

**Supplementary Table 2.** The list of functional SNPs among the top 5,000 SNPs associated with METS

CHR	SNP	BP	A1	95% Confidence interval			p-value	Gene	Amino acid substitution
				OR	Lower	Upper			
eQTLs among the METS GWAS									
11	rs1996794	9779172	C	1.174	1.089	1.265	2.73e-05	<i>SWAP70</i>	-
11	rs1032550	9769884	G	1.163	1.080	1.254	7.168e-05	<i>SWAP70</i>	-
16	rs2754186	1845764	C	0.826	0.750	0.911	0.000119	<i>FAHD1</i>	-
18	rs4998985	55282774	A	0.859	0.790	0.933	0.000328	<i>MALTI</i>	-
3	rs9826358	170327281	A	0.827	0.743	0.920	0.000457	<i>EVII</i>	-
8	rs17411031	19896590	G	0.850	0.776	0.932	0.000561	<i>LPL</i>	-
8	rs1837842	19912570	C	0.851	0.776	0.934	0.000627	<i>LPL</i>	-
5	rs790156	127519464	T	1.167	1.068	1.276	0.000668	<i>LOC644869</i>	-
1	rs12068202	7883881	A	0.878	0.814	0.947	0.000714	<i>UTS2</i>	-
1	rs7536291	109877131	T	0.687	0.552	0.854	0.000715	<i>GSTM4</i>	-
9	rs17222478	126105657	T	0.844	0.765	0.933	0.000832	<i>NEK6</i>	-
2	rs6737707	112616492	C	0.748	0.631	0.887	0.000835	<i>MERTK</i>	-
6	rs6923338	52657281	G	0.879	0.815	0.948	0.000836	<i>TRAM2</i>	-
8	rs1919484	19913956	T	0.855	0.780	0.938	0.000859	<i>LPL</i>	-
14	rs229660	64244339	C	0.630	0.480	0.827	0.000883	<i>PLEKHG3</i>	-
16	rs9934863	17121978	G	1.139	1.055	1.231	0.00093	<i>XYLT1</i>	-
12	rs10772079	9765661	T	0.879	0.814	0.949	0.000975	<i>CLEC2D</i>	-
10	rs871026	131183135	G	0.877	0.811	0.948	0.000984	<i>MGMT</i>	-
16	rs3848346	1829822	T	0.848	0.769	0.936	0.000992	<i>FAHD1</i>	-
1	rs528815	109863002	T	0.735	0.611	0.883	0.001037	<i>GSTM4</i>	-
17	rs8077332	54460005	G	1.153	1.059	1.255	0.001065	<i>RAD51C</i>	-
20	rs2103804	31889064	G	1.214	1.081	1.364	0.00109	<i>CHMP4B</i>	-
13	rs9525744	42582498	A	0.766	0.653	0.899	0.001122	<i>DNAJC15</i>	-
16	rs1625393	1841894	T	0.851	0.771	0.938	0.001179	<i>FAHD1</i>	-
15	rs11072034	66646841	T	1.229	1.084	1.395	0.001306	<i>CALML4</i>	-
1	rs475381	109863563	A	0.740	0.616	0.890	0.001376	<i>GSTM4</i>	-
5	rs7731936	157077770	T	0.885	0.821	0.954	0.001478	<i>ICF45</i>	-
21	rs2236472	45727840	A	0.830	0.739	0.932	0.001613	<i>COL18A1</i>	-
8	rs7818254	21854262	T	0.886	0.821	0.956	0.001714	<i>GFRA2</i>	-
1	rs1503814	159975743	A	0.886	0.821	0.956	0.001924	<i>FCRLM2</i>	-
18	rs4998986	55282713	A	0.883	0.817	0.956	0.001963	<i>MALTI</i>	-

16	rs453494	1856104	C	0.859	0.780	0.946	0.002071	<i>NUBP2</i>	-
2	rs7584309	234874719	C	0.876	0.806	0.953	0.002112	<i>ARL4C</i>	-
12	rs1560007	9693798	T	0.890	0.826	0.959	0.002151	<i>CLEC2D</i>	-
