032	0.006	4.50E-08	26833246
Body fat	rs3761445	22	36925357	G	A	0.024	0.005	1.70E-07	26833246
Body fat	rs757318	19	18681308	C	A	0.024	0.005	2.10E-07	26833246
WHRadjBMI	rs905938	1	154991389	T	C	0.025	0.004	7.30E-10	25673412
WHRadjBMI	rs10919388	1	170372503	C	A	0.024	0.004	3.20E-09	25673412
WHRadjBMI	rs1385167	2	66200648	G	A	0.029	0.005	1.90E-09	25673412
WHRadjBMI	rs1569135	2	188115398	A	G	0.021	0.003	5.60E-10	25673412
WHRadjBMI	rs10804591	3	129334233	A	C	0.025	0.004	6.60E-09	25673412
WHRadjBMI	rs17451107	3	156797609	T	C	0.026	0.004	1.10E-12	25673412
WHRadjBMI	rs9991328	4	89713121	T	C	0.019	0.003	4.50E-08	25673412
WHRadjBMI	rs303084	4	124066948	A	G	0.023	0.004	3.90E-08	25673412
WHRadjBMI	rs6556301	5	176527577	T	G	0.022	0.004	2.60E-08	25673412
WHRadjBMI	rs7759742	6	32381736	A	T	0.023	0.003	4.40E-11	25673412
WHRadjBMI	rs7801581	7	27223771	T	C	0.027	0.004	3.70E-10	25673412
WHRadjBMI	rs12679556	8	72514228	G	T	0.027	0.004	2.10E-11	25673412
WHRadjBMI	rs10991437	9	107735920	A	C	0.031	0.005	1.00E-08	25673412
WHRadjBMI	rs11231693	11	63862612	A	G	0.041	0.007	4.50E-08	25673412
WHRadjBMI	rs4765219	12	124440110	C	A	0.028	0.004	1.60E-15	25673412
WHRadjBMI	rs8042543	15	31708263	C	T	0.026	0.004	1.20E-09	25673412
WHRadjBMI	rs8030605	15	56504598	A	G	0.030	0.005	8.80E-09	25673412
WHRadjBMI	rs1440372	15	67033151	C	T	0.024	0.004	1.10E-10	25673412
WHRadjBMI	rs4646404	17	17420199	G	A	0.027	0.004	1.40E-11	25673412
WHRadjBMI	rs12608504	19	18389135	A	G	0.022	0.004	8.80E-10	25673412
WHRadjBMI	rs4081724	19	33824946	G	A	0.035	0.005	7.40E-12	25673412
WHRadjBMI	rs979012	20	6623374	T	C	0.027	0.004	3.30E-14	25673412
WHRadjBMI	rs224333	20	34023962	G	A	0.020	0.004	2.60E-08	25673412
WHRadjBMI	rs6090583	20	45558831	A	G	0.022	0.003	6.20E-11	25673412
WHRadjBMI	rs2645294	1	119574587	T	C	0.031	0.003	1.70E-19	25673412
WHRadjBMI	rs714515	1	172352990	G	A	0.027	0.003	4.40E-15	25673412
WHRadjBMI	rs2820443	1	219753509	T	C	0.035	0.004	5.30E-21	25673412
WHRadjBMI	rs10195252	2	165513091	T	C	0.027	0.003	5.90E-15	25673412
WHRadjBMI	rs17819328	3	12489342	G	T	0.021	0.004	2.40E-09	25673412
WHRadjBMI	rs2276824	3	52637486	C	G	0.024	0.004	3.20E-11	25673412
WHRadjBMI	rs2371767	3	64718258	G	C	0.036	0.004	1.60E-20	25673412
WHRadjBMI	rs7705502	5	173320815	A	G	0.027	0.004	4.70E-14	25673412
WHRadjBMI	rs1294410	6	6738752	C	T	0.031	0.004	2.00E-18	25673412
WHRadjBMI	rs1358980	6	43764551	T	C	0.039	0.004	3.10E-27	25673412
WHRadjBMI	rs1936805	6	127452116	T	C	0.043	0.003	3.60E-35	25673412
WHRadjBMI	rs10245353	7	25858614	A	C	0.035	0.004	8.40E-16	25673412
WHRadjBMI	rs10842707	12	26471364	T	C	0.032	0.004	4.40E-16	25673412
WHRadjBMI	rs1443512	12	54342684	A	C	0.028	0.004	6.90E-13	25673412
WHRadjBMI	rs2294239	22	29449477	A	G	0.025	0.003	7.20E-13	25673412
Education	rs301800	1	8490603	T	C	0.016	0.003	2.85E-08	27225129

CHR: chromosome; POS: position; EA: effect allele; NEA: non-effect allele; BMI: body mass index; WHRadjBMI: waist-hip ratio adjusted by BMI; HbA1C: glycated hemoglobin; MUFA: mono-unsaturated fatty acid; HDL: high-density lipoprotein; LDL: low-density lipoprotein; CRP: C-reactive protein; SBP: systolic blood pressure; DBP: diastolic blood pressure; PP: pulse pressure; TC: total cholesterol.

**Supplementary Table 1.** Characteristics of selected SNPs (cont.)

Exposure	SNP	CHR	POS	EA	NEA	Beta	SE	p-value	PMID
Education	rs12143094	1	72105376	C	G	0.029	0.005	2.73E-09	27225129
Education	rs4378243	1	98395881	T	G	0.018	0.003	1.04E-09	27225129
Education	rs17372140	1	98572382	A	G	-0.014	0.002	9.19E-09	27225129
Education	rs648163	1	199315998	T	C	0.014	0.003	1.38E-08	27225129
Education	rs11588857	1	204587047	A	G	0.020	0.003	3.27E-13	27225129
Education	rs2992632	1	243503764	A	T	0.016	0.002	3.25E-11	27225129
Education	rs1606974	2	51873599	A	G	0.022	0.004	1.82E-10	27225129
Education	rs7593947	2	60704933	A	T	0.015	0.002	2.39E-11	27225129
Education	rs356992	2	60753593	C	G	0.017	0.002	4.03E-12	27225129
Education	rs268134	2	65608363	A	G	0.014	0.003	3.53E-08	27225129
Education	rs4851251	2	100753490	T	C	-0.015	0.003	1.36E-09	27225129
Education	rs10178115	2	155451738	T	G	0.014	0.002	5.84E-10	27225129
Education	rs16845580	2	161920884	T	C	0.016	0.002	4.14E-12	27225129
Education	rs4500960	2	162818621	T	C	-0.014	0.002	2.56E-10	27225129
Education	rs1596747	2	193802478	A	G	0.014	0.002	1.14E-09	27225129
Education	rs11687170	2	237058144	T	C	0.021	0.004	1.39E-09	27225129
Education	rs3172494	3	48731487	T	G	0.023	0.004	8.98E-11	27225129
Education	rs7610856	3	71579022	A	C	0.012	0.002	3.02E-08	27225129
Education	rs7633857	3	160844942	C	G	-0.014	0.003	4.74E-08	27225129
Education	rs6839705	4	106144735	A	C	0.015	0.002	1.19E-10	27225129
Education	rs4863692	4	140764124	T	G	0.017	0.002	4.61E-12	27225129
Education	rs12640626	4	176626272	A	G	0.013	0.002	1.66E-08	27225129
Education	rs4493682	5	45188024	C	G	0.019	0.003	1.54E-10	27225129
Education	rs1562242	5	57566494	T	C	-0.013	0.002	5.95E-09	27225129
Education	rs12653396	5	87847273	A	T	-0.013	0.002	7.65E-09	27225129
Education	rs6882046	5	87968864	A	G	-0.019	0.003	8.12E-14	27225129
Education	rs152603	5	106774922	A	G	-0.013	0.002	2.01E-08	27225129
Education	rs7772172	6	16662928	A	G	0.013	0.002	9.83E-09	27225129
Education	rs6939294	6	16950631	T	C	0.016	0.003	2.90E-09	27225129
Education	rs2179152	6	26325888	T	C	-0.013	0.002	9.30E-09	27225129
Education	rs12531458	7	39090698	A	C	0.012	0.002	3.81E-08	27225129
Education	rs756912	7	71741797	T	C	-0.014	0.002	1.14E-09	27225129
Education	rs2406253	7	100077273	A	G	0.016	0.003	4.64E-08	27225129
Education	rs11771168	7	113904061	T	C	-0.015	0.003	2.56E-08	27225129
Education	rs17167170	7	133302345	A	G	0.019	0.003	1.79E-12	27225129
Education	rs7791133	7	135237096	A	C	-0.014	0.002	2.33E-09	27225129
Education	rs11998763	9	1787687	A	G	0.017	0.002	4.61E-14	27225129
Education	rs4741343	9	14075095	A	G	-0.016	0.003	2.32E-08	27225129
Education	rs17425572	9	88006338	A	G	0.014	0.002	1.38E-09	27225129
Education	rs10821136	9	96238731	T	C	0.013	0.002	3.58E-08	27225129
Education	rs10761741	10	65066186	T	G	0.013	0.002	7.05E-09	27225129
Education	rs1925576	10	68689083	A	G	-0.012	0.002	2.23E-08	27225129
Education	rs1550973	11	131291728	A	G	-0.014	0.002	2.00E-09	27225129
Education	rs2456973	12	56416928	A	C	-0.019	0.002	5.83E-16	27225129
Education	rs1389473	12	92154270	A	G	-0.013	0.002	4.52E-09	27225129
Education	rs1115240	14	27090388	C	G	-0.016	0.003	7.05E-10	27225129
Education	rs10483349	14	29629456	A	G	-0.017	0.003	7.11E-10	27225129
Education	rs1378214	15	47579004	T	C	-0.015	0.002	1.85E-11	27225129
Education	rs6493271	15	47613593	T	C	0.017	0.003	4.21E-09	27225129
Education	rs281302	15	47686662	A	G	-0.013	0.002	2.88E-09	27225129
Education	rs8049439	16	28837515	T	C	0.015	0.002	6.99E-11	27225129
Education	rs9964724	18	35159124	T	C	0.018	0.002	2.39E-14	27225129
Education	rs7241530	18	75907992	T	C	-0.013	0.002	2.28E-08	27225129
Education	rs1382358	19	13171424	T	C	0.020	0.004	1.66E-08	27225129
Education	rs12462428	19	16694610	T	C	0.016	0.003	3.31E-08	27225129
Education	rs6065080	20	59832791	T	C	-0.013	0.002	1.16E-08	27225129
Smoking	rs1051730	15	78894339	G	A	-1.021	0.056	2.75E-73	20418890
Smoking	rs1329650	10	93348120	T	G	-0.367	0.059	5.67E-10	20418890
Smoking	rs3733829	19	41310571	G	A	0.333	0.058	1.04E-08	20418890
Alcohol intake	rs705687	1	4548453	G	A	-0.011	0.002	8.15E-10	30643251
Alcohol intake	rs12088813	1	66407700	C	A	-0.009	0.002	1.58E-08	30643251
Alcohol intake	rs823114	1	205719532	A	G	0.009	0.001	2.31E-09	30643251
Alcohol intake	rs1260326	2	27730940	C	T	0.021	0.001	8.05E-45	30643251
Alcohol intake	rs2178197	2	27860551	G	A	-0.009	0.001	2.45E-09	30643251
Alcohol intake	rs828867	2	74334462	A	G	0.009	0.001	2.15E-09	30643251

CHR: chromosome; POS: position; EA: effect allele; NEA: non-effect allele; BMI: body mass index; WHRadjBMI: waist-hip ratio adjusted by BMI; HbA1C: glycated hemoglobin; MUFA: mono-unsaturated fatty acid; HDL: high-density lipoprotein; LDL: low-density lipoprotein; CRP: C-reactive protein; SBP: systolic blood pressure; DBP: diastolic blood pressure; PP: pulse pressure; TC: total cholesterol.

