

Table S1 Detailed information of 59 BBs loci

ID	Phenotype_simple	Initial_sample_description	PubMedID	Year	SNP	chr	Region	Gene	effect_allele	other_allele	beta	se	P value
1	beta blocking agents (unit increase)	31,700 European ancestry cases, 192,324 European ancestry controls	31015401	2019	rs11649807	17	17q25.3	RP11-1055B8.3	G	A	-0.04711686	0.008673469	5.00E-08
2	beta blocking agents	31,700 European ancestry cases, 192,325 European ancestry controls	31015401	2019	rs12459368	19	19p13.11	PGPEP1	G	A	-0.050655983	0.009438776	5.00E-08
3	beta blocking agents	31,700 European ancestry cases, 192,326 European ancestry controls	31015401	2019	rs513159	8	8q22.3	NCALD	T	C	-0.053433497	0.00994898	5.00E-08
4	beta blocking agents	31,700 European ancestry cases, 192,327 European ancestry controls	31015401	2019	rs11026578	11	11p14.3	CTD-2140G10.1	T	C	0.09160002	0.016581633	4.00E-08
5	beta blocking agents	31,700 European ancestry cases, 192,328 European ancestry controls	31015401	2019	rs11731886	4	4q32.1	RP11-588K22.2	C	A	-0.0532221	0.009693878	4.00E-08
6	beta blocking agents	31,700 European ancestry cases, 192,329 European ancestry controls	31015401	2019	rs38853	7	7q31.2	MET	G	NA	0.05038606	0.009183673	4.00E-08
7	beta blocking agents	31,700 European ancestry cases, 192,330 European ancestry controls	31015401	2019	rs778124	1	1p32.2	RP1-158P9.1	A	G	0.047101222	0.008673469	3.00E-08
8	beta blocking agents	31,700 European ancestry cases, 192,331 European ancestry controls	31015401	2019	rs1543927	15	15q24.1	CSK	T	C	0.052594505	0.009438776	2.00E-08
9	beta blocking agents	31,700 European ancestry cases, 192,332 European ancestry controls	31015401	2019	rs4515482	7	7q22.3	COG5	C	A	-0.05535786	0.00994898	2.00E-08
10	beta blocking agents	31,700 European ancestry cases, 192,333 European ancestry controls	31015401	2019	rs4923536	11	11p14.1	RP11-22P4.1	G	A	0.046465393	0.008418367	2.00E-08
11	beta blocking agents	31,700 European ancestry cases, 192,334 European ancestry controls	31015401	2019	rs7652333	3	3p13	RYBP	T	C	0.04740127	0.008418367	2.00E-08
12	beta blocking agents	31,700 European ancestry cases, 192,335 European ancestry controls	31015401	2019	rs7770615	6	6q27	RP11-252P19.1	C	T	-0.092071705	0.016326531	2.00E-08
13	beta blocking agents	31,700 European ancestry cases, 192,336 European ancestry controls	31015401	2019	rs7820612	8	8q21.13	RP11-706J10.1	A	NA	-0.050677635	0.008928571	2.00E-08
14	beta blocking agents	31,700 European ancestry cases, 192,337 European ancestry controls	31015401	2019	rs11023910	11	11p15.2	SOX6	T	A	0.057553295	0.00994898	1.00E-08
15	beta blocking agents	31,700 European ancestry cases, 192,338 European ancestry controls	31015401	2019	rs62043959	16	16q23.2	CMIP	C	A	-0.05248066	0.009438776	1.00E-08
16	beta blocking agents	31,700 European ancestry cases, 192,339 European ancestry controls	31015401	2019	rs417743	1	1p13.3	Y_RNA	T	C	0.05060281	0.008928571	8.00E-09
17	beta blocking agents	31,700 European ancestry cases, 192,340 European ancestry controls	31015401	2019	rs4970834	1	1p13.3	CELSR2	T	C	-0.061627656	0.010714286	8.00E-09
18	beta blocking agents	31,700 European ancestry cases, 192,341 European ancestry controls	31015401	2019	rs113537788	18	18q12.3	OR2K2	G	C	0.18015672	0.030612245	7.00E-09
19	beta blocking agents	31,700 European ancestry cases, 192,342 European ancestry controls	31015401	2019	rs12494396	3	3p21.31	CDC25A	G	C	-0.050804816	0.008673469	6.00E-09
20	beta blocking agents	31,700 European ancestry cases, 192,343 European ancestry controls	31015401	2019	rs17042098	4	4q25	RP11-777N19.1	A	G	0.07974993	0.013520408	5.00E-09
21	beta blocking agents	31,700 European ancestry cases, 192,344 European ancestry controls	31015401	2019	rs664485	11	11q22.3	RP11-819C21.1	A	G	-0.062066164	0.010714286	5.00E-09
22	beta blocking agents	31,700 European ancestry cases, 192,345 European ancestry controls	31015401	2019	rs140570886	6	6q25.3	LPA	C	T	0.19912294	0.033163265	3.00E-09
23	beta blocking agents	31,700 European ancestry cases, 192,346 European ancestry controls	31015401	2019	rs185963	7	7q32.2	KLF14	T	NA	0.050627008	0.008418367	2.00E-09
24	beta blocking agents	31,700 European ancestry cases, 192,347 European ancestry controls	31015401	2019	rs6108787	20	20p12.2	C20orf187	G	T	0.0493109	0.008163265	2.00E-09
25	beta blocking agents	31,700 European ancestry cases, 192,348 European ancestry controls	31015401	2019	rs12906962	15	15q26.2	CTD-2576F9.2	C	T	0.054708365	0.008928571	1.00E-09
26	beta blocking agents	31,700 European ancestry cases, 192,349 European ancestry controls	31015401	2019	rs9286351	4	4q28.3	PCDH18	G	NA	0.05106684	0.008163265	1.00E-09
27	beta blocking agents	31,700 European ancestry cases, 192,350 European ancestry controls	31015401	2019	rs11646715	16	16q12.2	FTO	G	A	-0.05062956	0.008418367	8.00E-10
28	beta blocking agents	31,700 European ancestry cases, 192,351 European ancestry controls	31015401	2019	rs2493136	1	1q42.2	RP11-99J16_A.2	T	C	0.051549222	0.008418367	8.00E-10
29	beta blocking agents	31,700 European ancestry cases, 192,352 European ancestry controls	31015401	2019	rs13154066	5	5p13.3	AC026703.1	T	C	-0.052533343	0.008418367	4.00E-10
30	beta blocking agents	31,700 European ancestry cases, 192,353 European ancestry controls	31015401	2019	rs57748895	1	1p13.2	RP4-663N10.1	T	A	0.19561039	0.033163265	4.00E-10
31	beta blocking agents	31,700 European ancestry cases, 192,354 European ancestry controls	31015401	2019	rs55988870	3	3p24.1	SLC4A7	C	NA	-0.053607434	0.008418367	3.00E-10
32	beta blocking agents	31,700 European ancestry cases, 192,355 European ancestry controls	31015401	2019	rs2105092	6	6q23.2	RP4-662A9.2	A	G	-0.057990488	0.009183673	2.00E-10
33	beta blocking agents	31,700 European ancestry cases, 192,356 European ancestry controls	31015401	2019	rs604723	11	11q22.1	ARHGAP42	T	C	-0.06016691	0.009183673	1.00E-10
34	beta blocking agents	31,700 European ancestry cases, 192,357 European ancestry controls	31015401	2019	rs7368883	2	2p21	THADA	A	G	0.055433426	0.008418367	1.00E-10
35	beta blocking agents	31,700 European ancestry cases, 192,358 European ancestry controls	31015401	2019	rs77924615	16	16p12.3	PDILT	A	G	-0.06863889	0.010459184	7.00E-11

