

Supplementary

Table S1 Lung cancer-related diseases definition and extraction in the UKB

Respiratory diseases	ICD-10 (data fields: 41270)
Asthma	J45
COPD	J44
Emphysema	J43
Fibrosis	J84.1
Pneumonia	J18
Bronchiectasis	J47
Acute bronchitis	J20, J21, J22
Chronic bronchitis	J40, J41, J42, Data-Field 22129
Tuberculosis	A15

UKB, UK Biobank; ICD-10, International Classification of Diseases version 10; COPD, chronic obstructive pulmonary disease.

Table S2 Study population included in the study

Ethnic background	Total number of UKB participants	Number of WES participants included
White British	442,510	401,277
White Irish	13,201	11,916
Any other white background	16,327	14,741
Total	472,038	427,934

UKB, UK Biobank; WES, whole-exome sequencing.

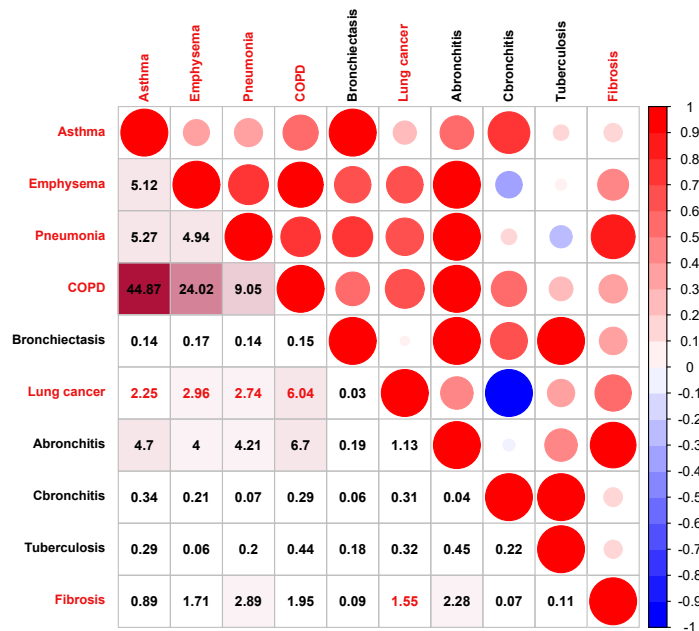


Figure S1 Estimated genetic correlation of ten common respiratory diseases with the LDSC method. The significance of genetic correlation ($-\log_{10}P$) is shown on the bottom triangle and the top triangle indicates the magnitude of the genetic correlation. Diseases related to lung cancer are marked in red. COPD, chronic obstructive pulmonary disease; LDSC, linkage disequilibrium score regression.