12	rs11052423	9731305	A	0.887	0.821	0.958	0.002285	<i>CLEC2D</i>	-
16	rs2974856	1860758	C	0.861	0.782	0.948	0.002367	<i>FAHD1</i>	-
12	rs10783424	49908177	T	0.890	0.825	0.960	0.00245	<i>ELA1</i>	-
16	rs1657094	1860630	T	0.862	0.783	0.949	0.002483	<i>FAHD1</i>	-
16	rs2982235	1860793	C	0.862	0.783	0.949	0.002501	<i>NUBP2</i>	-
5	rs4835964	128366883	G	1.137	1.046	1.237	0.002512	<i>DOK4</i>	-
2	rs10189164	25486872	G	1.124	1.042	1.213	0.002557	<i>DTNB</i>	-
2	rs10180663	25486746	T	1.124	1.041	1.213	0.002655	<i>DTNB</i>	-
9	rs16927327	126087271	A	0.862	0.782	0.950	0.00266	<i>NEK6</i>	-
5	rs4836429	128367124	T	1.136	1.045	1.235	0.002705	<i>POMT1</i>	-
2	rs840879	128788244	T	0.870	0.795	0.953	0.002764	<i>SAP130</i>	-
16	rs2917523	1860741	A	0.864	0.784	0.951	0.0028	<i>FAHD1</i>	-
16	rs1657095	1860679	T	0.864	0.785	0.952	0.002932	<i>FAHD1</i>	-
9	rs754144	85800856	C	1.118	1.039	1.204	0.003035	<i>C9orf64</i>	-
1	rs2798349	47471290	G	0.881	0.810	0.958	0.003195	<i>PDZK1IP1</i>	-
1	rs4951158	203278282	C	0.851	0.764	0.948	0.003278	<i>RIPK5</i>	-
17	rs2469837	36251126	G	1.361	1.107	1.673	0.003395	<i>TMEM99</i>	-
8	rs11783414	21829330	A	0.893	0.828	0.964	0.003541	<i>GFRA2</i>	-
16	rs4081753	68844678	A	1.305	1.091	1.562	0.003637	<i>MGC34761</i>	-
9	rs767769	123138157	G	0.894	0.829	0.964	0.003678	<i>C5</i>	-
17	rs9900340	36264388	T	1.354	1.102	1.665	0.004002	<i>KRT10</i>	-
16	rs4788009	27849046	C	1.128	1.039	1.225	0.004107	<i>CLN3</i>	-
17	rs12948783	72010995	A	1.225	1.067	1.408	0.004115	<i>HSS00388262</i>	-
16	rs9940288	1632903	T	1.144	1.044	1.255	0.004156	<i>C16orf30</i>	-
19	rs2965189	19380518	T	0.882	0.809	0.961	0.004259	<i>ATP13A1</i>	-
8	rs7009693	21831260	T	0.896	0.831	0.967	0.00448	<i>GFRA2</i>	-
3	rs6770707	16270269	G	1.113	1.034	1.198	0.004497	<i>ZCSL2</i>	-
2	rs17504774	98502059	A	1.129	1.038	1.228	0.004573	<i>UNC50</i>	-
19	rs4808199	19406099	T	0.878	0.803	0.961	0.004602	<i>ATP13A1</i>	-
2	rs2278214	98502170	A	1.129	1.038	1.228	0.004634	<i>UNC50</i>	-
19	rs2916074	19391270	T	0.883	0.811	0.963	0.004706	<i>ATP13A1</i>	-
19	rs4808964	19464692	A	0.881	0.807	0.962	0.004743	<i>ATP13A1</i>	-

2	rs2276603	98572394	C	1.126	1.037	1.223	0.004757	<i>UNC50</i>	-
10	rs6584403	102627973	G	1.115	1.034	1.202	0.004867	<i>MRPL43</i>	-
11	rs481835	63482358	G	0.804	0.690	0.936	0.004899	<i>NAA40</i>	-
17	rs2469840	36242618	G	1.344	1.094	1.652	0.004921	<i>TMEM99</i>	-
14	rs17767188	64257993	T	0.663	0.498	0.884	0.005077	<i>PLEKHG3</i>	-