Table S1 (continued)

Table S1 (continued)

ID	Phenotype_simple	Initial_sample_description	PubMedID	Year	SNP	chr	Region	Gene	effect_allele	other_allele	beta	se	P value
36	beta blocking agents	31,700 European ancestry cases, 192,359 European ancestry controls	31015401	2019	rs10776752	1	1p13.2	WNT2B	T	G	0.10393464	0.015816327	6.00E-11
37	beta blocking agents	31,700 European ancestry cases, 192,360 European ancestry controls	31015401	2019	rs35429	12	12q24.21	RP11-25E2.1	G	NA	-0.05539161	0.008418367	6.00E-11
38	beta blocking agents	31,700 European ancestry cases, 192,361 European ancestry controls	31015401	2019	rs7076100	10	10p12.31	CACNB2	A	NA	-0.05556316	0.008418367	5.00E-11
39	beta blocking agents	31,700 European ancestry cases, 192,362 European ancestry controls	31015401	2019	rs17210692	10	10q21.2	C10orf107	A	G	-0.069548264	0.010459184	4.00E-11
40	beta blocking agents	31,700 European ancestry cases, 192,363 European ancestry controls	31015401	2019	rs1275988	2	2p23.3	KCNK3	C	T	0.05663824	0.008418367	3.00E-11
41	beta blocking agents	31,700 European ancestry cases, 192,364 European ancestry controls	31015401	2019	rs3735533	7	7p15.2	HOTTIP	T	C	-0.10431495	0.015561224	3.00E-11
42	beta blocking agents	31,700 European ancestry cases, 192,365 European ancestry controls	31015401	2019	rs17677603	5	5q23.3	FBN2	G	A	0.057320334	0.008418367	2.00E-11
43	beta blocking agents	31,700 European ancestry cases, 192,366 European ancestry controls	31015401	2019	rs258317	16	16q24.3	C16orf55	T	NA	-0.056158982	0.008418367	2.00E-11
44	beta blocking agents	31,700 European ancestry cases, 192,367 European ancestry controls	31015401	2019	rs7442660	5	5q33.3	RP11-542A14.1	A	G	-0.058263786	0.008673469	1.00E-11
45	beta blocking agents	31,700 European ancestry cases, 192,368 European ancestry controls	31015401	2019	rs36047283	19	19p13.2	INSR	G	A	-0.085640155	0.0125	7.00E-12
46	beta blocking agents	31,700 European ancestry cases, 192,369 European ancestry controls	31015401	2019	rs167479	19	19p13.2	RGL3	T	NA	-0.056873344	0.008163265	5.00E-12
47	beta blocking agents	31,700 European ancestry cases, 192,370 European ancestry controls	31015401	2019	rs78302204	20	20q13.32	ZNF831	A	G	0.0956007	0.013520408	1.00E-12
48	beta blocking agents	31,700 European ancestry cases, 192,371 European ancestry controls	31015401	2019	rs74617384	6	6q25.3	LPA	T	NA	0.110204026	0.015306122	4.00E-13
49	beta blocking agents	31,700 European ancestry cases, 192,372 European ancestry controls	31015401	2019	rs12046278	1	1p36.22	CASZ1	C	T	0.063121654	0.008673469	3.00E-13
50	beta blocking agents	31,700 European ancestry cases, 192,373 European ancestry controls	31015401	2019	rs62436821	6	6q22.33	RP11-73O6.4	A	G	0.060421277	0.008418367	3.00E-13
51	beta blocking agents	31,700 European ancestry cases, 192,374 European ancestry controls	31015401	2019	rs2050265	1	1p36.22	CLCN6	G	A	-0.08317471	0.01122449	7.00E-14
52	beta blocking agents	31,700 European ancestry cases, 192,375 European ancestry controls	31015401	2019	rs11066301	12	12q24.13	PTPN11	G	A	0.06485496	0.008163265	7.00E-15
53	beta blocking agents	31,700 European ancestry cases, 192,376 European ancestry controls	31015401	2019	rs1973765	11	11p15.5	LSP1	C	T	0.06669115	0.008418367	5.00E-15
54	beta blocking agents	31,700 European ancestry cases, 192,377 European ancestry controls	31015401	2019	rs6039216	20	20p12.3	PLCB1	C	T	-0.06730723	0.008418367	4.00E-15
55	beta blocking agents	31,700 European ancestry cases, 192,378 European ancestry controls	31015401	2019	rs2891168	9	9p21.3	CDKN2B-AS1	G	A	0.07148465	0.008418367	4.00E-18
56	beta blocking agents	31,700 European ancestry cases, 192,379 European ancestry controls	31015401	2019	rs3918226	7	7q36.1	NOS3	T	C	0.14636576	0.015306122	8.00E-21
57	beta blocking agents	31,700 European ancestry cases, 192,380 European ancestry controls	31015401	2019	rs7183988	15	15q26.1	FES	T	G	0.07811903	0.008163265	4.00E-21
58	beta blocking agents	31,700 European ancestry cases, 192,381 European ancestry controls	31015401	2019	rs7310615	12	12q24.12	SH2B3	C	G	0.07970556	0.008418367	8.00E-22
59	beta blocking agents	31,700 European ancestry cases, 192,382 European ancestry controls	31015401	2019	rs13125101	4	4q21.21	FGF5	A	G	0.097112074	0.009183673	2.00E-26

BBs, beta-blockers; SNP, single nucleotide polymorphism; se, standard error; NA, not available.

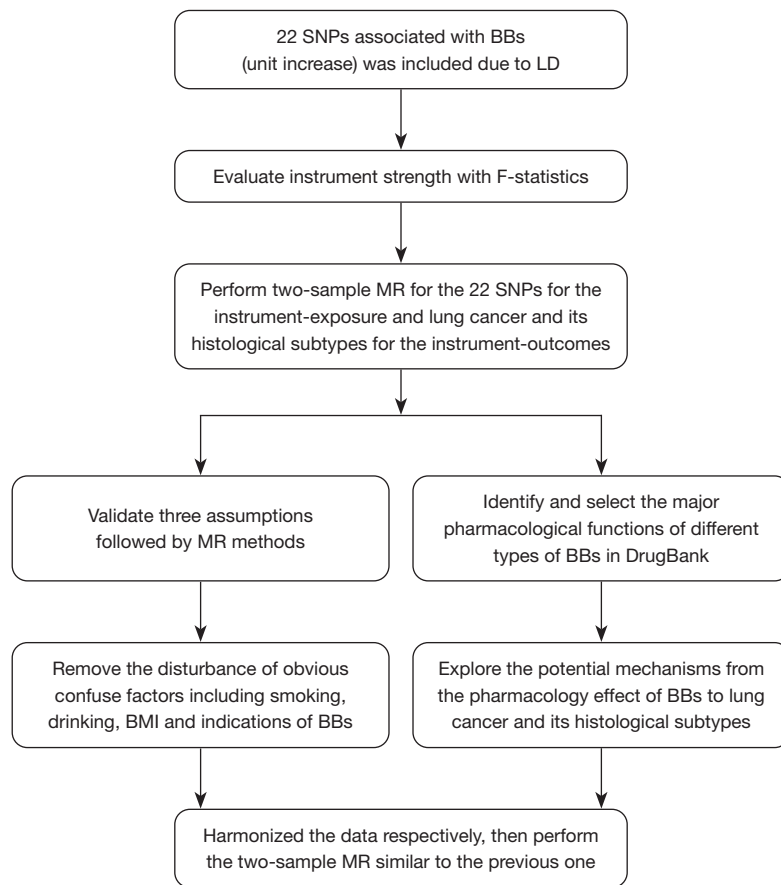


Figure S1 Process of conducting two-sample MR analysis in our study. SNP, single-nucleotide polymorphism; BBs, beta-blockers; LD, linkage disequilibrium; MR, Mendelian randomization; BMI, body mass index.