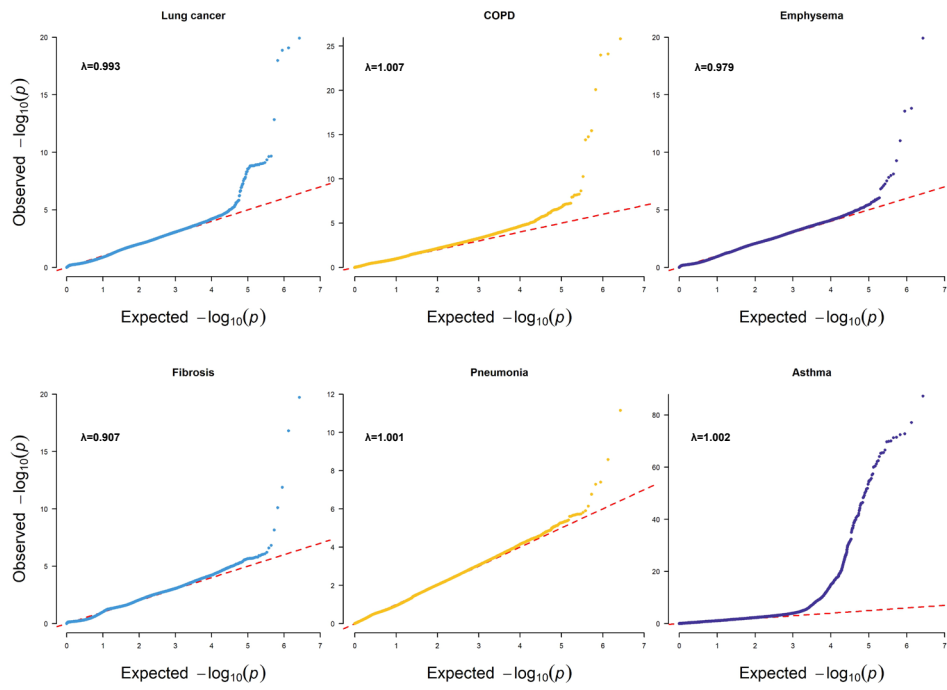


Figure S2 Quantile-quantile plots of association P values for the six lung cancer-related diseases, genomic inflation factor λ are indicated in the figures. COPD, chronic obstructive pulmonary disease.

Table S3 Association results for independent single variants with $P < 5 \times 10^{-8}$ in the whole UKB-450k population

MarkerID	CHR	Gene	Type	MAC	MAF	BETA	SE	P	Diseases
6:32519337:T>G	6	<i>HLA-DRB5</i>	Intron	591,148	0.693	0.05	0.01	1.85E-17	Asthma
6:32519337:T>G	6	<i>HLA-DRB5</i>	Intron	591,148	0.693	0.06	0.01	5.61E-09	COPD
15:78596058:G>A	15	<i>CHRNA3</i>	Intron	239,508	0.281	-0.08	0.01	5.69E-11	COPD
15:78596058:G>A	15	<i>CHRNA3</i>	Intron	239,508	0.281	-0.16	0.03	7.55E-09	Emphysema
15:78596058:G>A	15	<i>CHRNA3</i>	Intron	239,508	0.281	-0.13	0.02	1.99E-08	Lung cancer
15:78618839:T>C	15	<i>CHRNA3</i>	Missense	334,561	0.392	0.12	0.01	1.49E-26	COPD
15:78618839:T>C	15	<i>CHRNA3</i>	Missense	334,561	0.392	0.19	0.02	1.22E-20	Lung cancer
15:78618839:T>C	15	<i>CHRNA3</i>	Missense	334,561	0.392	0.17	0.03	1.01E-11	Emphysema
15:78590583:G>A	15	<i>CHRNA5</i>	Missense	281,566	0.330	0.20	0.02	8.41E-20	Lung cancer
15:78590583:G>A	15	<i>CHRNA5</i>	Missense	281,566	0.330	0.12	0.01	7.97E-25	COPD
1:152305146:G>T	1	<i>FLG</i>	Missense	3,282	0.004	0.41	0.08	4.59E-08	Asthma
1:152312600:CACTG>C	1	<i>FLG</i>	LOF	20,403	0.024	0.24	0.03	7.04E-16	Asthma
1:152313385:G>A	1	<i>FLG</i>	Synonymous	20,451	0.024	0.23	0.03	8.12E-15	Asthma
2:102340888:C>T	2	<i>IL1RL1</i>	Intron	117,370	0.138	-0.10	0.01	3.98E-11	Asthma
2:168834219:T>C	2	<i>NOSTRIN</i>	Intron	49,448	0.058	0.22	0.02	3.08E-41	Asthma
2:178444419:TA>T	2	<i>PRKRA</i>	LOF	11,915	0.014	0.31	0.04	8.17E-15	Asthma
2:241742614:T>C	2	<i>D2HGDH</i>	Intron	215,750	0.253	-0.07	0.01	4.82E-09	Asthma