**Supplementary Table 1.** Characteristics of selected SNPs (cont.)

Exposure	SNP	CHR	POS	EA	NEA	Beta	SE	p-value	PMID
Alcohol intake	rs11692435	2	98275354	A	G	0.017	0.003	2.53E-11	30643251
Alcohol intake	rs13094887	3	70968431	T	A	-0.010	0.002	8.57E-11	30643251
Alcohol intake	rs9838144	3	131576287	C	G	-0.010	0.002	2.65E-08	30643251
Alcohol intake	rs2011092	3	141124607	C	T	-0.009	0.002	7.35E-09	30643251
Alcohol intake	rs6787172	3	158187811	G	T	-0.008	0.001	4.27E-08	30643251
Alcohol intake	rs11940694	4	39414993	G	A	0.026	0.001	3.03E-68	30643251
Alcohol intake	rs4501255	4	42151306	G	C	0.011	0.002	4.83E-10	30643251
Alcohol intake	rs13107325	4	103188709	T	C	-0.028	0.003	1.53E-22	30643251
Alcohol intake	rs4690727	4	143648579	G	C	0.011	0.002	2.43E-11	30643251
Alcohol intake	rs10004020	4	152968372	A	G	0.009	0.002	2.43E-08	30643251
Alcohol intake	rs4916723	5	87854395	C	A	-0.010	0.001	1.72E-11	30643251
Alcohol intake	rs12655091	5	144412335	A	G	-0.008	0.001	1.25E-08	30643251
Alcohol intake	rs11739827	5	166803321	T	G	-0.008	0.001	1.18E-08	30643251
Alcohol intake	rs10085696	7	69783020	G	A	-0.011	0.002	1.12E-09	30643251
Alcohol intake	rs13250583	8	20949917	T	C	-0.010	0.002	4.70E-08	30643251
Alcohol intake	rs1217091	8	64527399	C	T	0.012	0.002	7.05E-11	30643251
Alcohol intake	rs10978550	9	109345993	C	T	-0.012	0.002	7.15E-11	30643251
Alcohol intake	rs7074871	10	110507806	A	G	-0.009	0.002	1.86E-08	30643251
Alcohol intake	rs11030084	11	27643725	T	C	-0.011	0.002	1.72E-08	30643251
Alcohol intake	rs10750025	11	113424042	T	C	0.010	0.002	4.89E-11	30643251
Alcohol intake	rs1713676	11	113660576	G	A	-0.008	0.001	4.29E-08	30643251
Alcohol intake	rs4938230	11	116075001	A	C	0.013	0.002	1.48E-10	30643251
Alcohol intake	rs682011	11	121544285	C	T	0.008	0.001	2.22E-08	30643251
Alcohol intake	rs12795042	11	133658168	C	A	-0.008	0.002	3.25E-08	30643251
Alcohol intake	rs10876188	12	51895882	T	C	-0.008	0.001	4.84E-08	30643251
Alcohol intake	rs3809162	12	54674235	G	A	0.009	0.001	1.19E-09	30643251
Alcohol intake	rs10506274	12	81601464	T	G	-0.009	0.001	5.78E-10	30643251
Alcohol intake	rs4842786	12	92170791	A	G	-0.009	0.001	2.73E-09	30643251
Alcohol intake	rs1123285	14	57274519	G	C	-0.009	0.002	8.14E-09	30643251
Alcohol intake	rs2180870	14	58782779	C	T	-0.012	0.002	1.12E-08	30643251
Alcohol intake	rs11625650	14	104610138	A	G	-0.010	0.002	2.89E-08	30643251
Alcohol intake	rs2472297	15	75027880	T	C	0.011	0.002	3.10E-10	30643251
Alcohol intake	rs12907323	15	86796012	G	A	0.008	0.001	9.93E-09	30643251
Alcohol intake	rs17177078	16	24810681	T	C	-0.022	0.003	1.27E-13	30643251
Alcohol intake	rs1104608	16	73912588	C	G	-0.011	0.001	1.05E-13	30643251
Alcohol intake	rs3803800	17	7462969	G	A	0.011	0.002	1.50E-10	30643251
Alcohol intake	rs10438820	17	78524597	T	C	0.009	0.002	1.76E-08	30643251
Alcohol intake	rs9950000	18	53052169	T	C	-0.009	0.001	9.38E-10	30643251
Alcohol intake	rs4092465	18	55080437	G	A	-0.008	0.002	4.39E-08	30643251
Alcohol intake	rs281379	19	49214274	A	G	0.014	0.001	4.91E-21	30643251
Alcohol intake	rs4815364	20	25035711	A	G	0.009	0.001	1.02E-08	30643251
Coffee	rs4410790	7	17251102	T	C	-0.100	0.010	3.08E-17	25288136
Coffee	rs7800944	7	72673793	T	C	-0.050	0.010	2.29E-11	25288136
Coffee	rs17685	7	75454041	A	G	0.070	0.010	4.26E-11	25288136
Coffee	rs2472297	15	72814933	T	C	0.140	0.010	2.47E-24	25288136
Circulating iron	rs1800562	6	26093141	A	T	0.315	0.053	2.50E-09	19820699
Circulating 25(OH)D	rs3755967	4	72828262	T	C	-0.089	0.002	4.74E-343	29343764
Circulating 25(OH)D	rs12785878	11	70845097	T	G	0.036	0.002	3.80E-62	29343764
Circulating 25(OH)D	rs10741657	11	14871454	A	G	0.031	0.002	2.05E-46	29343764
Circulating 25(OH)D	rs17216707	20	52165769	T	C	0.026	0.003	8.14E-23	29343764
Circulating 25(OH)D	rs10745742	12	94882660	T	C	0.017	0.002	1.88E-14	29343764
Circulating 25(OH)D	rs8018720	14	38625936	C	G	-0.017	0.003	4.72E-09	29343764
Fasting glucose	rs340874	1	212225879	C	T	0.013	0.002	4.08E-10	22885924
Fasting glucose	rs560887	2	169471394	C	T	0.071	0.002	3.93E-19	22885924
Fasting glucose	rs780094	2	27594741	C	T	0.027	0.002	2.58E-37	22885924
Fasting glucose	rs11708067	3	124548468	A	G	0.023	0.003	1.30E-18	22885924
Fasting glucose	rs11715915	3	49430334	C	T	0.012	0.002	4.90E-08	22885924
Fasting glucose	rs1280	3	172195984	T	C	0.026	0.003	8.56E-18	22885924
Fasting glucose	rs7651090	3	186996086	G	A	0.013	0.002	1.75E-08	22885924
Fasting glucose	rs4869272	5	95565204	T	C	0.018	0.002	1.02E-15	22885924
Fasting glucose	rs7708285	5	76461623	G	A	0.015	0.003	1.20E-08	22885924
Fasting glucose	rs17762454	6	7158199	T	C	0.014	0.002	9.57E-09	22885924
Fasting glucose	rs9368222	6	20794975	A	C	0.014	0.002	1.00E-09	22885924
Fasting glucose	rs2191349	7	15030834	T	G	0.029	0.002	2.71E-20	22885924
Fasting glucose	rs730497	7	44190246	A	G	0.057	0.003	2.48E-10	22885924

CHR: chromosome; POS: position; EA: effect allele; NEA: non-effect allele; BMI: body mass index; WHRadjBMI: waist-hip ratio adjusted by BMI; HbA1C: glycated hemoglobin; MUFA: mono-unsaturated fatty acid; HDL: high-density lipoprotein; LDL: low-density lipoprotein; CRP: C-reactive protein; SBP: systolic blood pressure; DBP: diastolic blood pressure; PP: pulse pressure; TC: total cholesterol.

**Supplementary Table 1.** Characteristics of selected SNPs (cont.)

Exposure	SNP	CHR	POS	EA	NEA	Beta	SE	<i>p</i> -value	PMID
Fasting glucose	rs6943153	7	50759073	T	C	0.015	0.002	1.63E-12	22885924
Fasting glucose	rs11558471	8	118254914	A	G	0.029	0.002	7.80E-37	22885924
Fasting glucose	rs983309	8	9215142	T	G	0.026	0.003	6.29E-15	22885924
Fasting glucose	rs10811661	9	22124094	T	C	0.024	0.003	5.65E-18	22885924
Fasting glucose	rs16913693	9	110720180	T	G	0.043	0.007	3.51E-11	22885924
Fasting glucose	rs3829109	9	138376587	G	A	0.017	0.003	1.13E-10	22885924
Fasting glucose	rs7867224	9	4282152	A	G	0.013	0.002	3.90E-09	22885924
Fasting glucose	rs10885122	10	113032083	G	T	0.027	0.003	6.32E-17	22885924
Fasting glucose	rs4506565	10	114746031	T	A	0.021	0.002	3.95E-19	22885924
Fasting glucose	rs10830963	11	92348358	G	C	0.078	0.002	2.99E-09	22885924
Fasting glucose	rs11603334	11	72110633	A	G	0.019	0.003	1.12E-11	22885924
Fasting glucose	rs11605924	11	45829667	A	C	0.020	0.002	3.93E-19	22885924
Fasting glucose	rs174550	11	61328054	T	C	0.019	0.002	1.34E-17	22885924
Fasting glucose	rs11039182	11	47303299	T	C	0.023	0.002	4.82E-22	22885924
Fasting glucose	rs10747083	12	131551691	A	G	0.013	0.002	7.57E-09	22885924
Fasting glucose	rs2657879	12	55151605	G	A	0.016	0.003	3.94E-08	22885924
Fasting glucose	rs11619319	13	27385599	G	A	0.019	0.002	1.33E-15	22885924
Fasting glucose	rs576674	13	32452302	G	A	0.017	0.003	2.26E-08	22885924
Fasting glucose	rs3783347	14	99909014	G	T	0.017	0.003	1.32E-10	22885924
Fasting glucose	rs4502156	15	60170447	T	C	0.022	0.002	1.38E-25	22885924
Fasting glucose	rs2302593	19	50888474	C	G	0.014	0.002	9.26E-10	22885924
Fasting glucose	rs6072275	20	39177319	A	G	0.016	0.003	1.66E-08	22885924
Fasting glucose	rs6113722	20	22505099	G	A	0.035	0.005	2.49E-11	22885924
Fasting insulin	rs4846565	1	217788727	G	A	0.013	0.002	1.76E-09	22885924
Fasting insulin	rs10195252	2	165221337	T	C	0.017	0.002	1.26E-16	22885924
Fasting insulin	rs1530559	2	135472099	A	G	0.015	0.003	3.37E-08	22885924
Fasting insulin	rs2943645	2	226807424	T	C	0.019	0.002	2.26E-19	22885924
Fasting insulin	rs780094	2	27594741	C	T	0.019	0.002	7.06E-14	22885924
Fasting insulin	rs17036328	3	12365484	T	C	0.021	0.003	3.59E-12	22885924
Fasting insulin	rs3822072	4	89960292	A	G	0.012	0.002	1.80E-08	22885924
Fasting insulin	rs6822892	4	157954125	A	G	0.014	0.002	2.58E-10	22885924
Fasting insulin	rs974801	4	106290513	G	A	0.014	0.002	3.27E-11	22885924
Fasting insulin	rs459193	5	55842508	G	A	0.015	0.002	1.15E-10	22885924
Fasting insulin	rs4865796	5	53308421	A	G	0.015	0.003	2.16E-12	22885924
Fasting insulin	rs2745353	6	127494628	T	C	0.014	0.002	5.48E-09	22885924
Fasting insulin	rs6912327	6	34872900	T	C	0.017	0.003	2.26E-08	22885924
Fasting insulin	rs1167800	7	75014132	A	G	0.016	0.003	2.61E-09	22885924
Fasting insulin	rs2126259	8	9222556	T	C	0.024	0.003	3.30E-13	22885924
Fasting insulin	rs7903146	10	114748339	C	T	0.018	0.003	6.13E-11	22885924
Fasting insulin	rs860598	12	101422576	A	G	0.018	0.003	1.64E-08	22885924
Fasting insulin	rs1421085	16	52358455	C	T	0.020	0.003	1.87E-15	22885924
Fasting insulin	rs731839	19	38590905	G	A	0.015	0.003	1.72E-08	22885924
2h glucose	rs6975024	7	44198411	C	T	0.103	0.016	5.25E-11	22885924
2h glucose	rs11782386	8	9239197	C	T	0.099	0.017	2.15E-09	22885924
2h glucose	rs1019503	5	96280573	A	G	0.063	0.011	8.87E-09	22885924
2h glucose	rs7651090	3	186996086	G	A	0.064	0.012	4.47E-08	22885924
2h glucose	rs11717195	3	124565088	T	C	0.096	0.013	4.05E-13	22885924
2h glucose	rs12255372	10	114798892	T	G	0.092	0.013	2.88E-12	22885924
2h glucose	rs11672660	19	50872024	T	C	0.118	0.014	2.40E-16	22885924
2h glucose	rs1436958	15	60126089	T	G	0.064	0.011	2.19E-08	22885924
2h glucose	rs1260326	2	27584444	T	C	0.088	0.011	9.04E-15	22885924
HbA1C	rs2779116	1	156852039	T	C	0.024	0.004	2.75E-09	20858683
HbA1C	rs552976	2	169616945	G	A	0.047	0.003	8.16E-18	20858683
HbA1C	rs1800562	6	26201120	G	A	0.063	0.007	2.59E-20	20858683
HbA1C	rs1799884	7	44002308	T	C	0.038	0.004	1.45E-20	20858683
HbA1C	rs6474359	8	41668351	T	C	0.058	0.011	1.18E-08	20858683
HbA1C	rs4737009	8	41749562	A	G	0.027	0.004	6.11E-12	20858683
HbA1C	rs16926246	10	70763398	C	T	0.089	0.004	3.11E-54	20858683
HbA1C	rs1387153	11	92313476	T	C	0.028	0.004	3.96E-11	20858683
HbA1C	rs7998202	13	112379869	G	A	0.031	0.005	5.24E-09	20858683
HbA1C	rs1046896	17	78278822	T	C	0.035	0.003	1.57E-26	20858683
HbA1C	rs855791	22	35792882	A	G	0.027	0.004	2.74E-14	20858683
Adiponectin	rs3001032	1	217794402	T	C	-0.020	0.004	3.60E-08	22479202
Adiponectin	rs1108842	3	52695120	C	A	0.030	0.004	1.39E-13	22479202
Adiponectin	rs1597466	3	151538251	T	G	-0.030	0.007	1.62E-06	22479202

CHR: chromosome; POS: position; EA: effect allele; NEA: non-effect allele; BMI: body mass index; WHRadjBMI: waist-hip ratio adjusted by BMI; HbA1C: glycated hemoglobin; MUFA: mono-unsaturated fatty acid; HDL: high-density lipoprotein; LDL: low-density lipoprotein; CRP: C-reactive protein; SBP: systolic blood pressure; DBP: diastolic blood pressure; PP: pulse pressure; TC: total cholesterol.