3	rs13088067	66401752	T	1.185	1.052	1.335	0.005164	<i>SLC25A26</i>	-
2	rs10153623	68244414	T	1.148	1.042	1.265	0.005202	<i>NM_020143</i>	-
3	rs13081023	66400170	T	1.186	1.052	1.338	0.005224	<i>SLC25A26</i>	-
19	rs3794993	19472550	T	0.885	0.812	0.964	0.005268	<i>ATP13A1</i>	-
11	rs10501321	47251202	A	1.116	1.033	1.206	0.005311	<i>SLC39A13</i>	-
20	rs3761244	2971181	C	1.117	1.033	1.207	0.005346	<i>MRPS26</i>	-
16	rs6600160	1662386	C	1.141	1.040	1.251	0.005383	<i>C16orf30</i>	-
12	rs4763879	9801431	A	1.113	1.032	1.200	0.005475	<i>CLEC2D</i>	-
3	rs13097619	66402152	T	1.184	1.051	1.333	0.005553	<i>SLC25A26</i>	-
11	rs2649667	57027085	A	1.153	1.043	1.276	0.005553	<i>TIMM10</i>	-
11	rs4752824	47281242	A	1.116	1.033	1.206	0.00563	<i>ACP2</i>	-
2	rs3769737	98455305	C	1.126	1.035	1.224	0.005646	<i>UNC50</i>	-
7	rs2633358	137502851	A	0.897	0.830	0.969	0.005991	<i>TRIM24</i>	-
15	rs8023664	29549766	G	0.899	0.833	0.970	0.006089	<i>MTMR10</i>	-
2	rs11884641	112483877	C	0.823	0.716	0.946	0.006118	<i>MERTK</i>	-
8	rs11997686	24277553	G	1.136	1.037	1.245	0.006118	<i>ADAMDEC1</i>	-
2	rs4851131	98403234	C	1.125	1.034	1.223	0.006133	<i>UNC50</i>	-
6	rs422562	167326308	G	1.114	1.031	1.203	0.006141	<i>RPS6KA2</i>	-
3	rs842254	16275629	G	1.108	1.030	1.193	0.006277	<i>ZCSL2</i>	-
4	rs17029494	154162849	T	0.873	0.792	0.963	0.006414	<i>APOL2</i>	-
15	rs1145076	43471800	G	0.783	0.656	0.934	0.006615	<i>GATM</i>	-
6	rs4959787	3209501	G	1.113	1.030	1.203	0.006623	<i>LOC389362</i>	-
2	rs10929580	9464814	T	0.769	0.637	0.930	0.006624	<i>ADAM17</i>	-
6	rs7741026	25750691	A	1.321	1.080	1.615	0.006782	<i>SCGN</i>	-
3	rs7639049	56846669	G	1.168	1.043	1.307	0.006905	<i>GP9</i>	-
13	rs4769856	30069778	A	0.870	0.786	0.963	0.007016	<i>USPL1</i>	-
6	rs4713671	33807877	A	1.134	1.035	1.243	0.007226	<i>ITPR3</i>	-
19	rs4808967	19501524	G	0.889	0.816	0.969	0.007484	<i>HSS00041008</i>	-
8	rs4734197	110247681	A	0.902	0.837	0.973	0.007544	<i>PKHD1L1</i>	-
1	rs3094315	742429	C	1.150	1.038	1.274	0.007711	<i>FLJ22639</i>	-

20	rs3746476	36373583	G	0.890	0.816	0.970	0.007756	<i>BPI</i>	-
6	rs1819333	167293537	T	1.110	1.028	1.200	0.007804	<i>RPS6KA2</i>	-
17	rs3110609	44108542	G	0.890	0.817	0.970	0.007879	<i>HOXB2</i>	-
15	rs3809540	53276704	C	1.164	1.041	1.302	0.007906	<i>C15orf15</i>	-
18	rs1132845	71041457	T	0.904	0.839	0.974	0.008251	<i>ZADH2</i>	-
1	rs10920573	201375131	C	0.898	0.830	0.973	0.008308	<i>MYBPH</i>	-
17	rs2286562	64051442	A	1.107	1.026	1.193	0.008349	<i>PRKARIA</i>	-