2:97158166:T>G	2	<i>ANKRD36</i>	Missense	4,179	0.005	0.41	0.07	2.08E-09	Asthma
4:122456327:C>A	3	<i>IL2</i>	Synonymous	281,389	0.330	0.05	0.01	2.33E-10	Asthma
3:10048054:A>G	3	<i>FANCD2</i>	Intron	331,784	0.389	-0.08	0.01	1.43E-09	Asthma
4:122207746:T>A	4	<i>KIAA1109</i>	Intron	60,319	0.071	0.10	0.01	4.36E-11	Asthma
4:15985886:T>TTTAAAG	4	<i>PROM1</i>	Intron	764,978	0.897	-0.11	0.01	3.47E-31	Asthma
5:111073450:C>G	5	<i>TSLP</i>	Intron	52,130	0.061	-0.11	0.02	2.79E-12	Asthma
5:1280362:G>A	5	<i>TERT</i>	Intron	108,034	0.127	0.18	0.03	4.86E-09	Lung cancer
5:1325688:A>G	5	<i>CLPTM1L</i>	Intron	374,186	0.439	-0.12	0.02	1.21E-09	Lung cancer
5:132660272:A>G	5	<i>IL13</i>	Missense	698,387	0.819	-0.08	0.01	5.64E-18	Asthma
5:14610200:C>G	5	<i>OTULINL</i>	Missense	65,800	0.077	0.08	0.01	8.09E-09	Asthma
6:30108978:G>A	6	<i>TRIM31</i>	Intron	355,740	0.417	0.04	0.01	2.70E-08	Asthma
6:30720650:G>T	6	<i>TUBB</i>	Intron	184,859	0.217	0.05	0.01	8.71E-09	Asthma
6:31355235:G>A	6	<i>HLA-B</i>	Intron	201,440	0.236	0.05	0.01	2.36E-09	Asthma
6:31529929:C>T	6	<i>MCCD1</i>	Missense	634,093	0.744	0.07	0.01	1.21E-14	Asthma
6:31557961:TG>T	6	<i>NFKBIL1</i>	Intron	17,343	0.020	0.15	0.03	4.10E-08	Asthma
6:31795067:G>T	6	<i>VAR51</i>	Synonymous	357,625	0.420	0.05	0.01	3.54E-10	Asthma
6:31896897:T>C	6	<i>EHMT2</i>	Intron	51,055	0.060	0.13	0.02	7.42E-17	Asthma
6:32058330:C>T	6	<i>TNXB</i>	Missense	602,416	0.707	0.08	0.01	7.69E-20	Asthma
6:32402869:A>G	6	<i>BTNL2</i>	Intron	55,488	0.065	-0.09	0.02	2.26E-09	Asthma
6:32519576:T>C	6	<i>HLA-DRB5</i>	Missense	319,195	0.374	-0.06	0.01	9.30E-16	Asthma
6:32522199:C>T	6	<i>HLA-DRB5</i>	Intron	71,181	0.084	0.12	0.01	5.49E-28	Asthma
6:32530151:G>C	6	<i>HLA-DRB5</i>	Missense	38,291	0.045	-0.11	0.02	4.17E-09	Asthma