Table S2 Association of each SNP related to BBs and the risk of lung cancer and its subtypes

ID	Exposure	Outcome	id.exposure	id.outcome	Sample size	SNP	beta	se	P value
1	beta blocking agents (unit increase)	Lung adenocarcinoma id:ieu-a-965	qvMGUu	ieu-a-965	18336	rs10776752	0.877209947	0.524310278	0.09431271
2	beta blocking agents (unit increase)	Lung adenocarcinoma id:ieu-a-965	qvMGUu	ieu-a-965	18336	rs11023910	1.06335354	0.629242861	0.091048295
3	beta blocking agents (unit increase)	Lung adenocarcinoma id:ieu-a-965	qvMGUu	ieu-a-965	18336	rs12046278	-0.295087325	0.455390475	0.516993051
4	beta blocking agents (unit increase)	Lung adenocarcinoma id:ieu-a-965	qvMGUu	ieu-a-965	18336	rs1275988	-1.036469354	0.464068093	0.025519785
5	beta blocking agents (unit increase)	Lung adenocarcinoma id:ieu-a-965	qvMGUu	ieu-a-965	18336	rs13125101	-0.183822662	0.305914587	0.547909669
6	beta blocking agents (unit increase)	Lung adenocarcinoma id:ieu-a-965	qvMGUu	ieu-a-965	18336	rs1543927	-0.416648089	0.558081115	0.455321571
7	beta blocking agents (unit increase)	Lung adenocarcinoma id:ieu-a-965	qvMGUu	ieu-a-965	18336	rs17042098	0.457640527	0.531147802	0.388903959
8	beta blocking agents (unit increase)	Lung adenocarcinoma id:ieu-a-965	qvMGUu	ieu-a-965	18336	rs17677603	0.341487892	0.507952379	0.501403372
9	beta blocking agents (unit increase)	Lung adenocarcinoma id:ieu-a-965	qvMGUu	ieu-a-965	18336	rs1973765	-0.254230134	0.444766659	0.567590693
10	beta blocking agents (unit increase)	Lung adenocarcinoma id:ieu-a-965	qvMGUu	ieu-a-965	18336	rs2493136	-0.183741279	0.527631629	0.7276616
11	beta blocking agents (unit increase)	Lung adenocarcinoma id:ieu-a-965	qvMGUu	ieu-a-965	18336	rs2891168	-0.431387718	0.374374079	0.249201694
12	beta blocking agents (unit increase)	Lung adenocarcinoma id:ieu-a-965	qvMGUu	ieu-a-965	18336	rs3918226	-0.108970158	0.355670616	0.759315774
13	beta blocking agents (unit increase)	Lung adenocarcinoma id:ieu-a-965	qvMGUu	ieu-a-965	18336	rs4923536	-0.410931637	0.581034578	0.479416551
14	beta blocking agents (unit increase)	Lung adenocarcinoma id:ieu-a-965	qvMGUu	ieu-a-965	18336	rs57748895	-0.131249674	0.525345305	0.802714907
15	beta blocking agents (unit increase)	Lung adenocarcinoma id:ieu-a-965	qvMGUu	ieu-a-965	18336	rs6108787	-0.076801681	0.550243455	0.888993711
16	beta blocking agents (unit increase)	Lung adenocarcinoma id:ieu-a-965	qvMGUu	ieu-a-965	18336	rs62436821	-0.83741527	0.434383404	0.053876873
17	beta blocking agents (unit increase)	Lung adenocarcinoma id:ieu-a-965	qvMGUu	ieu-a-965	18336	rs7183988	-0.465378282	0.348493831	0.18174582
18	beta blocking agents (unit increase)	Lung adenocarcinoma id:ieu-a-965	qvMGUu	ieu-a-965	18336	rs7368883	0.498080346	0.529626294	0.346993274
19	beta blocking agents (unit increase)	Lung adenocarcinoma id:ieu-a-965	qvMGUu	ieu-a-965	18336	rs7652333	-0.372479472	0.608021684	0.540134997
20	beta blocking agents (unit increase)	Lung adenocarcinoma id:ieu-a-965	qvMGUu	ieu-a-965	18336	rs778124	-0.872238516	0.576078472	0.130001314
21	beta blocking agents (unit increase)	Lung adenocarcinoma id:ieu-a-965	qvMGUu	ieu-a-965	18336	rs78302204	-0.09663674	0.44250722	0.827129502
22	beta blocking agents (unit increase)	Lung adenocarcinoma id:ieu-a-965	qvMGUu	ieu-a-965	18336	rs9286351	0.343091525	0.560402798	0.540390176
23	beta blocking agents (unit increase)	Lung adenocarcinoma id:ieu-a-965	qvMGUu	ieu-a-965	18336	All—inverse variance weighted	-0.177878014	0.101267427	0.079000075
24	beta blocking agents (unit increase)	Lung adenocarcinoma id:ieu-a-965	qvMGUu	ieu-a-965	18336	All—MR Egger	0.08363088	0.338925363	0.807614396
25	beta blocking agents (unit increase)	Lung cancer id:ieu-a-966	qvMGUu	ieu-a-966	27209	rs10776752	0.390931262	0.322760535	0.225814368
26	beta blocking agents (unit increase)	Lung cancer id:ieu-a-966	qvMGUu	ieu-a-966	27209	rs11023910	0.610635759	0.403382639	0.130079641
27	beta blocking agents (unit increase)	Lung cancer id:ieu-a-966	qvMGUu	ieu-a-966	27209	rs12046278	-0.390602882	0.29503346	0.185527157
28	beta blocking agents (unit increase)	Lung cancer id:ieu-a-966	qvMGUu	ieu-a-966	27209	rs1275988	-0.352050134	0.313110012	0.260857949
29	beta blocking agents (unit increase)	Lung cancer id:ieu-a-966	qvMGUu	ieu-a-966	27209	rs13125101	-0.090332331	0.198492311	0.649042807
30	beta blocking agents (unit increase)	Lung cancer id:ieu-a-966	qvMGUu	ieu-a-966	27209	rs1543927	0.223175406	0.37745388	0.554342633
31	beta blocking agents (unit increase)	Lung cancer id:ieu-a-966	qvMGUu	ieu-a-966	27209	rs17042098	0.202062873	0.342119423	0.554774474
32	beta blocking agents (unit increase)	Lung cancer id:ieu-a-966	qvMGUu	ieu-a-966	27209	rs17677603	-0.564726298	0.315525028	0.073486272
33	beta blocking agents (unit increase)	Lung cancer id:ieu-a-966	qvMGUu	ieu-a-966	27209	rs1973765	-0.436699622	0.288838924	0.130555734
34	beta blocking agents (unit increase)	Lung cancer id:ieu-a-966	qvMGUu	ieu-a-966	27209	rs2493136	-0.01249693	0.347648312	0.971324583
35	beta blocking agents (unit increase)	Lung cancer id:ieu-a-966	qvMGUu	ieu-a-966	27209	rs2891168	-0.585799889	0.241296558	0.015194171
36	beta blocking agents (unit increase)	Lung cancer id:ieu-a-966	qvMGUu	ieu-a-966	27209	rs3918226	-0.438557488	0.226132123	0.052454346