2	rs11679484	198629849	A	1.117	1.029	1.214	0.008423	<i>PLCL1</i>	-
1	rs2254972	181869418	G	0.884	0.806	0.969	0.008469	<i>ARPC5</i>	-
1	rs2343121	240767426	G	0.885	0.808	0.969	0.008581	<i>CHML</i>	-
10	rs1759360	59496497	T	1.139	1.034	1.256	0.008619	<i>C10orf70</i>	-
10	rs1759361	59496405	G	1.139	1.034	1.256	0.008627	<i>C10orf70</i>	-
14	rs8007317	100714602	T	1.596	1.126	2.262	0.008689	<i>DYNC1H1</i>	-
6	rs6907666	167443385	A	1.105	1.026	1.191	0.0088	<i>CCR6</i>	-
6	rs4959785	3209100	T	1.109	1.026	1.198	0.008941	<i>LOC389362</i>	-
6	rs415890	167326623	C	1.108	1.026	1.197	0.008964	<i>RPS6KA2</i>	-
5	rs835153	14930474	A	1.112	1.027	1.205	0.009007	<i>ANKH</i>	-
6	rs408918	167319272	T	1.108	1.026	1.197	0.009028	<i>RPS6KA2</i>	-
10	rs1536090	131731159	C	0.905	0.839	0.976	0.009197	<i>SDCCAG3</i>	-
16	rs1833931	68662403	T	1.278	1.062	1.537	0.009466	<i>LOC497190</i>	-
1	rs569619	88514598	A	0.867	0.778	0.966	0.009726	<i>GBP1</i>	-
8	rs1380098	110317808	G	0.906	0.840	0.976	0.009788	<i>PKHD1L1</i>	-
6	rs9503490	3196748	T	1.109	1.025	1.201	0.01002	<i>LOC389362</i>	-
1	rs1110071	42661811	C	1.112	1.026	1.206	0.01014	<i>ZMYND12</i>	-
8	rs271	19857982	T	0.887	0.810	0.972	0.01014	<i>LPL</i>	-
11	rs12420599	32035797	A	1.103	1.023	1.188	0.0102	<i>IMMP1L</i>	-
6	rs3813487	3215063	T	1.108	1.025	1.198	0.01023	<i>LOC389362</i>	-
19	rs344802	50496147	T	0.885	0.806	0.972	0.01031	<i>CKM</i>	-
1	rs558370	109872636	G	0.898	0.826	0.975	0.01047	<i>GSTM4</i>	-
1	rs474234	109872337	C	0.898	0.826	0.975	0.01055	<i>GSTM4</i>	-
13	rs9508805	30070028	G	0.876	0.791	0.970	0.01061	<i>USPL1</i>	-
17	rs11652713	54434524	T	1.118	1.026	1.219	0.01093	<i>RAD51C</i>	-
15	rs2583587	65624462	T	0.907	0.841	0.978	0.011	<i>LOC145853</i>	-
2	rs4278932	112477781	T	0.835	0.727	0.960	0.01101	<i>MERTK</i>	-
6	rs416131	167326534	A	1.105	1.023	1.194	0.01101	<i>Contig41726_RC</i>	-

22	rs760753	48939672	T	1.245	1.052	1.475	0.01103	<i>PANX2</i>	-
1	rs12047502	42701317	A	1.110	1.024	1.204	0.01104	<i>ZMYND12</i>	-
16	rs1742464	1887336	A	0.882	0.800	0.972	0.01121	<i>FAHD1</i>	-
22	rs12157657	22344229	T	1.349	1.070	1.700	0.01122	<i>LOC51233</i>	-
18	rs1864532	12559486	T	0.905	0.838	0.978	0.01145	<i>SPIRE1</i>	-
16	rs13380472	17133615	T	1.172	1.036	1.326	0.01152	<i>XYLT1</i>	-
5	rs149359	34070997	A	0.909	0.844	0.979	0.01157	<i>AMACR</i>	-
8	rs2926273	110368936	A	0.908	0.842	0.979	0.01177	<i>PKHD1L1</i>	-
16	rs911392	1887260	G	0.883	0.801	0.973	0.01191	<i>FAHD1</i>	-