Table S3 (continued)

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MarkerID	CHR	Gene	Type	MAC	MAF	BETA	SE	P	Diseases
6:32642197:T>G	6	<i>HLA-DQA1</i>	Missense	86,184	0.101	0.07	0.01	2.66E-11	Asthma
6:32642282:T>G	6	<i>HLA-DQA1</i>	Intron	434,622	0.510	0.12	0.01	1.81E-73	Asthma
6:32642841:G>GGA	6	<i>HLA-DQA1</i>	Intron	60,745	0.071	0.07	0.01	7.73E-09	Asthma
6:32660268:C>G	6	<i>HLA-DQB1</i>	Intron	203,106	0.238	-0.05	0.01	2.03E-16	Asthma
6:32661417:G>A	6	<i>HLA-DQB1</i>	Missense	49,493	0.058	0.11	0.02	2.57E-11	Asthma
6:32661482:T>C	6	<i>HLA-DQB1</i>	Intron	14,797	0.017	0.15	0.02	4.40E-09	Asthma
6:32664780:A>C	6	<i>HLA-DQB1</i>	Intron	16,044	0.019	0.13	0.02	1.42E-08	Asthma
6:32664824:G>T	6	<i>HLA-DQB1</i>	Missense	53,136	0.062	0.07	0.01	2.62E-10	Asthma
6:32665000:C>T	6	<i>HLA-DQB1</i>	Missense	101,067	0.119	-0.10	0.01	6.98E-27	Asthma
6:32665043:C>G	6	<i>HLA-DQB1</i>	Missense	190,623	0.224	0.09	0.01	2.69E-32	Asthma
6:32759189:C>T	6	<i>HLA-DQB2</i>	Intron	185,349	0.217	0.07	0.01	6.60E-11	Asthma
6:32828569:T>C	6	<i>TAP2</i>	Intron	210,056	0.246	-0.08	0.01	1.15E-18	Asthma
6:32830032:C>T	6	<i>TAP2</i>	Synonymous	85,105	0.100	0.11	0.01	1.70E-19	Asthma
6:32837693:C>G	6	<i>TAP2</i>	Intron	362,951	0.426	0.06	0.01	3.34E-13	Asthma
6:32850253:T>C	6	<i>TAP1</i>	Intron	21,290	0.025	0.15	0.02	1.05E-09	Asthma
8:28058313:T>C	8	<i>NUGGC</i>	Intron	673,465	0.790	-0.04	0.01	4.65E-09	Asthma
9:6255967:G>C	9	<i>IL33</i>	LOF	3,933	0.005	-0.43	0.06	8.58E-14	Asthma
9:5073770:G>T	9	<i>JAK2</i>	Missense	297	0.000	1.83	0.27	7.14E-12	Pneumonia
8:86556416:T>G	8	<i>CNGB3</i>	Intron	69,714	0.082	0.20	0.01	7.48E-78	Asthma
10:7292138:G>A	10	<i>SFMBT2</i>	Intron	87,377	0.103	0.18	0.01	6.53E-88	Asthma
11:1167980:C>T	11	<i>MUC5AC</i>	Synonymous	34,324	0.040	0.79	0.09	1.98E-20	Fibrosis
11:61781553:G>A	11	<i>MYRF</i>	Intron	294,003	0.345	-0.05	0.01	4.28E-09	Asthma
11:73969150:C>T	11	<i>DNAJB13</i>	Intron	4,084	0.005	0.34	0.05	2.59E-10	Asthma
11:75727692:G>A	11	<i>MOGAT2</i>	Intron	18,052	0.021	0.15	0.03	6.37E-09	Asthma
12:57099944:T>G	12	<i>STAT6</i>	Intron	91,006	0.107	-0.10	0.01	6.65E-15	Asthma
14:33367284:AAAG>A	14	<i>NPAS3</i>	Intron	2,794	0.003	0.41	0.07	1.27E-09	Asthma
14:94378610:C>T	14	<i>SERPINA1</i>	Missense	16,875	0.020	0.83	0.09	1.20E-20	Emphysema
15:67165147:G>C	15	<i>SMAD3</i>	Intron	565,282	0.663	0.05	0.01	2.18E-11	Asthma
15:78596440:AT>A	15	<i>CHRNA5</i>	Intron	241,793	0.284	-0.13	0.02	1.95E-08	Lung cancer
16:10969079:C>T	16	<i>CLEC16A</i>	Intron	172,756	0.203	-0.05	0.01	2.19E-08	Asthma
16:27345038:C>T	16	<i>IL4R</i>	Intron	305,939	0.359	0.06	0.01	5.20E-14	Asthma
17:39905964:C>T	17	<i>GSDMB</i>	Synonymous	432,680	0.508	-0.07	0.01	2.25E-20	Asthma
17:39990010:GA>G	17	<i>PSMD3</i>	Intron	330,442	0.388	0.04	0.01	2.49E-08	Asthma
17:44848191:C>T	17	<i>HIGD1B</i>	LOF	61,511	0.072	0.21	0.01	5.22E-72	Asthma
17:76736877:G>A	17	<i>SRSF2</i>	Missense	41	0.000	4.40	0.74	2.69E-09	Pneumonia
19:8914908:T>G	19	<i>MUC16</i>	Intron	20,753	0.024	0.18	0.02	5.39E-13	Asthma
22:41387655:C>T	22	<i>TEF</i>	Missense	195,978	0.230	0.06	0.01	4.76E-11	Asthma

UKB, UK Biobank; CHR, chromosome; MAC, minor allele count; MAF, minor allele frequency; BETA, effect size of allele; SE, standard error of BETA; COPD, chronic obstructive pulmonary disease; LOF, loss-of-function.