Table S2 (continued)

Table S2 (continued)

ID	Exposure	Outcome	id.exposure	id.outcome	Sample size	SNP	beta	se	P value
37	beta blocking agents (unit increase)	Lung cancer id:ieu-a-966	qvMGUu	ieu-a-966	27209	rs4923536	-0.281284611	0.380347585	0.459575396
38	beta blocking agents (unit increase)	Lung cancer id:ieu-a-966	qvMGUu	ieu-a-966	27209	rs57748895	-0.07055249	0.35815071	0.84383453
39	beta blocking agents (unit increase)	Lung cancer id:ieu-a-966	qvMGUu	ieu-a-966	27209	rs6108787	0.18334709	0.363104304	0.613598652
40	beta blocking agents (unit increase)	Lung cancer id:ieu-a-966	qvMGUu	ieu-a-966	27209	rs62436821	-0.047568177	0.29605465	0.872350455
41	beta blocking agents (unit increase)	Lung cancer id:ieu-a-966	qvMGUu	ieu-a-966	27209	rs7183988	-0.15638059	0.231608099	0.499551993
42	beta blocking agents (unit increase)	Lung cancer id:ieu-a-966	qvMGUu	ieu-a-966	27209	rs7368883	0.054325706	0.339849101	0.872997319
43	beta blocking agents (unit increase)	Lung cancer id:ieu-a-966	qvMGUu	ieu-a-966	27209	rs7652333	-0.488963692	0.394525294	0.215207682
44	beta blocking agents (unit increase)	Lung cancer id:ieu-a-966	qvMGUu	ieu-a-966	27209	rs778124	-0.77710935	0.377506129	0.039538863
45	beta blocking agents (unit increase)	Lung cancer id:ieu-a-966	qvMGUu	ieu-a-966	27209	rs78302204	-0.288232199	0.27999795	0.303287875
46	beta blocking agents (unit increase)	Lung cancer id:ieu-a-966	qvMGUu	ieu-a-966	27209	rs9286351	0.269100262	0.363817303	0.459507734
47	beta blocking agents (unit increase)	Lung cancer id:ieu-a-966	qvMGUu	ieu-a-966	27209	All—inverse variance weighted	-0.181331167	0.068489315	0.008106938
48	beta blocking agents (unit increase)	Lung cancer id:ieu-a-966	qvMGUu	ieu-a-966	27209	All—MR Egger	-0.197186511	0.232418258	0.406248522
49	beta blocking agents (unit increase)	Squamous cell lung cancer id:ieu-a-967	qvMGUu	ieu-a-967	18313	rs10776752	0.267054372	0.481870145	0.579439227
50	beta blocking agents (unit increase)	Squamous cell lung cancer id:ieu-a-967	qvMGUu	ieu-a-967	18313	rs11023910	0.635244255	0.623856549	0.308557394
51	beta blocking agents (unit increase)	Squamous cell lung cancer id:ieu-a-967	qvMGUu	ieu-a-967	18313	rs12046278	-0.530507328	0.447453421	0.235774517
52	beta blocking agents (unit increase)	Squamous cell lung cancer id:ieu-a-967	qvMGUu	ieu-a-967	18313	rs1275988	-0.307977437	0.48262446	0.523388668
53	beta blocking agents (unit increase)	Squamous cell lung cancer id:ieu-a-967	qvMGUu	ieu-a-967	18313	rs13125101	-0.02546604	0.307201759	0.933933605
54	beta blocking agents (unit increase)	Squamous cell lung cancer id:ieu-a-967	qvMGUu	ieu-a-967	18313	rs1543927	0.619758661	0.589795455	0.293349212
55	beta blocking agents (unit increase)	Squamous cell lung cancer id:ieu-a-967	qvMGUu	ieu-a-967	18313	rs17042098	0.089983653	0.516677569	0.861741109
56	beta blocking agents (unit increase)	Squamous cell lung cancer id:ieu-a-967	qvMGUu	ieu-a-967	18313	rs17677603	-0.820180148	0.478556179	0.086553729
57	beta blocking agents (unit increase)	Squamous cell lung cancer id:ieu-a-967	qvMGUu	ieu-a-967	18313	rs1973765	-0.181173964	0.452428846	0.688827004
58	beta blocking agents (unit increase)	Squamous cell lung cancer id:ieu-a-967	qvMGUu	ieu-a-967	18313	rs2493136	-0.125430797	0.530192289	0.812985703
59	beta blocking agents (unit increase)	Squamous cell lung cancer id:ieu-a-967	qvMGUu	ieu-a-967	18313	rs2891168	-1.596384678	0.344717362	3.64E-06
60	beta blocking agents (unit increase)	Squamous cell lung cancer id:ieu-a-967	qvMGUu	ieu-a-967	18313	rs3918226	-0.888349844	0.325479128	0.006345731
61	beta blocking agents (unit increase)	Squamous cell lung cancer id:ieu-a-967	qvMGUu	ieu-a-967	18313	rs4923536	0.235037289	0.596228681	0.693428504
62	beta blocking agents (unit increase)	Squamous cell lung cancer id:ieu-a-967	qvMGUu	ieu-a-967	18313	rs57748895	-0.351031456	0.508367679	0.489875391
63	beta blocking agents (unit increase)	Squamous cell lung cancer id:ieu-a-967	qvMGUu	ieu-a-967	18313	rs6108787	0.580981081	0.567075434	0.305588932
64	beta blocking agents (unit increase)	Squamous cell lung cancer id:ieu-a-967	qvMGUu	ieu-a-967	18313	rs62436821	0.083221346	0.454641169	0.85476003
65	beta blocking agents (unit increase)	Squamous cell lung cancer id:ieu-a-967	qvMGUu	ieu-a-967	18313	rs7183988	-0.488550613	0.348250612	0.160655371
66	beta blocking agents (unit increase)	Squamous cell lung cancer id:ieu-a-967	qvMGUu	ieu-a-967	18313	rs7368883	0.422111742	0.528688232	0.42463066
67	beta blocking agents (unit increase)	Squamous cell lung cancer id:ieu-a-967	qvMGUu	ieu-a-967	18313	rs7652333	-0.90427324	0.590870245	0.125915481
68	beta blocking agents (unit increase)	Squamous cell lung cancer id:ieu-a-967	qvMGUu	ieu-a-967	18313	rs778124	-1.437915984	0.560792244	0.01034498
69	beta blocking agents (unit increase)	Squamous cell lung cancer id:ieu-a-967	qvMGUu	ieu-a-967	18313	rs78302204	-0.255809842	0.421639172	0.544047886
70	beta blocking agents (unit increase)	Squamous cell lung cancer id:ieu-a-967	qvMGUu	ieu-a-967	18313	rs9286351	-0.030807467	0.547047752	0.955090181
71	beta blocking agents (unit increase)	Squamous cell lung cancer id:ieu-a-967	qvMGUu	ieu-a-967	18313	All—inverse variance weighted	-0.339150449	0.130649605	0.009434953
72	beta blocking agents (unit increase)	Squamous cell lung cancer id:ieu-a-967	qvMGUu	ieu-a-967	18313	All—MR Egger	-0.628483423	0.429530721	0.158955754

SNP, single nucleotide polymorphism; BBs, beta-blockers; se, standard error; MR, Mendelian randomization.