15	rs1554521	43451481	T	0.877	0.791	0.972	0.01203	<i>GATM</i>	-
22	rs7287369	22362015	A	1.346	1.067	1.698	0.01217	<i>LOC51233</i>	-
22	rs13057362	22362771	T	1.346	1.067	1.698	0.01217	<i>AK024374</i>	-
11	rs10897271	61943762	A	1.132	1.027	1.246	0.01218	<i>ASRGL1</i>	-
7	rs896165	32439685	A	1.103	1.022	1.191	0.01227	<i>LOC401321</i>	-
2	rs1518360	198523548	A	1.110	1.023	1.204	0.01228	<i>PLCL1</i>	-
17	rs2302234	64049834	C	0.908	0.841	0.979	0.01246	<i>PRKARIA</i>	-
7	rs836559	6415288	C	1.161	1.033	1.306	0.01255	<i>MGC12966</i>	-
6	rs2670123	52637673	C	1.112	1.023	1.209	0.0129	<i>ELOVL5</i>	-
15	rs12904794	66313837	C	0.887	0.807	0.975	0.01296	<i>CLN6</i>	-
13	rs2056443	30803942	A	0.909	0.843	0.980	0.01307	<i>B3GTL</i>	-
16	rs2982447	1887414	C	0.884	0.802	0.974	0.01308	<i>FAHD1</i>	-
6	rs9367002	39367371	T	0.907	0.839	0.980	0.01315	<i>KCNK17</i>	-
4	rs909034	113317155	A	0.864	0.770	0.970	0.01316	<i>TMEM168</i>	-
Nonsynonymous substitution SNPs among the METS GWAS									-
1	rs11802875	161580163	A	1.348	1.100	1.651	0.003959	<i>NUF2</i>	S229L
2	rs10932150	206877976	A	1.186	1.074	1.309	0.00072	<i>ZDBF2</i>	R160K
3	rs1468542	45754140	A	1.108	1.023	1.200	0.01152	<i>SACMIL</i>	Y434F
3	rs2290477	114857323	A	0.831	0.734	0.941	0.003436	<i>KIAA2018</i>	A1966S
4	rs7669418	154733077	C	0.885	0.815	0.961	0.003717	<i>KIAA0922</i>	I604V
6	rs4959787	3209501	G	1.113	1.030	1.203	0.006623	<i>PSMG4</i>	G104R
6	rs2306942	129677493	T	1.137	1.030	1.255	0.01111	<i>LAMA2</i>	V1138M
7	rs3735156	151580001	G	1.164	1.038	1.306	0.009497	<i>KMT2C</i>	R1577P
9	rs2296871	134163506	A	0.891	0.818	0.971	0.00857	<i>MAPK7</i>	E79G
9	rs882709	134194827	G	1.124	1.042	1.212	0.002467	<i>SETX</i>	A660G
11	rs397686	9706221	C	1.144	1.045	1.254	0.003704	<i>SWAP70</i>	R230

12	rs4304840	8559164	C	1.170	1.058	1.295	0.002254	<i>CLEC4D</i>	S32G
12	rs7132431	54001039	C	1.138	1.034	1.251	0.007908	<i>OR6C1</i>	C130Y
12	rs7132347	54001143	G	1.136	1.033	1.249	0.008566	<i>OR6C1</i>	H165D
14	rs2273171	30451102	C	1.102	1.023	1.187	0.01083	<i>STRN3</i>	N387S
16	rs3743738	66822740	T	0.822	0.724	0.934	0.002663	<i>ESRP2</i>	A518V
17	rs2302234	64049834	C	0.908	0.841	0.979	0.01246	<i>FAM20A</i>	N332K
18	rs1395063	5135609	A	1.238	1.070	1.432	0.004084	<i>C18orf42</i>	H54Q

SNP, single nucleotide polymorphism; METS, metabolic syndrome; CHR, chromosome; BP, base pair; A1, minor allele; OR, odds ratio; eQTL, expression quantitative trait loci; GWAS, genome-wide association study.