Table S4 Association results of gene-based tests with $P < 1 \times 10^{-5}$

Gene	Genetic model	Max_MAF	BETA	SE	Number_rare	Number_ultra_rare	P	Diseases
<i>SRSF2</i>	Missense; LOF	0.0001	-0.002	0.001	6	52	7.36E-15	Pneumonia
<i>TNXB</i>	Missense; LOF; synonymous	0.01	0.026	0.006	804	2221	2.42E-07	Asthma
<i>TERT</i>	Missense; LOF	0.001	0.010	0.002	56	375	3.85E-07	Fibrosis
<i>HSD3B7</i>	Missense; LOF; synonymous	0.001	0.002	0.001	72	221	7.73E-07	Lung cancer
<i>C6orf10</i>	Missense; LOF; synonymous	0.01	0.010	0.003	48	190	9.40E-07	Asthma
<i>LMNA</i>	Missense; LOF	0.001	0.005	0.001	61	198	1.06E-06	Fibrosis
<i>JAK2</i>	Missense; LOF	0.001	-0.008	0.002	74	455	2.47E-06	Pneumonia
<i>MOSPD3</i>	Missense; LOF; synonymous	0.0001	0.012	0.006	35	137	2.72E-06	Emphysema
<i>LACRT</i>	Missense; LOF; synonymous	0.0001	0.006	0.002	20	75	6.81E-06	COPD
<i>NOTCH4</i>	Missense; LOF; synonymous	0.01	-0.002	0.000	253	999	8.20E-06	Asthma
<i>HLA-DQA2</i>	Missense; LOF; synonymous	0.01	-0.002	0.001	39	95	8.28E-06	Asthma
<i>TTK</i>	Missense; LOF	0.01	-0.005	0.002	62	257	8.95E-06	Asthma
<i>TARM1</i>	Missense; LOF	0.01	0.003	0.002	37	98	9.16E-06	Lung cancer
<i>SPINK7</i>	Missense; LOF; synonymous	0.0001	0.001	0.001	16	52	9.42E-06	Asthma
<i>ZNF274</i>	Missense; LOF; synonymous	0.01	0.000	0.000	77	311	1.01E-05	Emphysema
<i>C10orf71</i>	Missense; LOF	0.0001	0.001	0.001	146	543	1.03E-05	COPD
<i>ZNF330</i>	Missense; LOF	0.01	0.006	0.002	22	106	1.04E-05	Asthma
<i>COL5A2</i>	Missense; LOF	0.01	0.008	0.005	115	487	1.09E-05	Emphysema
<i>DTNA</i>	Missense; LOF; synonymous	0.001	0.012	0.003	111	348	1.14E-05	Fibrosis
<i>SLC39A5</i>	Missense; LOF	0.0001	-0.011	0.003	53	201	1.31E-05	Fibrosis
<i>DPM2</i>	Missense; LOF; synonymous	0.0001	0.002	0.002	15	88	1.45E-05	Emphysema
<i>PHB</i>	Missense; LOF; synonymous	0.0001	0.001	0.001	20	116	1.53E-05	Emphysema
<i>VKORC1</i>	Missense; LOF; synonymous	0.001	0.010	0.003	46	216	1.71E-05	Pneumonia
<i>TSN</i>	Missense; LOF; synonymous	0.0001	0.016	0.004	11	76	1.78E-05	Asthma
<i>HEPACAM2</i>	Missense; LOF; synonymous	0.01	0.003	0.001	53	228	1.83E-05	Lung cancer
<i>LYL1</i>	Missense; LOF; synonymous	0.0001	0.005	0.001	35	178	1.88E-05	Fibrosis
<i>PSMB6</i>	Missense; LOF; synonymous	0.01	0.011	0.003	21	135	2.00E-05	COPD
<i>CPNE1</i>	Missense; LOF	0.01	0.002	0.001	65	198	2.05E-05	Asthma
<i>ELF2</i>	Missense; LOF; synonymous	0.01	0.012	0.005	55	227	2.11E-05	Asthma
<i>CATSPER3</i>	Missense; LOF	0.01	0.021	0.005	39	149	2.19E-05	Pneumonia
<i>CD79B</i>	Missense; LOF	0.0001	-0.005	0.001	16	82	2.29E-05	Lung cancer
<i>D2HGDH</i>	Missense; LOF; synonymous	0.0001	0.011	0.004	101	315	2.59E-05	Pneumonia
<i>SLFN5</i>	Missense; LOF	0.01	0.011	0.003	96	277	2.67E-05	Asthma
<i>LCE2C</i>	Missense; LOF; synonymous	0.01	0.048	0.012	32	75	2.80E-05	Emphysema
<i>OR2T8</i>	Missense; LOF	0.0001	0.032	0.007	28	78	2.87E-05	Lung cancer
<i>ESPL1</i>	Missense; LOF	0.01	0.014	0.003	127	576	3.15E-05	Emphysema
<i>DNAJC17</i>	Missense; LOF; synonymous	0.0001	0.006	0.002	34	146	3.31E-05	Fibrosis
<i>THNSL1</i>	Missense; LOF; synonymous	0.0001	0.045	0.013	70	338	3.33E-05	Asthma
<i>OR6S1</i>	Missense; LOF; synonymous	0.0001	0.045	0.010	55	170	3.42E-05	Lung cancer