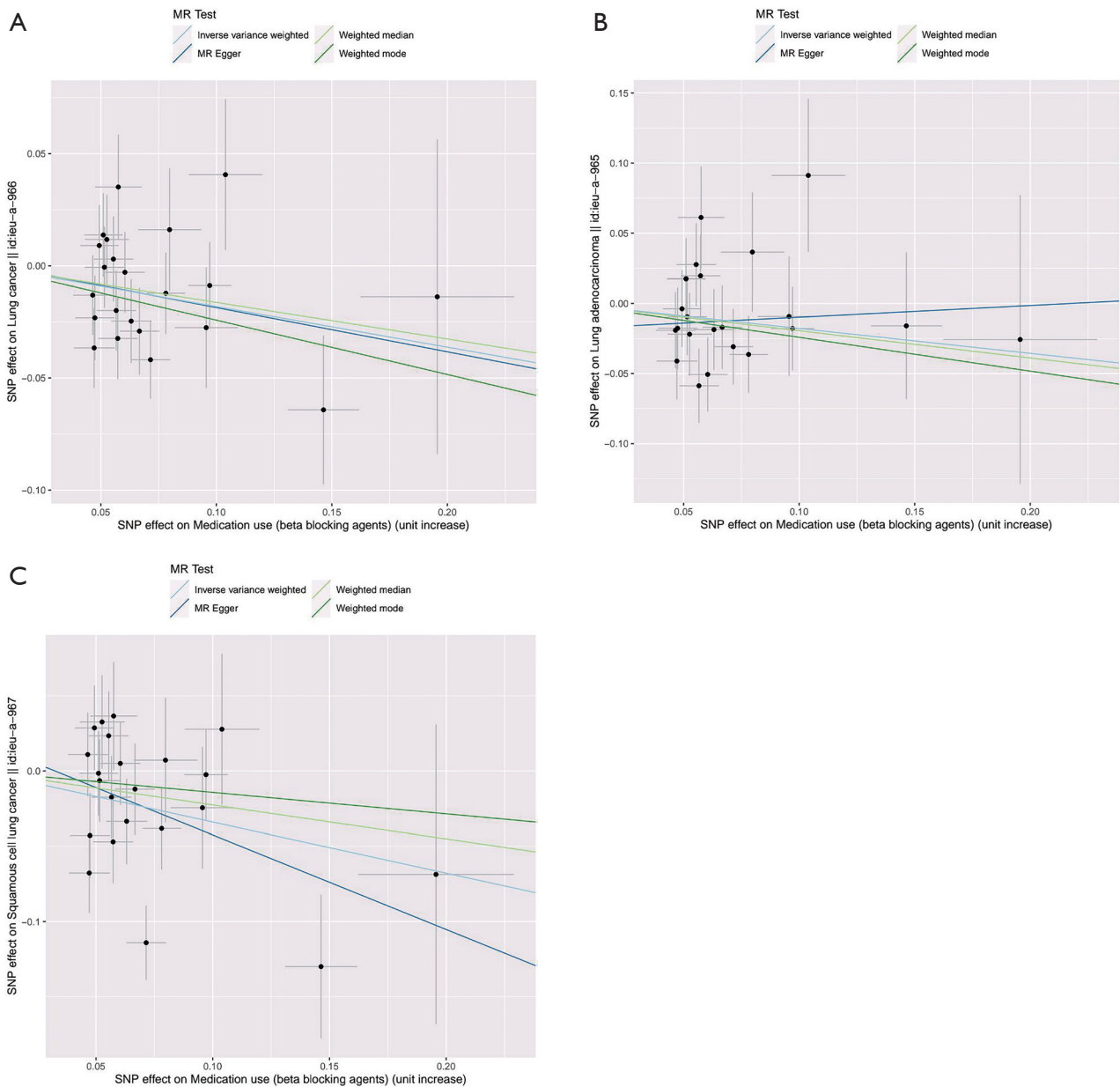


Figure S2 Scatter plot of SNP-specific effects. (A) Scatter plot of SNP-specific effects for the associations with BBs and lung cancer. (B) Scatter plot of SNP-specific effects for the associations with BBs and lung adenocarcinoma. (C) Scatter plot of SNP-specific effects for the associations with BBs and squamous cell lung cancer. MR, Mendelian randomization; SNP, single nucleotide polymorphism; BBs, beta-blockers.

Table S3 Leave-one-out sensitivity analysis for lung cancer and its histological subtypes in each BBs