**Supplementary Table 1.** Characteristics of selected SNPs (cont.)

Exposure	SNP	CHR	POS	EA	NEA	Beta	SE	p-value	PMID
Adiponectin	rs998584	6	43865874	C	A	0.030	0.005	3.25E-08	22479202
Adiponectin	rs7955516	12	20389303	C	A	0.020	0.004	4.45E-08	22479202
Adiponectin	rs601339	12	121740696	G	A	0.030	0.005	7.81E-10	22479202
Adiponectin	rs7133378	12	122975455	G	A	-0.020	0.004	6.21E-07	22479202
Adiponectin	rs12922394	16	81229828	T	C	-0.080	0.010	1.99E-15	22479202
Adiponectin	rs731839	19	38590905	G	A	-0.030	0.004	7.97E-12	22479202
Adiponectin	rs2791553	1	217742665	G	A	-0.020	0.004	4.91E-07	22479202
Adiponectin	rs925735	2	226887874	G	C	-0.020	0.004	2.12E-08	22479202
Adiponectin	rs2590838	3	52597126	G	A	-0.030	0.004	1.88E-13	22479202
Adiponectin	rs6810075	3	188031259	T	C	0.060	0.004	2.41E-42	22479202
Adiponectin	rs592423	6	139882386	C	A	0.020	0.004	3.59E-07	22479202
Adiponectin	rs2980879	8	126550657	T	A	0.030	0.004	9.91E-10	22479202
Adiponectin	rs2925979	16	80092291	T	C	-0.040	0.004	3.12E-21	22479202
Adiponectin	rs4805885	19	38597963	T	C	-0.030	0.005	2.05E-08	22479202
CRP	rs469772	1	91530305	T	C	-0.031	0.005	5.54E-12	30388399
CRP	rs12995480	2	629881	T	C	-0.031	0.005	1.24E-10	30388399
CRP	rs4246598	2	88438050	A	C	0.022	0.004	5.11E-10	30388399
CRP	rs9284725	2	102744854	C	A	0.027	0.004	7.34E-11	30388399
CRP	rs1441169	2	214033530	G	A	-0.025	0.004	2.27E-11	30388399
CRP	rs2352975	3	49891885	C	T	0.025	0.004	6.43E-10	30388399
CRP	rs17658229	5	172191052	C	T	0.056	0.010	5.50E-09	30388399
CRP	rs9271608	6	32591588	G	A	0.042	0.005	2.33E-17	30388399
CRP	rs12202641	6	116314634	T	C	-0.023	0.004	3.00E-10	30388399
CRP	rs1490384	6	126851160	T	C	-0.025	0.004	2.65E-12	30388399
CRP	rs9385532	6	130371227	T	C	-0.026	0.004	1.90E-11	30388399
CRP	rs1880241	7	22759469	G	A	-0.028	0.004	8.41E-14	30388399
CRP	rs2710804	7	36084529	C	T	0.021	0.004	1.30E-08	30388399
CRP	rs2064009	8	117007850	C	T	-0.027	0.004	2.28E-14	30388399
CRP	rs2891677	8	126344208	C	T	-0.020	0.004	1.59E-08	30388399
CRP	rs643434	9	136142355	A	G	0.023	0.004	1.02E-09	30388399
CRP	rs1051338	10	91007360	G	T	0.024	0.004	2.27E-09	30388399
CRP	rs10832027	11	13357183	G	A	-0.026	0.004	4.43E-12	30388399
CRP	rs10838687	11	47312892	G	T	-0.031	0.004	9.12E-13	30388399
CRP	rs1582763	11	60021948	A	G	-0.022	0.004	2.37E-09	30388399
CRP	rs7121935	11	72496148	A	G	-0.022	0.004	5.28E-09	30388399
CRP	rs11108056	11	95855385	G	C	-0.028	0.004	5.42E-14	30388399
CRP	rs2239222	14	73011885	G	A	0.035	0.004	9.87E-20	30388399
CRP	rs4774590	15	51745277	A	G	-0.022	0.004	2.71E-08	30388399
CRP	rs1558902	16	53803574	A	T	0.034	0.004	5.20E-20	30388399
CRP	rs178810	17	16097430	T	C	0.020	0.004	2.95E-08	30388399
CRP	rs10512597	17	72699833	T	C	-0.037	0.005	4.44E-14	30388399
CRP	rs4092465	18	55080437	A	G	-0.027	0.004	3.11E-10	30388399
CRP	rs12960928	18	57897803	C	T	0.024	0.004	1.91E-09	30388399
CRP	rs2315008	20	62343956	T	G	-0.023	0.004	5.36E-10	30388399
CRP	rs2836878	21	40465534	G	A	0.043	0.004	7.71E-26	30388399
CRP	rs6001193	22	39074737	G	A	-0.028	0.004	6.53E-14	30388399
CRP	rs1514895	3	170705693	A	G	-0.027	0.004	2.70E-09	30388399
CRP	rs1189402	15	53728154	A	G	0.025	0.004	3.90E-09	30388399
CRP	rs687339	3	135932359	T	C	-0.030	0.005	2.80E-10	30388399
HDL	rs4660293	1	40028180	G	A	-0.035	0.004	3.00E-18	24097068
HDL	rs1689800	1	182168885	G	A	-0.034	0.004	5.00E-20	24097068
HDL	rs4846914	1	230295691	G	A	-0.005	0.0004	4.00E-41	24097068
HDL	rs12328675	2	165540800	C	T	0.045	0.006	2.00E-15	24097068
HDL	rs2972146	2	227100698	G	T	0.032	0.004	2.00E-17	24097068
HDL	rs13107325	4	103188709	T	C	-0.071	0.009	1.00E-15	24097068
HDL	rs6450176	5	53298025	A	G	-0.025	0.004	7.00E-10	24097068
HDL	rs605066	6	139829666	C	T	-0.028	0.005	3.00E-08	24097068
HDL	rs4731702	7	130433384	T	C	0.029	0.003	5.00E-17	24097068
HDL	rs9987289	8	9183358	A	G	-0.082	0.006	2.00E-41	24097068
HDL	rs2293889	8	116599199	T	G	-0.031	0.004	4.00E-17	24097068
HDL	rs581080	9	15305378	G	C	-0.042	0.005	1.00E-19	24097068
HDL	rs1883025	9	107664301	T	C	-0.070	0.004	2.00E-65	24097068
HDL	rs2923084	11	10388782	G	A	-0.026	0.005	5.00E-08	24097068
HDL	rs3136441	11	46743247	C	T	0.054	0.005	7.00E-29	24097068
HDL	rs7134375	12	20473758	A	C	0.021	0.004	1.00E-08	24097068

CHR: chromosome; POS: position; EA: effect allele; NEA: non-effect allele; BMI: body mass index; WHRadjBMI: waist-hip ratio adjusted by BMI; HbA1C: glycated hemoglobin; MUFA: mono-unsaturated fatty acid; HDL: high-density lipoprotein; LDL: low-density lipoprotein; CRP: C-reactive protein; SBP: systolic blood pressure; DBP: diastolic blood pressure; PP: pulse pressure; TC: total cholesterol.

**Supplementary Table 1.** Characteristics of selected SNPs (cont.)

Exposure	SNP	CHR	POS	EA	NEA	Beta	SE	p-value	PMID
HDL	rs7134594	12	110000193	C	T	-0.035	0.005	2.00E-13	24097068
HDL	rs4759375	12	123796238	T	C	0.056	0.010	3.00E-08	24097068
HDL	rs4765127	12	124460167	T	G	0.032	0.005	8.00E-10	24097068
HDL	rs838880	12	125261593	C	T	0.048	0.004	6.00E-32	24097068
HDL	rs1532085	15	58683366	A	G	0.107	0.004	1.0E-188	24097068
HDL	rs2652834	15	63396867	A	G	-0.028	0.004	4.00E-11	24097068
HDL	rs3764261	16	56993324	A	C	0.241	0.004	1E-769	24097068
HDL	rs16942887	16	67928042	A	G	0.083	0.005	8.00E-54	24097068
HDL	rs2925979	16	81534790	T	C	-0.035	0.004	1.00E-19	24097068
HDL	rs11869286	17	37813856	G	C	-0.032	0.004	3.00E-17	24097068
HDL	rs4148008	17	66875294	G	C	-0.028	0.004	1.00E-12	24097068
HDL	rs4129767	17	76403984	G	A	-0.024	0.004	2.00E-11	24097068
HDL	rs7241918	18	47160953	G	T	-0.090	0.006	1.00E-44	24097068
HDL	rs12967135	18	57849023	A	G	-0.026	0.005	4.00E-08	24097068
HDL	rs7255436	19	8433196	C	A	-0.032	0.006	2.00E-08	24097068
HDL	rs737337	19	11347493	C	T	-0.056	0.007	5.00E-17	24097068
HDL	rs386000	19	54288907	C	G	0.048	0.005	3.00E-23	24097068
HDL	rs1800961	20	43042364	T	C	-0.127	0.010	2.00E-34	24097068
HDL	rs6065906	20	44554015	C	T	-0.059	0.004	5.00E-40	24097068
HDL	rs181362	22	21932068	T	C	-0.038	0.004	4.00E-18	24097068
HDL	rs4420638	19	45422946	G	A	-0.067	0.007	2.00E-21	24097068
HDL	rs7941030	11	122522375	C	T	0.027	0.003	1.00E-14	24097068
HDL	rs17145738	7	72982874	T	C	0.041	0.006	5.00E-13	24097068
HDL	rs12678919	8	19844222	G	A	0.155	0.006	1.0E-149	24097068
HDL	rs2954029	8	126490972	T	A	0.040	0.004	3.00E-29	24097068
HDL	rs174546	11	61569830	T	C	-0.039	0.004	8.00E-28	24097068
HDL	rs964184	11	116648917	C	G	0.106	0.007	6.00E-48	24097068
HDL	rs11613352	12	57792580	T	C	0.028	0.004	2.00E-13	24097068
HDL	rs12748152	1	27138393	T	C	-0.051	0.006	1.00E-15	24097068
HDL	rs12145743	1	156700651	G	T	0.020	0.004	2.00E-08	24097068
HDL	rs4650994	1	178515312	G	A	0.021	0.004	7.00E-09	24097068
HDL	rs2606736	3	11400249	C	T	0.025	0.005	5.00E-08	24097068
HDL	rs2290547	3	47061183	A	G	-0.030	0.005	4.00E-09	24097068
HDL	rs2013208	3	50129399	T	C	0.025	0.004	9.00E-12	24097068
HDL	rs13326165	3	52532118	A	G	0.029	0.004	9.00E-11	24097068
HDL	rs6805251	3	119560606	T	C	0.020	0.003	1.00E-08	24097068
HDL	rs10019888	4	26062990	G	A	-0.027	0.005	5.00E-08	24097068
HDL	rs3822072	4	89741269	A	G	-0.025	0.004	4.00E-12	24097068
HDL	rs2602836	4	100014805	A	G	0.019	0.003	5.00E-08	24097068
HDL	rs1936800	6	127436064	C	T	0.020	0.003	3.00E-10	24097068
HDL	rs702485	7	6449272	G	A	0.024	0.003	7.00E-12	24097068
HDL	rs4142995	7	17919258	T	G	-0.026	0.004	9.00E-12	24097068
HDL	rs4917014	7	50305863	G	T	0.022	0.004	1.00E-08	24097068
HDL	rs17173637	7	150529449	C	T	-0.036	0.006	2.00E-08	24097068
HDL	rs970548	10	46013277	C	A	0.026	0.004	2.00E-10	24097068
HDL	rs11246602	11	51512090	C	T	0.034	0.005	2.00E-10	24097068
HDL	rs12801636	11	65391317	A	G	0.024	0.004	3.00E-08	24097068
HDL	rs499974	11	75455021	A	C	-0.026	0.005	1.00E-08	24097068
HDL	rs4983559	14	105277209	G	A	0.020	0.003	1.00E-08	24097068
HDL	rs1121980	16	53809247	A	G	-0.020	0.003	7.00E-09	24097068
HDL	rs17695224	19	52324216	A	G	-0.029	0.004	2.00E-13	24097068
HDL	rs998584	6	43757896	A	C	-0.026	0.004	2.00E-11	24097068
HDL	rs731839	19	33899065	G	A	-0.022	0.004	3.00E-09	24097068
HDL	rs17404153	3	132163200	T	G	0.028	0.005	5.00E-09	24097068
LDL	rs267733	1	150958836	G	A	-0.033	0.006	5.00E-09	24097068
LDL	rs2710642	2	63149557	G	A	-0.024	0.004	6.00E-09	24097068
LDL	rs10490626	2	118835841	A	G	-0.051	0.007	2.00E-12	24097068
LDL	rs2030746	2	121309488	T	C	0.021	0.004	9.00E-09	24097068
LDL	rs1250229	2	216304384	T	C	-0.024	0.004	3.00E-08	24097068
LDL	rs7640978	3	32533010	T	C	-0.039	0.007	1.00E-08	24097068
LDL	rs17404153	3	132163200	T	G	-0.034	0.005	2.00E-09	24097068
LDL	rs4530754	5	122855416	G	A	-0.028	0.004	4.00E-12	24097068
LDL	rs4722551	7	25991826	C	T	0.039	0.005	4.00E-14	24097068
LDL	rs10102164	8	55421614	A	G	0.032	0.005	4.00E-11	24097068