Table S4 (continued)

Table S4 (continued)

Gene	Genetic model	Max_MAF	BETA	SE	Number_rare	Number_ultra_rare	P	Diseases
<i>RECK</i>	Missense; LOF	0.01	0.010	0.003	71	291	3.80E-05	Emphysema
<i>TMEM241</i>	Missense; LOF; synonymous	0.001	0.021	0.007	31	121	4.00E-05	Lung cancer
<i>CD37</i>	Missense; LOF; synonymous	0.001	0.030	0.009	43	153	4.12E-05	Asthma
<i>OR2M4</i>	Missense; LOF	0.0001	0.022	0.006	27	103	4.15E-05	Pneumonia
<i>IGFN1</i>	Missense; LOF; synonymous	0.0001	0.034	0.008	535	1906	4.15E-05	Pneumonia
<i>WDR19</i>	Missense; LOF	0.01	0.024	0.007	116	391	4.18E-05	Asthma
<i>GET4</i>	Missense; LOF; synonymous	0.001	0.025	0.005	100	259	4.20E-05	Emphysema
<i>HLA-DRB1</i>	Missense; LOF; synonymous	0.01	0.037	0.013	91	53	4.26E-05	Asthma
<i>KLHL11</i>	Missense; LOF	0.01	0.013	0.007	26	207	4.27E-05	Emphysema
<i>GPR45</i>	Missense; LOF	0.001	0.057	0.014	28	119	4.32E-05	COPD
<i>TEX29</i>	Missense; LOF; synonymous	0.0001	0.011	0.004	26	84	4.57E-05	Asthma
<i>OR2T4</i>	Missense; LOF	0.01	0.019	0.004	43	109	4.87E-05	Pneumonia
<i>OR13F1</i>	Missense; LOF	0.001	0.030	0.007	32	105	4.95E-05	COPD
<i>C6orf15</i>	Missense; LOF; synonymous	0.01	0.016	0.004	64	161	4.95E-05	Asthma
<i>DTWD2</i>	Missense; LOF; synonymous	0.001	0.035	0.009	51	216	4.97E-05	Pneumonia
<i>SGMS1</i>	Missense; LOF; synonymous	0.001	0.017	0.005	38	160	5.15E-05	Asthma
<i>PLG</i>	Missense; LOF	0.01	0.047	0.011	84	254	5.15E-05	COPD
<i>ZNF233</i>	Missense; LOF; synonymous	0.01	0.020	0.005	68	254	5.69E-05	Emphysema
<i>FAM163B</i>	Missense; LOF	0.001	0.059	0.014	34	72	5.69E-05	Lung cancer
<i>CD38</i>	Missense; LOF	0.001	0.034	0.010	33	95	6.38E-05	Asthma
<i>NDST3</i>	Missense; LOF	0.001	0.013	0.004	43	237	6.38E-05	Asthma
<i>GPX2</i>	Missense; LOF; synonymous	0.01	0.021	0.007	41	101	6.65E-05	Lung cancer
<i>TPP1</i>	Missense; LOF	0.01	0.045	0.013	63	184	6.68E-05	Asthma