ID	Exposure	Outcome	id.exposure	id.outcome	Sample size	SNP	beta	se	P value
1	beta blocking agents (unit increase)	Lung adenocarcinoma id:i eu-a-965	qvMGUu	ieu-a-965	18336	rs10776752	-0.2170454	0.10101977	0.031670573
2	beta blocking agents (unit increase)	Lung adenocarcinoma id:i eu-a-965	qvMGUu	ieu-a-965	18336	rs11023910	-0.2095101	0.10045138	0.037007003
3	beta blocking agents (unit increase)	Lung adenocarcinoma id:i eu-a-965	qvMGUu	ieu-a-965	18336	rs12046278	-0.1720397	0.10615218	0.105084305
4	beta blocking agents (unit increase)	Lung adenocarcinoma id:i eu-a-965	qvMGUu	ieu-a-965	18336	rs1275988	-0.136771	0.1015422	0.178000457
5	beta blocking agents (unit increase)	Lung adenocarcinoma id:i eu-a-965	qvMGUu	ieu-a-965	18336	rs13125101	-0.1771795	0.10969417	0.106264404
6	beta blocking agents (unit increase)	Lung adenocarcinoma id:i eu-a-965	qvMGUu	ieu-a-965	18336	rs1543927	-0.1700885	0.10499096	0.105225832
7	beta blocking agents (unit increase)	Lung adenocarcinoma id:i eu-a-965	qvMGUu	ieu-a-965	18336	rs17042098	-0.2008447	0.10198441	0.048911014
8	beta blocking agents (unit increase)	Lung adenocarcinoma id:i eu-a-965	qvMGUu	ieu-a-965	18336	rs17677603	-0.1984699	0.10314472	0.054330921
9	beta blocking agents (unit increase)	Lung adenocarcinoma id:i eu-a-965	qvMGUu	ieu-a-965	18336	rs1973765	-0.1738814	0.10637403	0.102128277
10	beta blocking agents (unit increase)	Lung adenocarcinoma id:i eu-a-965	qvMGUu	ieu-a-965	18336	rs2493136	-0.1776632	0.10565183	0.092648135
11	beta blocking agents (unit increase)	Lung adenocarcinoma id:i eu-a-965	qvMGUu	ieu-a-965	18336	rs2891168	-0.1587364	0.1063952	0.135712087
12	beta blocking agents (unit increase)	Lung adenocarcinoma id:i eu-a-965	qvMGUu	ieu-a-965	18336	rs3918226	-0.18369	0.10795525	0.088841977
13	beta blocking agents (unit increase)	Lung adenocarcinoma id:i eu-a-965	qvMGUu	ieu-a-965	18336	rs4923536	-0.1708815	0.10491488	0.103363118
14	beta blocking agents (unit increase)	Lung adenocarcinoma id:i eu-a-965	qvMGUu	ieu-a-965	18336	rs57748895	-0.1796019	0.1056493	0.089134328
15	beta blocking agents (unit increase)	Lung adenocarcinoma id:i eu-a-965	qvMGUu	ieu-a-965	18336	rs6108787	-0.1812733	0.10541258	0.085495201
16	beta blocking agents (unit increase)	Lung adenocarcinoma id:i eu-a-965	qvMGUu	ieu-a-965	18336	rs62436821	-0.1415924	0.10188754	0.164622236
17	beta blocking agents (unit increase)	Lung adenocarcinoma id:i eu-a-965	qvMGUu	ieu-a-965	18336	rs7183988	-0.1525311	0.10639872	0.151692031
18	beta blocking agents (unit increase)	Lung adenocarcinoma id:i eu-a-965	qvMGUu	ieu-a-965	18336	rs7368883	-0.2024518	0.10148184	0.046047716
19	beta blocking agents (unit increase)	Lung adenocarcinoma id:i eu-a-965	qvMGUu	ieu-a-965	18336	rs7652333	-0.1725569	0.10492421	0.100055291
20	beta blocking agents (unit increase)	Lung adenocarcinoma id:i eu-a-965	qvMGUu	ieu-a-965	18336	rs778124	-0.1566614	0.10167477	0.123363251
21	beta blocking agents (unit increase)	Lung adenocarcinoma id:i eu-a-965	qvMGUu	ieu-a-965	18336	rs78302204	-0.1821764	0.10639165	0.08683789
22	beta blocking agents (unit increase)	Lung adenocarcinoma id:i eu-a-965	qvMGUu	ieu-a-965	18336	rs9286351	-0.1947288	0.1032618	0.059324948
23	beta blocking agents (unit increase)	Lung adenocarcinoma id:i eu-a-965	qvMGUu	ieu-a-965	18336	All	-0.177878	0.10126743	0.079000075
24	beta blocking agents (unit increase)	Lung cancer id:i eu-a-966	qvMGUu	ieu-a-966	27209	rs10776752	-0.2051563	0.06648527	0.002030461
25	beta blocking agents (unit increase)	Lung cancer id:i eu-a-966	qvMGUu	ieu-a-966	27209	rs11023910	-0.2021289	0.06536896	0.001987303
26	beta blocking agents (unit increase)	Lung cancer id:i eu-a-966	qvMGUu	ieu-a-966	27209	rs12046278	-0.1708178	0.0711142	0.016304759
27	beta blocking agents (unit increase)	Lung cancer id:i eu-a-966	qvMGUu	ieu-a-966	27209	rs1275988	-0.173759	0.07124805	0.014736554
28	beta blocking agents (unit increase)	Lung cancer id:i eu-a-966	qvMGUu	ieu-a-966	27209	rs13125101	-0.1920845	0.073842	0.009287387
29	beta blocking agents (unit increase)	Lung cancer id:i eu-a-966	qvMGUu	ieu-a-966	27209	rs1543927	-0.1935089	0.06942543	0.005315078
30	beta blocking agents (unit increase)	Lung cancer id:i eu-a-966	qvMGUu	ieu-a-966	27209	rs17042098	-0.195473	0.06946874	0.004895557
31	beta blocking agents (unit increase)	Lung cancer id:i eu-a-966	qvMGUu	ieu-a-966	27209	rs17677603	-0.1645964	0.06932176	0.017578292
32	beta blocking agents (unit increase)	Lung cancer id:i eu-a-966	qvMGUu	ieu-a-966	27209	rs1973765	-0.1679166	0.07073736	0.017605888
33	beta blocking agents (unit increase)	Lung cancer id:i eu-a-966	qvMGUu	ieu-a-966	27209	rs2493136	-0.1873553	0.07105206	0.008367417
34	beta blocking agents (unit increase)	Lung cancer id:i eu-a-966	qvMGUu	ieu-a-966	27209	rs2891168	-0.1501787	0.06801576	0.02724436
35	beta blocking agents (unit increase)	Lung cancer id:i eu-a-966	qvMGUu	ieu-a-966	27209	rs3918226	-0.1585297	0.07101177	0.025585689

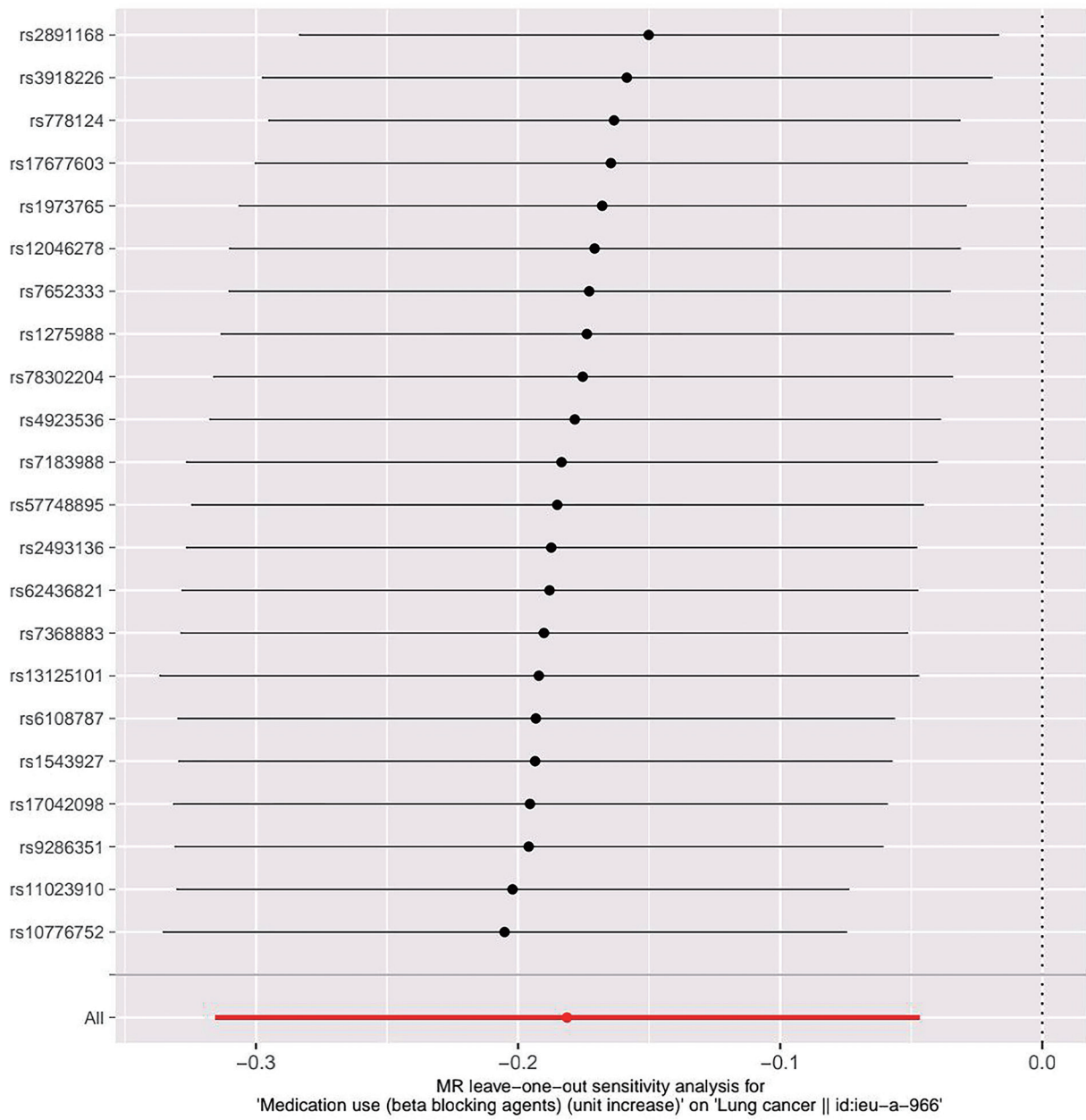
Table S3 (continued)