CHR: chromosome; POS: position; EA: effect allele; NEA: non-effect allele; BMI: body mass index; WHRadjBMI: waist-hip ratio adjusted by BMI; HbA1C: glycated hemoglobin; MUFA: mono-unsaturated fatty acid; HDL: high-density lipoprotein; LDL: low-density lipoprotein; CRP: C-reactive protein; SBP: systolic blood pressure; DBP: diastolic blood pressure; PP: pulse pressure; TC: total cholesterol.

**Supplementary Table 1.** Characteristics of selected SNPs (cont.)

Exposure	SNP	CHR	POS	EA	NEA	Beta	SE	p-value	PMID
LDL	rs4942486	13	32953388	T	C	0.024	0.004	2.00E-11	24097068
LDL	rs1801689	17	64210580	C	A	0.103	0.015	1.00E-11	24097068
LDL	rs364585	20	12962718	A	G	-0.025	0.004	4.00E-10	24097068
LDL	rs2328223	20	17845921	C	A	0.030	0.005	6.00E-09	24097068
LDL	rs5763662	22	30378703	T	C	0.077	0.013	1.00E-08	24097068
LDL	rs2479409	1	55504650	G	A	0.064	0.004	3.00E-50	24097068
LDL	rs629301	1	109818306	G	T	-0.167	0.005	5.0E-241	24097068
LDL	rs1367117	2	21263900	A	G	0.119	0.004	1.0E-182	24097068
LDL	rs4299376	2	44072576	G	T	0.081	0.005	4.00E-72	24097068
LDL	rs3757354	6	16127407	T	C	-0.038	0.004	2.00E-17	24097068
LDL	rs1800562	6	26093141	A	G	-0.062	0.008	8.00E-14	24097068
LDL	rs1564348	6	160578860	C	T	0.048	0.005	3.00E-21	24097068
LDL	rs11136341	8	145043543	G	A	0.045	0.007	7.00E-12	24097068
LDL	rs9411489	9	136155000	T	C	0.077	0.006	2.00E-41	24097068
LDL	rs11220462	11	126243952	A	G	0.059	0.006	7.00E-21	24097068
LDL	rs8017377	14	24883887	A	G	0.030	0.004	3.00E-15	24097068
LDL	rs7206971	17	45425115	A	G	0.029	0.006	3.00E-07	24097068
LDL	rs6511720	19	11202306	T	G	-0.221	0.006	4.0E-262	24097068
LDL	rs4420638	19	45422946	G	A	0.225	0.007	2.0E-178	24097068
LDL	rs6029526	20	39672618	A	T	0.044	0.005	5.00E-18	24097068
LDL	rs9987289	8	9183358	A	G	-0.071	0.006	9.00E-24	24097068
LDL	rs3764261	16	56993324	A	C	-0.053	0.004	2.00E-34	24097068
LDL	rs12027135	1	25775733	A	T	-0.030	0.004	2.00E-14	24097068
LDL	rs2642442	1	220973563	C	T	-0.036	0.005	5.00E-11	24097068
LDL	rs514230	1	234858597	A	T	-0.036	0.005	9.00E-12	24097068
LDL	rs12916	5	74656539	C	T	0.073	0.004	8.00E-78	24097068
LDL	rs6882076	5	156390297	T	C	-0.046	0.004	3.00E-31	24097068
LDL	rs3177928	6	32412435	A	G	0.045	0.005	3.00E-17	24097068
LDL	rs9488822	6	116312893	T	A	0.031	0.006	2.00E-07	24097068
LDL	rs12670798	7	21607352	C	T	0.034	0.005	5.00E-14	24097068
LDL	rs2072183	7	44579180	C	G	0.039	0.005	7.00E-16	24097068
LDL	rs2081687	8	59388565	T	C	0.031	0.006	1.00E-07	24097068
LDL	rs2255141	10	113933886	A	G	0.030	0.004	1.00E-13	24097068
LDL	rs11065987	12	112072424	G	A	-0.027	0.004	1.00E-11	24097068
LDL	rs1169288	12	121416650	C	A	0.038	0.004	6.00E-21	24097068
LDL	rs2000999	16	72108093	A	G	0.065	0.005	4.00E-41	24097068
LDL	rs10401969	19	19407718	C	T	-0.118	0.008	3.00E-54	24097068
LDL	rs2902940	20	39091487	G	A	-0.027	0.004	2.00E-11	24097068
LDL	rs2131925	1	63025942	G	T	-0.049	0.004	3.00E-32	24097068
LDL	rs2954029	8	126490972	T	A	-0.056	0.004	2.00E-50	24097068
LDL	rs174546	11	61569830	T	C	-0.051	0.004	2.00E-39	24097068
LDL	rs964184	11	116648917	C	G	-0.086	0.007	2.00E-26	24097068
LDL	rs12748152	1	27138393	T	C	0.050	0.006	3.00E-12	24097068
LDL	rs11563251	2	234679384	T	C	0.034	0.006	5.00E-08	24097068
LDL	rs3780181	9	2640759	G	A	-0.044	0.007	2.00E-09	24097068
LDL	rs314253	17	7091650	C	T	-0.024	0.004	3.00E-10	24097068
LDL	rs4253772	22	46627603	T	C	-0.031	0.006	3.00E-08	24097068
TC	rs9987289	8	9183358	A	G	-0.084	0.006	2.00E-36	24097068
TC	rs581080	9	15305378	G	C	-0.038	0.005	1.00E-13	24097068
TC	rs1883025	9	107664301	T	C	-0.067	0.004	6.00E-53	24097068
TC	rs1532085	15	58683366	A	G	0.054	0.004	7.00E-47	24097068
TC	rs3764261	16	56993324	A	C	0.050	0.004	4.00E-31	24097068
TC	rs7241918	18	47160953	G	T	-0.058	0.006	4.00E-18	24097068
TC	rs1800961	20	43042364	T	C	-0.106	0.010	1.00E-24	24097068
TC	rs2479409	1	55504650	G	A	0.054	0.004	2.00E-39	24097068
TC	rs629301	1	109818306	G	T	-0.134	0.005	2.0E-170	24097068
TC	rs1367117	2	21263900	A	G	0.100	0.004	3.0E-139	24097068
TC	rs4299376	2	44072576	G	T	0.079	0.005	3.00E-73	24097068
TC	rs3757354	6	16127407	T	C	-0.035	0.004	2.00E-15	24097068
TC	rs1800562	6	26093141	A	G	-0.056	0.008	2.00E-12	24097068
TC	rs1564348	6	160578860	C	T	0.049	0.005	3.00E-23	24097068
TC	rs11136341	8	145043543	G	A	0.038	0.007	6.00E-09	24097068
TC	rs9411489	9	136155000	T	C	0.069	0.006	3.00E-35	24097068
TC	rs11220462	11	126243952	A	G	0.047	0.006	6.00E-15	24097068
TC	rs7206971	17	45425115	A	G	0.030	0.006	1.00E-07	24097068

CHR: chromosome; POS: position; EA: effect allele; NEA: non-effect allele; BMI: body mass index; WHRadjBMI: waist-hip ratio adjusted by BMI; HbA1C: glycated hemoglobin; MUFA: mono-unsaturated fatty acid; HDL: high-density lipoprotein; LDL: low-density lipoprotein; CRP: C-reactive protein; SBP: systolic blood pressure; DBP: diastolic blood pressure; PP: pulse pressure; TC: total cholesterol.