Table S3 (continued)

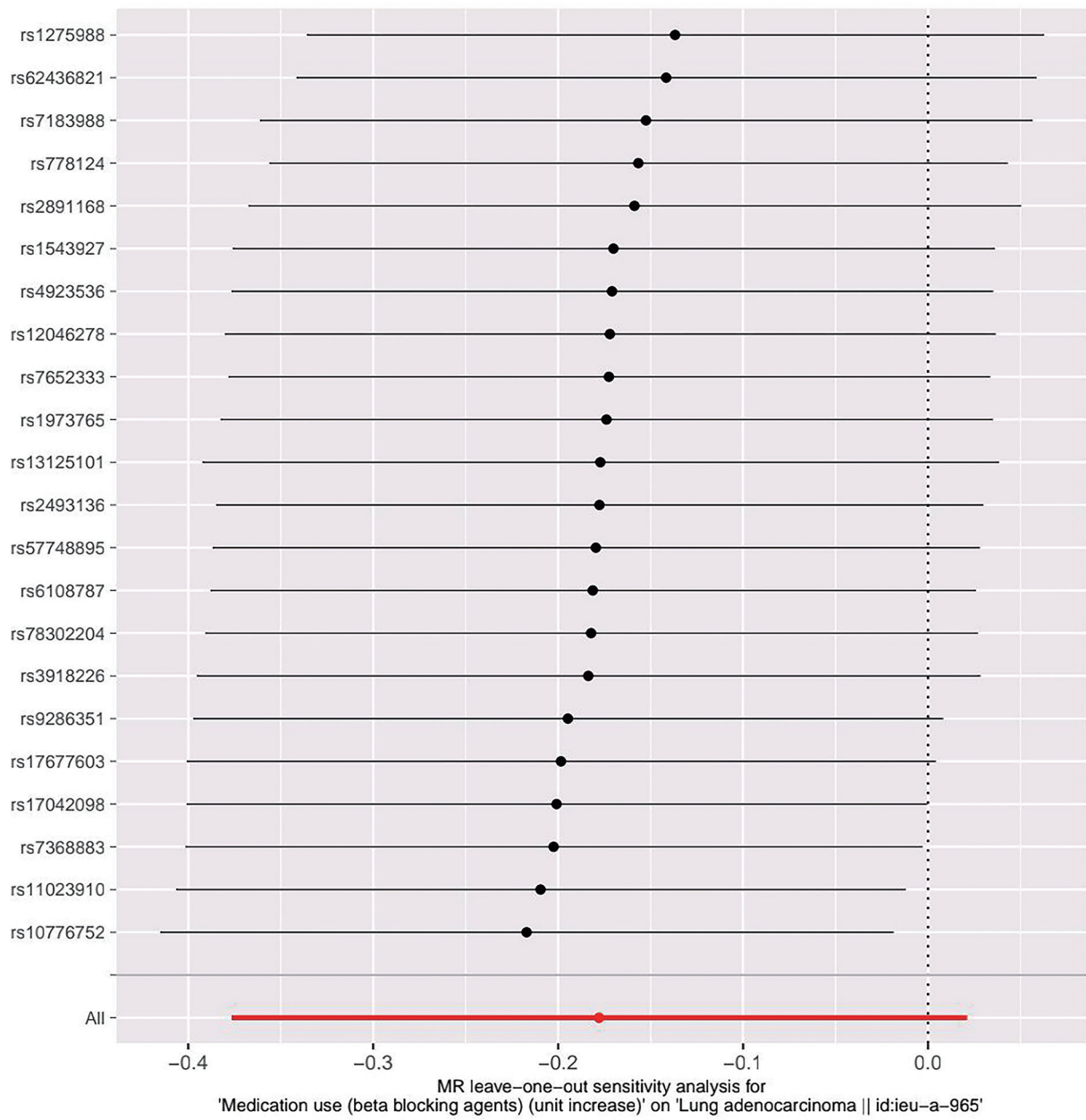
ID	Exposure	Outcome	id.exposure	id.outcome	Sample size	SNP	beta	se	P value
36	beta blocking agents (unit increase)	Lung cancer id:ieu-a-966	qvMGUu	ieu-a-966	27209	rs4923536	-0.178369	0.07110588	0.012124529
37	beta blocking agents (unit increase)	Lung cancer id:ieu-a-966	qvMGUu	ieu-a-966	27209	rs57748895	-0.1850477	0.07119895	0.009348947
38	beta blocking agents (unit increase)	Lung cancer id:ieu-a-966	qvMGUu	ieu-a-966	27209	rs6108787	-0.1932236	0.06972824	0.005586817
39	beta blocking agents (unit increase)	Lung cancer id:ieu-a-966	qvMGUu	ieu-a-966	27209	rs62436821	-0.1880025	0.07158303	0.00863044
40	beta blocking agents (unit increase)	Lung cancer id:ieu-a-966	qvMGUu	ieu-a-966	27209	rs7183988	-0.1834308	0.07305454	0.012043227
41	beta blocking agents (unit increase)	Lung cancer id:ieu-a-966	qvMGUu	ieu-a-966	27209	rs7368883	-0.1901445	0.07072339	0.007175972
42	beta blocking agents (unit increase)	Lung cancer id:ieu-a-966	qvMGUu	ieu-a-966	27209	rs7652333	-0.1728756	0.07019307	0.013783446
43	beta blocking agents (unit increase)	Lung cancer id:ieu-a-966	qvMGUu	ieu-a-966	27209	rs778124	-0.1634004	0.06725582	0.015118213
44	beta blocking agents (unit increase)	Lung cancer id:ieu-a-966	qvMGUu	ieu-a-966	27209	rs78302204	-0.1753352	0.07188696	0.014726311
45	beta blocking agents (unit increase)	Lung cancer id:ieu-a-966	qvMGUu	ieu-a-966	27209	rs9286351	-0.1959606	0.06888479	0.004444503
46	beta blocking agents (unit increase)	Lung cancer id:ieu-a-966	qvMGUu	ieu-a-966	27209	All	-0.1813312	0.06848932	0.008106938
47	beta blocking agents (unit increase)	Squamous cell lung cancer id:ieu-a-967	qvMGUu	ieu-a-967	18313	rs10776752	-0.3649474	0.13367984	0.006333221
48	beta blocking agents (unit increase)	Squamous cell lung cancer id:ieu-a-967	qvMGUu	ieu-a-967	18313	rs11023910	-0.3634716	0.13097957	0.005519751
49	beta blocking agents (unit increase)	Squamous cell lung cancer id:ieu-a-967	qvMGUu	ieu-a-967	18313	rs12046278	-0.3296418	0.13681332	0.015977579
50	beta blocking agents (unit increase)	Squamous cell lung cancer id:ieu-a-967	qvMGUu	ieu-a-967	18313	rs1275988	-0.3404727	0.13667793	0.012736321
51	beta blocking agents (unit increase)	Squamous cell lung cancer id:ieu-a-967	qvMGUu	ieu-a-967	18313	rs13125101	-0.3741709	0.13897171	0.007093453
52	beta blocking agents (unit increase)	Squamous cell lung cancer id:ieu-a-967	qvMGUu	ieu-a-967	18313	rs1543927	-0.366009	0.13077071	0.005128326
53	beta blocking agents (unit increase)	Squamous cell lung cancer id:ieu-a-967	qvMGUu	ieu-a-967	18313	rs17042098	-0.3549471	0.13502263	0.008568754
54	beta blocking agents (unit increase)	Squamous cell lung cancer id:ieu-a-967	qvMGUu	ieu-a-967	18313	rs17677603	-0.3183835	0.13481657	0.018196009
55	beta blocking agents (unit increase)	Squamous cell lung cancer id:ieu-a-967	qvMGUu	ieu-a-967	18313	rs1973765	-0.3468204	0.13685552	0.011270171
56	beta blocking agents (unit increase)	Squamous cell lung cancer id:ieu-a-967	qvMGUu	ieu-a-967	18313	rs2493136	-0.3466078	0.13588855	0.010751392
57	beta blocking agents (unit increase)	Squamous cell lung cancer id:ieu-a-967	qvMGUu	ieu-a-967	18313	rs2891168	-0.2301823	0.10969311	0.035867988
58	beta blocking agents (unit increase)	Squamous cell lung cancer id:ieu-a-967	qvMGUu	ieu-a-967	18313	rs3918226	-0.2851871	0.13437415	0.033809543
59	beta blocking agents (unit increase)	Squamous cell lung cancer id:ieu-a-967	qvMGUu	ieu-a-967	18313	rs4923536	-0.3548785	0.13397691	0.008077727
60	beta blocking agents (unit increase)	Squamous cell lung cancer id:ieu-a-967	qvMGUu	ieu-a-967	18313	rs57748895	-0.3386981	0.1363995	0.013023237
61	beta blocking agents (unit increase)	Squamous cell lung cancer id:ieu-a-967	qvMGUu	ieu-a-967	18313	rs6108787	-0.3670934	0.13092927	0.005051155
62	beta blocking agents (unit increase)	Squamous cell lung cancer id:ieu-a-967	qvMGUu	ieu-a-967	18313	rs62436821	-0.3594484	0.1354062	0.007940397
63	beta blocking agents (unit increase)	Squamous cell lung cancer id:ieu-a-967	qvMGUu	ieu-a-967	18313	rs7183988	-0.3264851	0.13906673	0.018890411
64	beta blocking agents (unit increase)	Squamous cell lung cancer id:ieu-a-967	qvMGUu	ieu-a-967	18313	rs7368883	-0.3658699	0.13228429	0.005678595
65	beta blocking agents (unit increase)	Squamous cell lung cancer id:ieu-a-967	qvMGUu	ieu-a-967	18313	rs7652333	-0.3233808	0.13403318	0.015835194
66	beta blocking agents (unit increase)	Squamous cell lung cancer id:ieu-a-967	qvMGUu	ieu-a-967	18313	rs778124	-0.3050074	0.12862998	0.017730422
67	beta blocking agents (unit increase)	Squamous cell lung cancer id:ieu-a-967	qvMGUu	ieu-a-967	18313	rs78302204	-0.3438438	0.13751889	0.012407472
68	beta blocking agents (unit increase)	Squamous cell lung cancer id:ieu-a-967	qvMGUu	ieu-a-967	18313	rs9286351	-0.3492353	0.13545632	0.009931257
69	beta blocking agents (unit increase)	Squamous cell lung cancer id:ieu-a-967	qvMGUu	ieu-a-967	18313	All	-0.3391504	0.13064961	0.009434953