**Supplementary Table 1.** Characteristics of selected SNPs (cont.)

Exposure	SNP	CHR	POS	EA	NEA	Beta	SE	p-value	PMID
TC	rs6511720	19	11202306	T	G	-0.185	0.006	5.0E-202	24097068
TC	rs4420638	19	45422946	G	A	0.197	0.007	1.0E-149	24097068
TC	rs6029526	20	39672618	A	T	0.040	0.005	1.00E-16	24097068
TC	rs12027135	1	25775733	A	T	-0.027	0.004	5.00E-12	24097068
TC	rs7515577	1	93009438	C	A	-0.037	0.007	2.00E-08	24097068
TC	rs2642442	1	220973563	C	T	-0.035	0.005	3.00E-11	24097068
TC	rs514230	1	234858597	A	T	-0.039	0.005	5.00E-14	24097068
TC	rs7570971	2	135837906	A	C	0.030	0.004	1.00E-13	24097068
TC	rs2290159	3	12628920	C	G	-0.037	0.006	2.00E-09	24097068
TC	rs12916	5	74656539	C	T	0.068	0.004	5.00E-74	24097068
TC	rs6882076	5	156390297	T	C	-0.051	0.004	5.00E-41	24097068
TC	rs3177928	6	32412435	A	G	0.048	0.005	1.00E-21	24097068
TC	rs2814982	6	34546560	T	C	-0.044	0.006	4.00E-15	24097068
TC	rs9488822	6	116312893	T	A	0.034	0.006	1.00E-09	24097068
TC	rs12670798	7	21607352	C	T	0.036	0.005	1.00E-16	24097068
TC	rs2072183	7	44579180	C	G	0.036	0.005	4.00E-15	24097068
TC	rs2081687	8	59388565	T	C	0.031	0.006	9.00E-12	24097068
TC	rs2255141	10	113933886	A	G	0.030	0.004	1.00E-13	24097068
TC	rs10128711	11	18632984	T	C	-0.031	0.005	1.00E-11	24097068
TC	rs7941030	11	122522375	C	T	0.028	0.003	2.00E-14	24097068
TC	rs11065987	12	112072424	G	A	-0.031	0.004	2.00E-16	24097068
TC	rs1169288	12	121416650	C	A	0.032	0.004	4.00E-17	24097068
TC	rs2000999	16	72108093	A	G	0.062	0.005	7.00E-41	24097068
TC	rs10401969	19	19407718	C	T	-0.137	0.008	4.00E-77	24097068
TC	rs492602	19	49206417	G	A	0.031	0.004	1.00E-16	24097068
TC	rs2277862	20	34152782	T	C	-0.035	0.005	5.00E-11	24097068
TC	rs2902940	20	39091487	G	A	-0.027	0.004	2.00E-11	24097068
TC	rs2131925	1	63025942	G	T	-0.075	0.004	4.00E-80	24097068
TC	rs1260326	2	27730940	T	C	0.051	0.004	3.00E-42	24097068
TC	rs1495741	8	18272881	G	A	0.032	0.006	3.00E-08	24097068
TC	rs2954029	8	126490972	T	A	-0.062	0.004	2.00E-65	24097068
TC	rs174546	11	61569830	T	C	-0.048	0.004	3.00E-37	24097068
TC	rs964184	11	116648917	C	G	-0.121	0.007	3.00E-55	24097068
TC	rs970548	10	46013277	C	A	-0.026	0.004	8.00E-09	24097068
TC	rs6831256	4	3473139	G	A	-0.022	0.003	1.00E-10	24097068
TC	rs10490626	2	118835841	A	G	0.042	0.007	6.00E-09	24097068
TC	rs2030746	2	121309488	T	C	0.020	0.004	4.00E-08	24097068
TC	rs7640978	3	32533010	T	C	-0.038	0.007	1.00E-08	24097068
TC	rs4530754	5	122855416	G	A	-0.023	0.004	2.00E-09	24097068
TC	rs4722551	7	25991826	C	T	0.023	0.005	7.00E-09	24097068
TC	rs10102164	8	55421614	A	G	0.030	0.005	5.00E-11	24097068
TC	rs1077514	1	23766233	C	T	-0.030	0.005	6.00E-09	24097068
TC	rs2287623	2	169830155	G	A	0.027	0.004	4.00E-12	24097068
TC	rs11694172	2	203532304	G	A	0.028	0.005	2.00E-09	24097068
TC	rs11563251	2	234679384	T	C	0.037	0.006	1.00E-09	24097068
TC	rs13315871	3	58381287	A	G	-0.036	0.007	4.00E-08	24097068
TC	rs2758886	6	39250837	A	G	0.023	0.004	3.00E-08	24097068
TC	rs9376090	6	135411228	T	C	-0.025	0.004	3.00E-09	24097068
TC	rs1997243	7	1083777	G	A	0.033	0.005	3.00E-10	24097068
TC	rs3780181	9	2640759	G	A	-0.044	0.007	7.00E-10	24097068
TC	rs10904908	10	17260290	G	A	0.025	0.004	3.00E-11	24097068
TC	rs11603023	11	118486067	T	C	0.022	0.004	1.00E-08	24097068
TC	rs4883201	12	9082581	G	A	-0.035	0.006	2.00E-09	24097068
TC	rs314253	17	7091650	C	T	-0.023	0.004	3.00E-10	24097068
TC	rs138777	22	35711098	A	G	0.021	0.004	5.00E-08	24097068
TC	rs4253772	22	46627603	T	C	0.032	0.006	1.00E-08	24097068
Triglycerides	rs4846914	1	230295691	G	A	0.040	0.0004	7.00E-31	24097068
Triglycerides	rs2972146	2	227100698	G	T	-0.028	0.004	3.00E-15	24097068
Triglycerides	rs4765127	12	124460167	T	G	-0.029	0.005	2.00E-08	24097068
Triglycerides	rs1532085	15	58683366	A	G	0.031	0.004	2.00E-18	24097068
Triglycerides	rs3764261	16	56993324	A	C	-0.040	0.004	2.00E-25	24097068
Triglycerides	rs6065906	20	44554015	C	T	0.053	0.004	2.00E-34	24097068
Triglycerides	rs6882076	5	156390297	T	C	-0.029	0.004	2.00E-15	24097068
Triglycerides	rs10401969	19	19407718	C	T	-0.121	0.008	1.00E-69	24097068
Triglycerides	rs2131925	1	63025942	G	T	-0.066	0.004	3.00E-74	24097068

CHR: chromosome; POS: position; EA: effect allele; NEA: non-effect allele; BMI: body mass index; WHRadjBMI: waist-hip ratio adjusted by BMI; HbA1C: glycated hemoglobin; MUFA: mono-unsaturated fatty acid; HDL: high-density lipoprotein; LDL: low-density lipoprotein; CRP: C-reactive protein; SBP: systolic blood pressure; DBP: diastolic blood pressure; PP: pulse pressure; TC: total cholesterol.

**Supplementary Table 1.** Characteristics of selected SNPs (cont.)

Exposure	SNP	CHR	POS	EA	NEA	Beta	SE	p-value	PMID
Triglycerides	rs1260326	2	27730940	T	C	0.115	0.004	2.0E-239	24097068
Triglycerides	rs645040	3	135926622	G	T	-0.029	0.004	2.00E-12	24097068
Triglycerides	rs442177	4	88030261	G	T	-0.031	0.004	1.00E-18	24097068
Triglycerides	rs9686661	5	55861786	T	C	0.038	0.005	3.00E-16	24097068
Triglycerides	rs13238203	7	72129667	T	C	-0.059	0.013	3.00E-06	24097068
Triglycerides	rs17145738	7	72982874	T	C	-0.115	0.006	9.00E-99	24097068
Triglycerides	rs11776767	8	10683929	C	G	0.022	0.003	3.00E-11	24097068
Triglycerides	rs1495741	8	18272881	G	A	0.040	0.006	3.00E-12	24097068
Triglycerides	rs12678919	8	19844222	G	A	-0.170	0.006	2.0E-199	24097068
Triglycerides	rs2954029	8	126490972	T	A	-0.076	0.004	1.0E-107	24097068
Triglycerides	rs10761731	10	65027610	T	A	-0.031	0.005	8.00E-12	24097068
Triglycerides	rs2068888	10	94839642	A	G	-0.024	0.004	2.00E-11	24097068
Triglycerides	rs174546	11	61569830	T	C	0.045	0.004	7.00E-38	24097068
Triglycerides	rs964184	11	116648917	C	G	-0.234	0.007	7.0E-224	24097068
Triglycerides	rs11613352	12	57792580	T	C	-0.028	0.004	9.00E-14	24097068
Triglycerides	rs2412710	15	42683787	A	G	0.099	0.015	2.00E-11	24097068
Triglycerides	rs2929282	15	44245931	T	A	0.072	0.012	2.00E-09	24097068
Triglycerides	rs11649653	16	30918487	G	C	-0.027	0.005	2.00E-07	24097068
Triglycerides	rs5756931	22	38546033	C	T	-0.020	0.004	3.00E-08	24097068
Triglycerides	rs12748152	1	27138393	T	C	0.037	0.006	1.00E-09	24097068
Triglycerides	rs1936800	6	127436064	C	T	-0.020	0.003	3.00E-08	24097068
Triglycerides	rs1121980	16	53809247	A	G	-0.021	0.003	3.00E-08	24097068
Triglycerides	rs6831256	4	3473139	G	A	0.026	0.003	2.00E-12	24097068
Triglycerides	rs998584	6	43757896	A	C	0.029	0.004	3.00E-15	24097068
Triglycerides	rs38855	7	116358044	G	A	-0.019	0.003	2.00E-08	24097068
Triglycerides	rs1832007	10	5254847	G	A	-0.033	0.005	2.00E-12	24097068
Triglycerides	rs3198697	16	15129940	T	C	-0.020	0.004	2.00E-08	24097068
Triglycerides	rs8077889	17	41878166	C	A	0.025	0.004	1.00E-08	24097068
Triglycerides	rs7248104	19	7224431	A	G	-0.022	0.004	5.00E-10	24097068
Triglycerides	rs731839	19	33899065	G	A	0.022	0.004	3.00E-09	24097068
Triglycerides	rs4722551	7	25991826	C	T	0.029	0.005	9.00E-11	24097068
Uric acid	rs1471633	1	144435096	A	C	0.059	0.005	1.20E-29	23263486
Uric acid	rs1260326	2	27584444	T	C	0.074	0.005	1.20E-44	23263486
Uric acid	rs12498742	4	9553150	A	G	0.373	0.006	1.00E-70	23263486
Uric acid	rs2231142	4	89271347	T	G	0.217	0.009	1.0E-134	23263486
Uric acid	rs675209	6	7047083	T	C	0.061	0.006	1.30E-23	23263486
Uric acid	rs1165151	6	25929595	T	G	-0.091	0.005	7.00E-70	23263486
Uric acid	rs1171614	10	61139544	T	C	-0.079	0.007	2.30E-28	23263486
Uric acid	rs2078267	11	64090690	T	C	-0.073	0.006	9.40E-38	23263486
Uric acid	rs478607	11	64234639	A	G	-0.047	0.007	4.40E-11	23263486
Uric acid	rs3741414	12	56130316	T	C	-0.072	0.007	2.20E-25	23263486
Uric acid	rs11264341	1	153418117	T	C	-0.050	0.006	6.20E-19	23263486
Uric acid	rs17050272	2	121022910	A	G	0.035	0.006	1.60E-10	23263486
Uric acid	rs2307394	2	148432898	T	C	-0.029	0.005	2.20E-08	23263486
Uric acid	rs6770152	3	53075254	T	G	-0.044	0.005	2.60E-16	23263486
Uric acid	rs17632159	5	72467238	C	G	-0.039	0.006	3.50E-11	23263486
Uric acid	rs729761	6	43912549	T	G	-0.047	0.006	8.00E-16	23263486
Uric acid	rs1178977	7	72494985	A	G	0.047	0.007	1.20E-12	23263486
Uric acid	rs10480300	7	151036938	T	C	0.035	0.006	4.10E-09	23263486
Uric acid	rs17786744	8	23832951	A	G	-0.029	0.005	1.40E-08	23263486
Uric acid	rs2941484	8	76641323	T	C	0.044	0.005	4.40E-17	23263486
Uric acid	rs10821905	10	52316099	A	G	0.057	0.007	7.40E-17	23263486
Uric acid	rs642803	11	65317196	T	C	-0.036	0.005	2.90E-13	23263486
Uric acid	rs653178	12	110492139	T	C	-0.035	0.005	7.20E-12	23263486
Uric acid	rs1394125	15	73946038	A	G	0.043	0.006	2.50E-13	23263486
Uric acid	rs6598541	15	97088658	A	G	0.043	0.006	4.80E-15	23263486
Uric acid	rs7193778	16	68121391	T	C	-0.046	0.008	8.20E-10	23263486
Uric acid	rs7188445	16	78292488	A	G	-0.032	0.005	1.60E-09	23263486
Uric acid	rs7224610	17	50719787	A	C	-0.042	0.005	5.40E-17	23263486
Uric acid	rs2079742	17	56820479	T	C	0.043	0.008	1.20E-08	23263486
Uric acid	rs164009	17	71795264	A	G	0.028	0.005	1.60E-07	23263486
SBP	rs783621	1	42368035	A	G	0.289	0.038	2.90E-14	27841878
SBP	rs2404715	1	57008778	C	T	0.400	0.068	1.70E-09	27841878
SBP	rs3731818	2	86368804	G	A	0.240	0.042	4.10E-09	27841878
SBP	rs13024657	2	175472839	C	T	-0.296	0.055	3.60E-08	27841878

CHR: chromosome; POS: position; EA: effect allele; NEA: non-effect allele; BMI: body mass index; WHRadjBMI: waist-hip ratio adjusted by BMI; HbA1C: glycated hemoglobin; MUFA: mono-unsaturated fatty acid; HDL: high-density lipoprotein; LDL: low-density lipoprotein; CRP: C-reactive protein; SBP: systolic blood pressure; DBP: diastolic blood pressure; PP: pulse pressure; TC: total cholesterol.