BBs, beta-blockers; SNP, single nucleotide polymorphism; se, standard error.

A



B



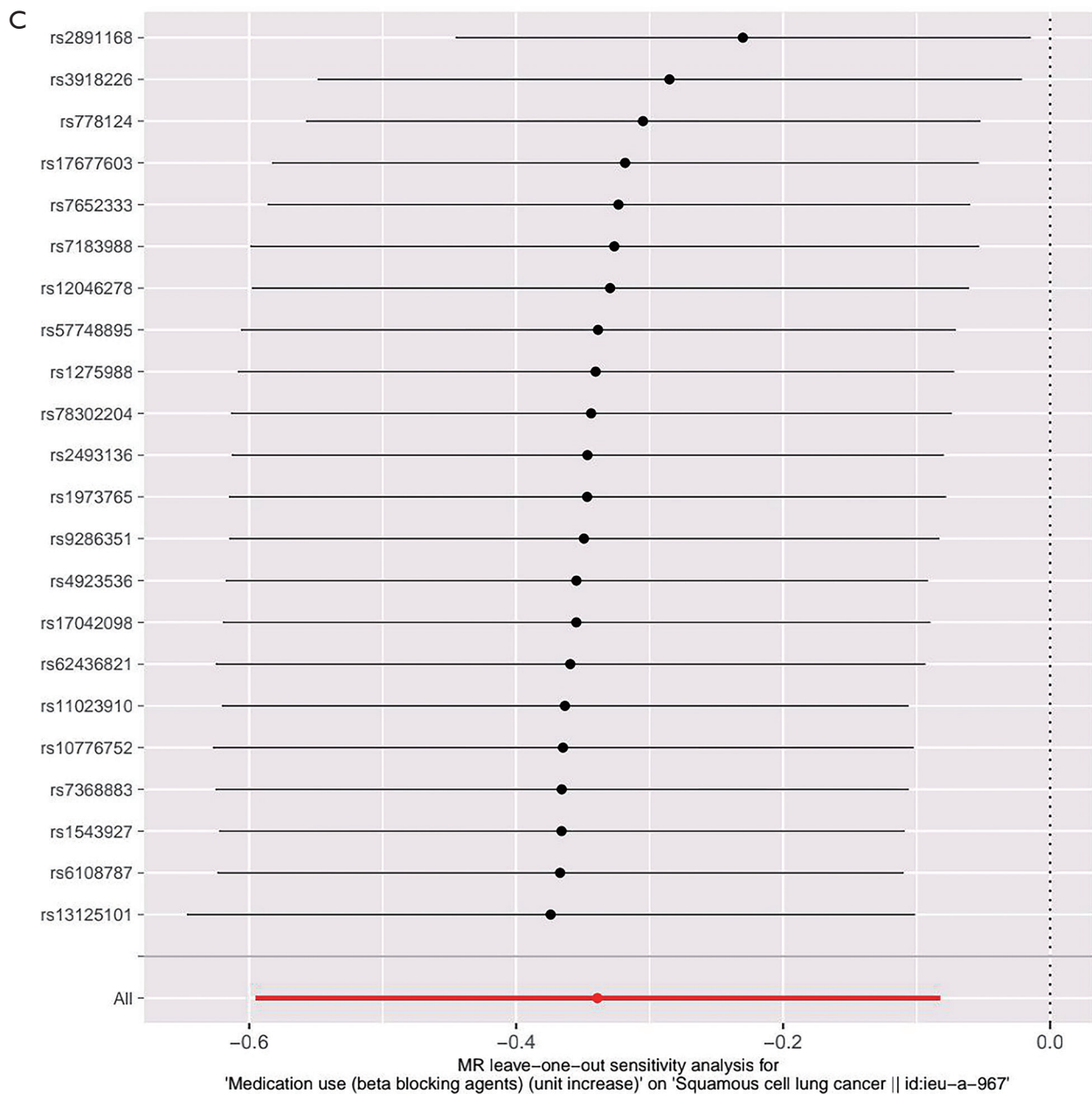


Figure S3 Leave-one-out analysis of SNP-specific effects. (A) Leave-one-out analysis of SNP-specific effects for the associations with BBs and lung cancer. (B) Leave-one-out analysis of SNP-specific effects for the associations with BBs and lung adenocarcinoma. (C) Leave-one-out analysis of SNP-specific effects for the associations with BBs and squamous cell lung cancer. MR, Mendelian randomization; SNP, single nucleotide polymorphism; BBs, beta-blockers.