**Supplementary Table 1.** Characteristics of selected SNPs (cont.)

Exposure	SNP	CHR	POS	EA	NEA	Beta	SE	p-value	PMID
SBP	rs6434404	2	191494411	A	G	0.311	0.044	4.90E-13	27841878
SBP	rs1250247	2	216299629	C	G	0.310	0.044	1.10E-12	27841878
SBP	rs1063281	2	218668732	C	T	0.247	0.040	2.30E-10	27841878
SBP	rs6803322	3	84986088	C	A	0.228	0.043	4.60E-08	27841878
SBP	rs4141663	3	124551967	C	T	0.258	0.039	1.70E-11	27841878
SBP	rs9844972	3	150097635	G	C	-0.441	0.078	8.90E-09	27841878
SBP	rs2178452	3	160370160	G	A	0.259	0.041	1.10E-10	27841878
SBP	rs12504699	4	48934298	G	A	0.221	0.040	2.10E-08	27841878
SBP	rs893929	4	144187380	G	A	0.233	0.039	1.50E-09	27841878
SBP	rs4292285	4	145271954	T	A	0.230	0.040	3.00E-09	27841878
SBP	rs1878406	4	148393664	C	T	-0.321	0.055	2.00E-09	27841878
SBP	rs303343	5	15312553	C	T	-0.229	0.040	3.50E-09	27841878
SBP	rs4712656	6	22136262	G	C	-0.227	0.039	2.90E-09	27841878
SBP	rs2050663	6	79753394	T	C	-0.229	0.040	3.60E-09	27841878
SBP	rs12670854	7	1731866	A	G	0.360	0.065	1.20E-08	27841878
SBP	rs17423264	7	108090255	C	T	0.366	0.069	4.90E-08	27841878
SBP	rs6957161	7	131361319	A	G	0.256	0.044	2.10E-09	27841878
SBP	rs7008914	8	25880400	T	C	0.238	0.045	4.50E-08	27841878
SBP	rs11993898	8	51936632	T	C	-0.326	0.050	3.50E-11	27841878
SBP	rs7041664	9	8010674	C	A	-0.247	0.044	7.10E-09	27841878
SBP	rs1848797	10	64552934	A	G	0.265	0.040	1.40E-11	27841878
SBP	rs4110517	10	96650328	A	G	-0.282	0.047	1.10E-09	27841878
SBP	rs4551692	10	102556453	G	A	-0.419	0.063	1.60E-11	27841878
SBP	rs360158	11	9753601	G	A	-0.301	0.040	1.40E-14	27841878
SBP	rs2585810	11	28483787	G	A	-0.220	0.040	2.70E-08	27841878
SBP	rs7927515	11	76125330	C	A	-0.235	0.041	4.40E-09	27841878
SBP	rs7951348	11	107081841	C	T	-0.252	0.039	3.60E-11	27841878
SBP	rs17210898	12	51056511	G	A	0.556	0.103	3.50E-08	27841878
SBP	rs10784502	12	66343810	C	T	-0.235	0.039	7.40E-10	27841878
SBP	rs9565436	13	36213631	A	C	-0.303	0.056	2.60E-08	27841878
SBP	rs9314907	13	115015163	C	T	-0.292	0.046	1.30E-10	27841878
SBP	rs937213	15	40322124	T	C	0.256	0.041	1.60E-10	27841878
SBP	rs2759308	15	81016227	G	A	-0.276	0.039	1.30E-12	27841878
SBP	rs9935770	16	21091291	C	T	0.223	0.039	5.20E-09	27841878
SBP	rs200541	16	24733141	A	G	-0.281	0.050	8.50E-09	27841878
SBP	rs4295	17	61556298	C	G	0.240	0.043	1.20E-08	27841878
SBP	rs167479	19	11526765	G	T	0.410	0.043	1.60E-21	27841878
SBP	rs13050325	21	16343812	A	G	-0.258	0.045	5.50E-09	27841878
Heart rate	rs272564	1	45012273	C	A	0.351	0.037	4.51E-21	27798624
Heart rate	rs1260326	2	27730940	C	T	-0.275	0.034	4.29E-16	27798624
Heart rate	rs12713404	2	60006705	T	G	-0.199	0.035	9.33E-09	27798624
Heart rate	rs907683	2	220299541	T	G	-0.334	0.036	1.02E-20	27798624
Heart rate	rs3749237	3	49770032	A	G	0.258	0.035	3.09E-13	27798624
Heart rate	rs2358740	3	53455569	T	G	-0.208	0.035	3.58E-09	27798624
Heart rate	rs11920570	3	122090102	A	G	0.268	0.037	5.18E-13	27798624
Heart rate	rs7612445	3	179172979	T	G	-0.428	0.042	2.41E-24	27798624
Heart rate	rs12501032	4	23951018	G	C	0.288	0.036	1.83E-15	27798624
Heart rate	rs6845865	4	148974602	C	T	-0.342	0.045	2.25E-14	27798624
Heart rate	rs236349	6	36820565	G	A	0.281	0.035	1.01E-15	27798624
Heart rate	rs1320761	6	122168138	T	C	0.902	0.053	1.22E-64	27798624
Heart rate	rs180239	7	93550415	C	G	-0.326	0.035	4.54E-21	27798624
Heart rate	rs11563648	7	126970046	C	G	-0.231	0.037	4.42E-10	27798624
Heart rate	rs10739663	9	128278739	G	A	-0.266	0.033	9.62E-16	27798624
Heart rate	rs2283274	12	2184466	C	G	-0.405	0.044	7.21E-20	27798624
Heart rate	rs10841486	12	20472202	C	T	-0.238	0.040	2.98E-09	27798624
Heart rate	rs12579753	12	82219376	T	C	-0.246	0.039	4.81E-10	27798624
Heart rate	rs17180489	14	72885471	C	G	-0.490	0.055	9.15E-19	27798624
Heart rate	rs1549118	14	78379684	T	C	0.200	0.037	4.67E-08	27798624
Heart rate	rs7173389	15	73663903	T	A	-0.539	0.045	1.31E-32	27798624
Heart rate	rs3915499	16	15910743	A	G	0.303	0.035	1.24E-17	27798624
Heart rate	rs7194801	16	65286870	C	T	-0.291	0.033	3.58E-18	27798624
Heart rate	rs11083258	18	25766218	C	A	-0.276	0.045	5.51E-10	27798624
Heart rate	rs11081761	18	30003322	A	G	-0.267	0.047	1.25E-08	27798624
Heart rate	rs16974196	19	40833470	A	G	0.244	0.036	1.11E-11	27798624
Heart rate	rs6123471	20	36840156	C	T	-0.595	0.033	6.63E-72	27798624

CHR: chromosome; POS: position; EA: effect allele; NEA: non-effect allele; BMI: body mass index; WHRadjBMI: waist-hip ratio adjusted by BMI; HbA1C: glycated hemoglobin; MUFA: mono-unsaturated fatty acid; HDL: high-density lipoprotein; LDL: low-density lipoprotein; CRP: C-reactive protein; SBP: systolic blood pressure; DBP: diastolic blood pressure; PP: pulse pressure; TC: total cholesterol.

**Supplementary Table 1.** Characteristics of selected SNPs (cont.)

Exposure	SNP	CHR	POS	EA	NEA	Beta	SE	p-value	PMID
Heart rate	rs17265513	20	39832628	C	T	0.240	0.042	1.12E-08	27798624
Heart rate	rs174536	11	61551927	A	C	0.399	0.035	1.65E-30	27798624
Heart rate	rs1468333	5	137552970	T	C	-0.255	0.034	9.53E-14	27798624
Circulating zinc	rs1532423	8	86455565	A	G	0.178	0.026	6.40E-12	23720494
Circulating zinc	rs2120019	15	73121237	C	T	-0.287	0.033	1.55E-18	23720494
DBP	rs783621	1	42368035	A	G	0.184	0.025	4.30E-14	27841878
DBP	rs2404715	1	57008778	C	T	0.202	0.027	1.00E-13	27841878
DBP	rs4653889	1	228112121	A	G	0.178	0.026	3.60E-12	27841878
DBP	rs6429422	1	243472801	T	G	0.215	0.032	5.10E-12	27841878
DBP	rs7255	2	20878820	T	C	-0.192	0.029	8.30E-12	27841878
DBP	rs10198275	2	25130542	A	C	-0.575	0.086	9.50E-12	27841878
DBP	rs11690961	2	46363336	A	C	0.159	0.024	1.30E-11	27841878
DBP	rs10199082	2	56040099	T	C	-0.255	0.038	1.30E-11	27841878
DBP	rs7575523	2	59335104	T	G	0.196	0.030	1.70E-11	27841878
DBP	rs2540950	2	65279223	C	T	0.156	0.024	1.80E-11	27841878
DBP	rs7605066	2	71529331	C	T	0.188	0.028	2.00E-11	27841878
DBP	rs1876487	2	73114352	A	C	0.213	0.032	2.70E-11	27841878
DBP	rs3731818	2	86368804	G	A	-0.165	0.025	3.50E-11	27841878
DBP	rs6747874	2	101578489	G	A	-0.173	0.027	6.70E-11	27841878
DBP	rs3923097	2	124020790	T	A	0.154	0.024	6.90E-11	27841878
DBP	rs13024657	2	175472839	C	T	0.166	0.026	1.30E-10	27841878
DBP	rs2706110	2	178092162	T	C	-0.149	0.024	1.70E-10	27841878
DBP	rs6434404	2	191494411	A	G	0.147	0.024	4.30E-10	27841878
DBP	rs1250247	2	216299629	C	G	0.161	0.026	5.00E-10	27841878
DBP	rs1063281	2	218668732	C	T	0.219	0.036	7.70E-10	27841878
DBP	rs11677932	2	238223955	G	A	0.176	0.029	8.90E-10	27841878
DBP	rs6793656	3	13823342	A	G	0.198	0.033	1.20E-09	27841878
DBP	rs3749237	3	49770032	G	A	-0.143	0.024	1.40E-09	27841878
DBP	rs2236973	3	50474284	T	C	0.160	0.027	1.40E-09	27841878
DBP	rs1053711	3	57743246	G	A	0.214	0.036	1.60E-09	27841878
DBP	rs6795735	3	64705365	C	T	0.157	0.027	1.70E-09	27841878
DBP	rs17831815	3	66437086	T	C	0.234	0.040	1.70E-09	27841878
DBP	rs6803322	3	84986088	C	A	-0.148	0.025	2.00E-09	27841878
DBP	rs4141663	3	124551967	C	T	-0.297	0.051	2.60E-09	27841878
DBP	rs9864898	3	138111751	C	T	-0.140	0.024	3.30E-09	27841878
DBP	rs6782694	3	141627860	C	A	0.175	0.030	3.50E-09	27841878
DBP	rs11708647	3	142617353	G	A	-0.161	0.028	3.70E-09	27841878
DBP	rs9844972	3	150097635	G	C	-0.190	0.033	4.60E-09	27841878
DBP	rs2178452	3	160370160	G	A	-0.150	0.026	5.60E-09	27841878
DBP	rs4686683	3	185307363	T	G	0.135	0.024	5.90E-09	27841878
DBP	rs2498323	4	3451109	G	A	0.136	0.024	7.10E-09	27841878
DBP	rs12504699	4	48934298	G	A	-2.186	0.389	9.30E-09	27841878
DBP	rs893929	4	144187380	G	A	-0.147	0.026	1.20E-08	27841878
DBP	rs4292285	4	145271954	T	A	0.375	0.067	1.30E-08	27841878
DBP	rs1878406	4	148393664	C	T	0.273	0.049	1.40E-08	27841878
DBP	rs869396	4	169688000	C	A	-0.382	0.069	1.50E-08	27841878
DBP	rs303343	5	15312553	C	T	-0.143	0.026	1.60E-08	27841878
DBP	rs7714219	5	71654855	G	C	0.137	0.025	1.90E-08	27841878
DBP	rs258494	5	75038718	C	G	0.160	0.029	2.10E-08	27841878
DBP	rs10057188	5	77837789	G	A	-0.204	0.037	2.10E-08	27841878
DBP	rs17082391	5	91900785	C	G	0.188	0.035	2.60E-08	27841878
DBP	rs7734334	5	131815004	C	A	0.137	0.025	3.40E-08	27841878
DBP	rs114534	5	142533657	G	A	-0.138	0.026	3.40E-08	27841878
DBP	rs9349379	6	12903957	A	G	0.138	0.026	4.00E-08	27841878
DBP	rs4712656	6	22136262	G	C	0.190	0.035	4.10E-08	27841878
DBP	rs1544935	6	39124448	T	G	-0.219	0.041	4.60E-08	27841878
DBP	rs13205180	6	51832494	C	T	-0.182	0.034	4.90E-08	27841878
PP	rs783621	1	42368035	A	G	0.279	0.029	1.10E-21	27841878
PP	rs2404715	1	57008778	C	T	0.231	0.026	4.30E-19	27841878
PP	rs4653889	1	228112121	A	G	0.200	0.026	2.70E-15	27841878
PP	rs6429422	1	243472801	T	G	-0.220	0.028	3.00E-15	27841878
PP	rs7255	2	20878820	T	C	0.201	0.026	7.40E-15	27841878
PP	rs10198275	2	25130542	A	C	0.313	0.041	1.20E-14	27841878
PP	rs11690961	2	46363336	A	C	0.379	0.051	5.40E-14	27841878

CHR: chromosome; POS: position; EA: effect allele; NEA: non-effect allele; BMI: body mass index; WHRadjBMI: waist-hip ratio adjusted by BMI; HbA1C: glycated hemoglobin; MUFA: mono-unsaturated fatty acid; HDL: high-density lipoprotein; LDL: low-density lipoprotein; CRP: C-reactive protein; SBP: systolic blood pressure; DBP: diastolic blood pressure; PP: pulse pressure; TC: total cholesterol.

**Supplementary Table 1.** Characteristics of selected SNPs (cont.)

Exposure	SNP	CHR	POS	EA	NEA	Beta	SE	<i>p</i> -value	PMID
PP	rs10199082	2	56040099	T	C	-0.337	0.045	6.10E-14	27841878
PP	rs7575523	2	59335104	T	G	0.210	0.029	1.10E-13	27841878
PP	rs2540950	2	65279223	C	T	-0.271	0.037	1.10E-13	27841878
PP	rs7605066	2	71529331	C	T	-0.188	0.026	1.30E-13	27841878
PP	rs1876487	2	73114352	A	C	0.875	0.122	4.30E-13	27841878
PP	rs3731818	2	86368804	G	A	-0.204	0.029	5.40E-13	27841878
PP	rs6747874	2	101578489	G	A	0.195	0.027	6.30E-13	27841878
PP	rs3923097	2	124020790	T	A	0.287	0.041	1.10E-12	27841878
PP	rs13024657	2	175472839	C	T	0.181	0.026	1.50E-12	27841878
PP	rs2706110	2	178092162	T	C	0.263	0.038	1.90E-12	27841878
PP	rs6434404	2	191494411	A	G	0.254	0.037	4.00E-12	27841878
PP	rs1250247	2	216299629	C	G	-0.186	0.028	9.70E-12	27841878
PP	rs1063281	2	218668732	C	T	0.204	0.031	1.30E-11	27841878
PP	rs11677932	2	238223955	G	A	0.235	0.036	1.90E-11	27841878
PP	rs6793656	3	13823342	A	G	0.290	0.044	2.20E-11	27841878
PP	rs3749237	3	49770032	G	A	0.176	0.027	4.70E-11	27841878
PP	rs2236973	3	50474284	T	C	0.172	0.027	6.30E-11	27841878
PP	rs1053711	3	57743246	G	A	0.220	0.035	1.40E-10	27841878
PP	rs6795735	3	64705365	C	T	-0.167	0.027	1.50E-10	27841878
PP	rs17831815	3	66437086	T	C	-0.164	0.026	1.50E-10	27841878
PP	rs6803322	3	84986088	C	A	-0.162	0.026	2.00E-10	27841878
PP	rs4141663	3	124551967	C	T	-0.159	0.026	3.30E-10	27841878
PP	rs9864898	3	138111751	C	T	-0.189	0.031	4.50E-10	27841878
PP	rs6782694	3	141627860	C	A	-0.187	0.031	5.70E-10	27841878
PP	rs11708647	3	142617353	G	A	-0.224	0.037	5.70E-10	27841878
PP	rs9844972	3	150097635	G	C	-0.164	0.027	6.40E-10	27841878
PP	rs2178452	3	160370160	G	A	0.198	0.033	9.50E-10	27841878
PP	rs4686683	3	185307363	T	G	0.159	0.027	1.00E-09	27841878
PP	rs2498323	4	3451109	G	A	0.271	0.045	1.00E-09	27841878
PP	rs12504699	4	48934298	G	A	0.156	0.026	1.50E-09	27841878
PP	rs893929	4	144187380	G	A	-0.154	0.026	2.10E-09	27841878
PP	rs4292285	4	145271954	T	A	-0.158	0.027	2.10E-09	27841878
PP	rs1878406	4	148393664	C	T	0.154	0.026	2.40E-09	27841878
PP	rs869396	4	169688000	C	A	0.178	0.030	2.50E-09	27841878
PP	rs303343	5	15312553	C	T	0.151	0.026	3.20E-09	27841878
PP	rs7714219	5	71654855	G	C	0.152	0.026	4.20E-09	27841878
PP	rs258494	5	75038718	C	G	-17.4	3.045	4.80E-09	27841878
PP	rs10057188	5	77837789	G	A	-0.153	0.027	4.90E-09	27841878
PP	rs17082391	5	91900785	C	G	-0.166	0.029	5.60E-09	27841878
PP	rs7734334	5	131815004	C	A	-0.154	0.027	7.00E-09	27841878
PP	rs114534	5	142533657	G	A	0.150	0.026	7.10E-09	27841878
PP	rs9349379	6	12903957	A	G	0.188	0.033	9.40E-09	27841878
PP	rs4712656	6	22136262	G	C	-0.274	0.049	9.80E-09	27841878
PP	rs1544935	6	39124448	T	G	-0.177	0.032	1.20E-08	27841878
PP	rs13205180	6	51832494	C	T	-0.171	0.031	1.20E-08	27841878
PP	rs670463	6	53977495	A	G	-15.7	2.845	1.40E-08	27841878
PP	rs4140574	6	56099424	T	A	-14.4	2.594	1.40E-08	27841878
PP	rs2050663	6	79753394	T	C	1.038	0.187	1.40E-08	27841878
PP	rs1630266	6	118612943	G	A	-0.143	0.026	1.80E-08	27841878
PP	rs1570350	6	143592386	A	G	0.183	0.033	1.90E-08	27841878
PP	rs13192976	6	152312415	A	T	-0.190	0.035	2.10E-08	27841878
PP	rs12208834	6	157287299	A	G	-0.144	0.026	2.10E-08	27841878
PP	rs903432	6	166175471	A	G	-0.145	0.027	2.60E-08	27841878
PP	rs12670854	7	1731866	A	G	0.360	0.066	2.70E-08	27841878
PP	rs11486794	7	2491918	C	T	-0.162	0.030	2.70E-08	27841878
PP	rs917275	7	28658522	A	G	-0.147	0.027	2.80E-08	27841878
PP	rs2971669	7	44231778	C	T	-0.152	0.028	3.00E-08	27841878
PP	rs17423264	7	108090255	C	T	-0.143	0.027	3.70E-08	27841878
PP	rs11556924	7	129663496	C	T	-0.150	0.028	4.20E-08	27841878
PP	rs6957161	7	131361319	A	G	-0.274	0.051	4.30E-08	27841878
PP	rs273957	7	137600690	C	T	0.312	0.058	4.40E-08	27841878
PP	rs2280861	8	23404785	A	G	0.177	0.033	4.50E-08	27841878
PP	rs7008914	8	25880400	T	C	0.151	0.028	4.50E-08	27841878

CHR: chromosome; POS: position; EA: effect allele; NEA: non-effect allele; BMI: body mass index; WHRadjBMI: waist-hip ratio adjusted by BMI; HbA1C: glycated hemoglobin; MUFA: mono-unsaturated fatty acid; HDL: high-density lipoprotein; LDL: low-density lipoprotein; CRP: C-reactive protein; SBP: systolic blood pressure; DBP: diastolic blood pressure; PP: pulse pressure; TC: total cholesterol.

**Supplementary Table 1.** Characteristics of selected SNPs (cont.)

Exposure	SNP	CHR	POS	EA	NEA	Beta	SE	<i>p</i> -value	PMID
PP	rs10958717	8	42351585	G	C	-6.487	1.216	4.80E-08	27841878
PP	rs11993898	8	51936632	T	C	0.142	0.027	4.80E-08	27841878
PP	rs1350100	8	76054904	A	G	0.159	0.030	4.90E-08	27841878
Circulating MUFA	rs1260326	2	27730940	C	T	-0.117	0.013	3.53E-20	27005778
Circulating MUFA	rs1800588	15	58723675	T	C	0.126	0.014	4.76E-19	27005778
Circulating MUFA	rs964184	11	116648917	C	G	-0.150	0.017	8.96E-18	27005778
Circulating omega-3 fatty acid	rs1077835	15	58723426	G	A	0.086	0.014	1.08E-09	27005778
Circulating omega-3 fatty acid	rs1260326	2	27730940	C	T	-0.096	0.013	3.37E-14	27005778
Circulating omega-3 fatty acid	rs174546	11	61569830	T	C	-0.152	0.012	1.19E-34	27005778

CHR: chromosome; POS: position; EA: effect allele; NEA: non-effect allele; BMI: body mass index; WHRadjBMI: waist-hip ratio adjusted by BMI; HbA1C: glycated hemoglobin; MUFA: mono-unsaturated fatty acid; HDL: high-density lipoprotein; LDL: low-density lipoprotein; CRP: C-reactive protein; SBP: systolic blood pressure; DBP: diastolic blood pressure; PP: pulse pressure; TC: total cholesterol.

**Supplementary Table 2.** Results of the main and sensitivity analysis of Mendelian randomization study on modifiable risk factors and heart failure

Exposure	Simple		Weighted		MR-Egger		IVW		(intercept)	
	OR (95%CI)	<i>p</i> -value	OR (95%CI)	<i>p</i> -value	OR (95%CI)	<i>p</i> -value	OR (95%CI)	<i>p</i> -value	Beta (95%CI)	<i>p</i> -value
Incident heart failure										
Obesity-related traits										
BMI, kg/m <sup>2</sup>	1.85 (1.24,2.75)	0.002	0.95 (0.72,1.25)	0.715	0.88 (0.66,1.18)	0.403	1.10 (0.99,1.46)	0.065	0.02 (0.00,0.03)	0.008
Body fat, %	1.40 (0.66,2.97)	0.376	1.46 (0.68,3.14)	0.330	1.33 (0.08,22.99)	0.850	1.46 (0.75,2.82)	0.265	0.00 (-0.09,0.10)	0.948
WHRadjBMI, %	0.80 (0.47,1.36)	0.403	0.75 (0.44,1.28)	0.294	0.65 (0.10,4.13)	0.648	0.90 (0.62,1.31)	0.588	0.01 (-0.04,0.06)	0.723
Lifestyle and dietary factors										
Education, year	0.43 (0.19,0.96)	0.039	0.41 (0.19,0.89)	0.024	0.39 (0.01,12.05)	0.591	0.57 (0.33,0.99)	0.049	0.01 (-0.05,0.06)	0.820
Smoking, cigarettes per day	1.04 (0.96,1.13)	0.367	1.04 (0.98,1.10)	0.201	1.02 (0.92,1.14)	0.762	1.04 (0.99,1.10)	0.104	0.02 (-0.06,0.09)	0.737
Alcohol intake, drinks per week	0.97 (0.25,3.85)	0.969	1.09 (0.32,3.80)	0.887	0.67 (0.05,8.86)	0.763	0.76 (0.32,1.84)	0.547	0.00 (-0.03,0.03)	0.918
Coffee, cups of coffee per day	1.06 (0.67,1.68)	0.812	1.03 (0.68,1.56)	0.883	0.75 (0.13,4.30)	0.779	1.12 (0.67,1.87)	0.673	0.04 (-0.13,0.21)	0.681
Circulating iron, μmol/L	NA	NA	NA	NA	NA	NA	1.04 (0.72,1.52)	0.840	NA	NA
Circulating zinc, μmol/L	NA	NA	NA	NA	NA	NA	0.94 (0.72,1.25)	0.687	NA	NA
Circulating 25(OH)D, nmol/L	1.70 (0.55,5.24)	0.356	1.27 (0.67,2.39)	0.462	0.72 (0.25,2.07)	0.575	1.54 (0.82,2.89)	0.184	0.04 (-0.01,0.09)	0.165
Circulating MUFA, %	1.43 (0.97,2.09)	0.070	1.47 (1.01,2.15)	0.044	0.29 (0.01,7.03)	0.587	1.50 (1.10,2.04)	0.011	0.20 (-0.19,0.61)	0.497
Circulating omega-3 fatty acid, %	1.17 (0.74,1.83)	0.499	1.29 (0.91,1.82)	0.159	0.79 (0.11,5.56)	0.853	1.33 (0.91,1.94)	0.143	0.06 (-0.16,0.30)	0.686
Biochemical measures										
Fasting glucose, mmol/L	1.59 (0.79,3.19)	0.193	1.35 (0.74,2.48)	0.327	0.86 (0.40,1.88)	0.716	1.27(0.83,1.94)	0.271	0.01 (-0.01,0.03)	0.259
Fasting insulin, pmol/L	0.32 (0.08,1.32)	0.116	0.38 (0.10,1.42)	0.149	15.19 (0.06,3924)	0.351	0.55(0.22,1.36)	0.196	-0.06 (-0.15,0.04)	0.251
2h glucose, mmol/L	0.87 (0.59,1.28)	0.485	0.86 (0.61,1.23)	0.411	1.40 (0.27,7.39)	0.701	1.01(0.72,1.41)	0.946	-0.03 (-0.17,0.11)	0.704
HbA1C, %	0.88 (0.38,2.04)	0.758	0.85 (0.40,1.79)	0.668	0.27 (0.06,1.27)	0.133	0.79(0.45,1.40)	0.429	0.04 (-0.02,0.10)	0.178
Adiponectin, μg/mL	1.10 (0.54,2.24)	0.798	1.11 (0.55,2.21)	0.777	0.39 (0.10,1.48)	0.186	0.74(0.45,1.21)	0.230	0.02 (-0.02,0.06)	0.325
CRP, mg/L	1.33 (0.77,2.29)	0.313	1.28 (0.74,2.21)	0.371	0.84 (0.13,5.43)	0.855	1.53(1.04,2.25)	0.031	0.02 (-0.03,0.07)	0.524
HDL, mg/dL	0.65 (0.49,0.87)	0.004	1.02 (0.80,1.29)	0.891	1.04 (0.82,1.31)	0.763	0.84(0.72,0.99)	0.036	-0.01 (-0.03,0.00)	0.027
LDL, mg/dL	1.23 (0.92,1.64)	0.154	1.29 (0.99,1.68)	0.056	1.09 (0.82,1.47)	0.548	1.19(1.00,1.41)	0.051	0.01 (-0.01,0.02)	0.499
Total cholesterol, mg/dL	1.09 (0.83,1.44)	0.539	1.13 (0.88,1.45)	0.326	1.24 (0.90,1.70)	0.196	1.13(0.95,1.34)	0.170	-0.01 (-0.02,0.01)	0.502
Triglycerides, mg/dL	1.11 (0.78,1.56)	0.570	1.13 (0.84,1.51)	0.413	1.18 (0.86,1.62)	0.318	1.24(1.00,1.52)	0.045	0.00 (-0.01,0.02)	0.705
Uric acid, mg/dL	1.27 (0.95,1.69)	0.110	0.98 (0.82,1.17)	0.798	1.03 (0.80,1.32)	0.829	1.06(0.89,1.26)	0.527	0.00 (-0.02,0.02)	0.758
Clinical measures										
SBP, mmHg	1.04 (0.98,1.10)	0.177	1.04 (0.98,1.10)	0.186	0.98 (0.76,1.27)	0.888	1.06(1.01,1.11)	0.017	0.02 (-0.05,0.09)	0.574
DBP, mmHg	1.05 (0.99,1.12)	0.110	1.00 (0.97,1.03)	0.796	0.99 (0.97,1.02)	0.677	1.01(0.98,1.03)	0.537	0.01 (0.00,0.02)	0.143
Pulse pressure, mmHg	1.00 (0.97,1.03)	0.979	1.00 (1.00,1.00)	0.883	1.00 (1.00,1.00)	0.734	1.00(1.00,1.00)	0.634	0.00 (-0.01,0.01)	0.715
Heart rate, bpm	1.02 (0.96,1.07)	0.596	1.02 (0.96,1.07)	0.559	0.96 (0.86,1.08)	0.499	1.03(0.99,1.07)	0.198	0.02 (-0.01,0.06)	0.225
Mortality in heart failure										
Obesity-related traits										
BMI, kg/m <sup>2</sup>	0.99 (0.63,1.55)	0.960	1.03 (0.74,1.43)	0.881	1.12 (0.79,1.59)	0.534	1.02(0.81,1.29)	0.859	-0.01 (-0.02,0.01)	0.501
Body fat, %	1.56 (0.62,3.91)	0.341	2.17 (0.92,5.11)	0.078	1.70 (0.12,23.63)	0.703	1.26(0.66,2.41)	0.476	-0.01 (-0.10,0.08)	0.826
WHRadjBMI, %	1.37 (0.73,2.59)	0.327	1.51 (0.83,2.73)	0.175	1.25 (0.14,11.33)	0.841	1.33(0.85,2.07)	0.211	0.00 (-0.06,0.06)	0.959

Odds ratios display the association with incident or mortality of heart failure. The estimates are scaled to represent the association of 1-cigarette a day of smoking, 1-year increase of education attained, 1-cup a day of coffee consumption, 1-drink a week of alcohol consumption, 1-unit increase in natural log transformed 25-hydroxyvitamin D and C-reactive protein, 5-bpm increase in resting heart rate, 1-SD for the other continuous risk factors and 1-unit higher log odds of binary risk factors. BMI: body mass index; WHRadjBMI: waist-hip ratio adjusted by BMI; HbA1C: glycated hemoglobin; SBP: systolic blood pressure; DBP: diastolic blood pressure; MUFA: mono-unsaturated fatty acid. The P-values of the OR are displayed in bold if the Bonferroni-corrected threshold between 0.0019 and 0.05 in main analysis.

**Supplementary Table 2.** Results of the main and sensitivity analysis of Mendelian randomization study on modifiable risk factors and heart failure

Exposure	Simple		Weighted		MR-Egger		IVW		(intercept)	
	OR (95%CI)	<i>p</i> -value	OR (95%CI)	<i>p</i> -value	OR (95%CI)	<i>p</i> -value	OR (95%CI)	<i>p</i> -value	Beta (95%CI)	<i>p</i> -value
<b>Lifestyle and dietary factors</b>										
Education, year	0.96 (0.38,2.40)	0.930	1.01 (0.42,2.43)	0.984	24.27 (0.42,1414)	0.130	0.97(0.51,1.86)	0.927	-0.05 (-0.11,0.01)	0.122
Smoking, cigarettes per day	0.99 (0.87,1.11)	0.818	1.04 (0.98,1.11)	0.188	1.12 (0.98,1.27)	0.343	1.04(0.98,1.11)	0.217	-0.05 (-0.14,0.03)	0.435
Alcohol intake, drinks per week	1.75 (0.39,7.95)	0.468	1.66 (0.33,8.35)	0.539	1.40 (0.08,24.13)	0.820	1.38(0.51,3.75)	0.523	0.00 (-0.03,0.03)	0.995
Coffee, cups of coffee per day	1.47 (0.84,2.58)	0.182	1.18 (0.73,1.88)	0.501	0.69 (0.21,2.29)	0.602	1.19(0.79,1.80)	0.402	0.06 (-0.06,0.17)	0.439
Circulating iron, µmol/L	NA	NA	NA	NA	NA	NA	0.89(0.56,1.40)	0.618	NA	NA
Circulating zinc, µmol/L	NA	NA	NA	NA	NA	NA	1.00(0.78,1.27)	0.983	NA	NA
Circulating 25(OH)D, nmol/L	1.95 (0.62,6.15)	0.253	1.16 (0.51,2.60)	0.725	0.62 (0.09,4.14)	0.648	1.20(0.43,3.38)	0.727	0.04 (-0.05,0.12)	0.455
Circulating MUFA, %	1.00 (0.61,1.62)	0.992	0.99 (0.61,1.60)	0.971	3.73 (0.03,507.67)	0.692	0.94(0.64,1.39)	0.769	-0.18 (-0.80,0.45)	0.319
Circulating omega-3 fatty acid, %	0.95 (0.61,1.49)	0.831	0.96 (0.65,1.42)	0.839	1.17 (0.26,5.28)	0.870	0.92(0.64,1.33)	0.668	-0.03 (-0.21,0.15)	0.802
<b>Biochemical measures</b>										
Fasting glucose, mmol/L	0.91 (0.37,2.23)	0.832	0.90 (0.41,1.99)	0.801	0.79 (0.31,1.97)	0.611	0.90(0.55,1.47)	0.676	0.00 (-0.02,0.03)	0.732
Fasting insulin, pmol/L	1.00 (0.22,4.55)	0.996	0.66 (0.15,2.91)	0.581	0.02 (0.00,14.78)	0.268	0.53(0.19,1.50)	0.230	0.05 (-0.05,0.16)	0.348
2h glucose, mmol/L	1.21 (0.82,1.79)	0.331	1.20 (0.83,1.73)	0.332	1.13 (0.28,4.52)	0.865	1.23(0.91,1.65)	0.177	0.01 (-0.11,0.13)	0.912
HbA1C, %	1.11 (0.42,2.93)	0.826	0.71 (0.28,1.81)	0.480	0.43 (0.05,3.52)	0.457	1.00(0.47,2.15)	0.999	0.03 (-0.05,0.11)	0.424
Adiponectin, µg/ml	0.83 (0.38,1.84)	0.653	0.84 (0.38,1.85)	0.658	0.76 (0.16,3.74)	0.745	0.85(0.47,1.52)	0.577	0.00 (-0.05,0.05)	0.894
CRP, mg/L	1.57 (0.83,2.94)	0.162	1.59 (0.85,2.99)	0.146	2.27 (0.25,20.33)	0.468	1.25(0.79,1.97)	0.337	-0.02 (-0.08,0.04)	0.588
HDL, mg/dL	1.02 (0.72,1.45)	0.922	0.84 (0.62,1.12)	0.232	0.86 (0.65,1.15)	0.326	0.89(0.73,1.07)	0.215	0.00 (-0.01,0.02)	0.820
LDL, mg/dL	1.01 (0.71,1.43)	0.955	0.92 (0.67,1.25)	0.577	1.03 (0.75,1.41)	0.862	1.14(0.95,1.38)	0.162	0.01 (-0.01,0.03)	0.419
Total cholesterol, mg/dL	1.18 (0.86,1.63)	0.307	1.04 (0.79,1.38)	0.775	1.16 (0.83,1.63)	0.397	1.18(0.98,1.41)	0.082	0.00 (-0.02,0.02)	0.918
Triglycerides, mg/dL	1.33 (0.90,1.96)	0.156	1.18 (0.86,1.63)	0.305	1.24 (0.87,1.76)	0.237	1.23(0.98,1.55)	0.072	0.00 (-0.02,0.02)	0.974
Uric acid, mg/dL	0.99 (0.71,1.37)	0.937	1.14 (0.92,1.41)	0.245	1.19 (0.94,1.52)	0.156	1.15(0.97,1.35)	0.101	0.00 (-0.02,0.02)	0.652
<b>Clinical measures</b>										
SBP, mmHg	0.93 (0.87,0.99)	0.030	0.94 (0.88,1.00)	0.055	0.97 (0.72,1.30)	0.828	0.96(0.91,1.01)	0.136	0.00 (-0.08,0.08)	0.969
DBP, mmHg	1.07 (0.99,1.16)	0.079	1.01 (0.98,1.05)	0.443	1.01 (0.97,1.05)	0.654	1.02(0.99,1.05)	0.139	0.01 (-0.01,0.02)	0.244
Pulse pressure, mmHg	1.01 (0.97,1.04)	0.734	1.00 (1.00,1.00)	0.777	1.00 (1.00,1.00)	0.845	1.00(1.00,1.00)	0.831	0.00 (-0.01,0.01)	0.985
Heart rate, bpm	0.97 (0.91,1.04)	0.449	1.02 (0.95,1.09)	0.569	1.07 (0.94,1.23)	0.305	1.00(0.95,1.05)	0.948	-0.03 (-0.07,0.02)	0.283

Odds ratios display the association with incident or mortality of heart failure. The estimates are scaled to represent the association of 1-cigarette a day of smoking, 1-year increase of education attained, 1-cup a day of coffee consumption, 1-drink a week of alcohol consumption, 1-unit increase in natural log transformed 25-hydroxyvitamin D and C-reactive protein, 5-bpm increase in resting heart rate, 1-SD for the other continuous risk factors and 1-unit higher log odds of binary risk factors. BMI: body mass index; WHRadjBMI: waist-hip ratio adjusted by BMI; HbA1C: glycated hemoglobin; SBP: systolic blood pressure; DBP: diastolic blood pressure; MUFA: mono-unsaturated fatty acid. The P-values of the OR are displayed in bold if the Bonferroni-corrected threshold between 0.0019 and 0.05 in main analysis.



**Supplementary Table 3.** Post-hoc power calculations for our main IVW analysis on modifiable risk factors and incident heart failure

Exposure	Sample size <sup>†</sup>	Proportion of cases in the study <sup>†</sup>	R <sup>2</sup> explained by the SNPs	Causal effect (OR according to IVW)	Power <sup>‡</sup>
Education, year	20926	0.1207	0.005	0.57	33%
Circulating MUFA, %	20926	0.1207	0.018	1.50	85%
CRP, mg/L	20926	0.1207	0.008	1.53	57%
HDL, mg/dL	20926	0.1207	0.137	0.84	81%
TG, mg/dL	20926	0.1207	0.117	1.24	96%
SBP, mmHg	20926	0.1207	0.005	1.06	5%

SBP: systolic blood pressure; MUFA: mono-unsaturated fatty acid; HDL: high-density lipoprotein; LDL: low-density lipoprotein; CRP: C-reactive protein; TG: triglycerides.

<sup>†</sup> Sample size and ratio cases to controls according to the outcome GWAS on incident heart failure.

<sup>‡</sup> Calculated using an online power calculation tool (<https://shiny.cnsgenomics.com/mRnd/>)