<i>UIMC1</i>	Missense; LOF; synonymous	0.001	0.022	0.006	85	325	6.70E-05	Asthma
<i>S100A13</i>	Missense; LOF	0.0001	0.016	0.004	10	31	6.88E-05	Pneumonia
<i>ELAVL1</i>	Missense; LOF; synonymous	0.01	0.010	0.004	43	116	7.23E-05	Emphysema
<i>PTCHD3</i>	Missense; LOF; synonymous	0.0001	0.035	0.010	103	449	7.28E-05	Pneumonia
<i>SPHK2</i>	Missense; LOF	0.01	0.034	0.009	69	327	7.31E-05	Lung cancer
<i>PTCHD3</i>	Missense; LOF; synonymous	0.0001	0.039	0.010	103	449	7.40E-05	Lung cancer
<i>ARL8A</i>	Missense; LOF; synonymous	0.001	0.052	0.012	14	67	7.42E-05	Pneumonia
<i>PLCB3</i>	Missense; LOF	0.01	0.021	0.010	100	436	7.53E-05	Asthma
<i>RETN</i>	Missense; LOF; synonymous	0.0001	0.029	0.006	17	65	7.83E-05	Lung cancer
<i>YPEL4</i>	Missense; LOF	0.0001	0.052	0.012	5	39	7.85E-05	COPD
<i>ATP2A3</i>	Missense; LOF	0.01	0.025	0.009	115	417	8.18E-05	Asthma
<i>TEDDM1</i>	Missense; LOF	0.0001	-0.004	0.001	18	93	8.20E-05	Lung cancer
<i>CDH8</i>	Missense; LOF	0.01	0.022	0.006	54	285	8.28E-05	Pneumonia
<i>RAD17</i>	Missense; LOF	0.0001	0.020	0.006	49	202	8.43E-05	Emphysema
<i>FAIM2</i>	Missense; LOF	0.01	0.006	0.001	26	104	8.45E-05	Asthma
<i>KCNK17</i>	Missense; LOF	0.0001	0.013	0.003	37	160	8.46E-05	COPD

Table S4 (continued)

Table S4 (continued)

Gene	Genetic model	Max_MAF	BETA	SE	Number_rare	Number_ultra_rare	P	Diseases
<i>CCNY</i>	Missense; LOF; synonymous	0.001	0.006	0.003	42	176	8.50E-05	Emphysema
<i>ELL</i>	Missense; LOF	0.01	0.007	0.002	74	238	8.71E-05	COPD
<i>SZT2</i>	Missense; LOF; synonymous	0.01	-0.008	0.002	453	1765	8.79E-05	Asthma
<i>LY6G6C</i>	Missense; LOF	0.01	0.007	0.003	15	39	8.94E-05	Asthma
<i>ANXA8</i>	Missense; LOF	0.0001	0.009	0.003	22	52	8.95E-05	Asthma
<i>ARHGDI3</i>	Missense; LOF	0.001	0.014	0.004	33	93	9.11E-05	Fibrosis
<i>RCAN2</i>	Missense; LOF; synonymous	0.01	0.008	0.002	38	149	9.19E-05	Pneumonia
<i>POT1</i>	Missense; LOF	0.001	0.052	0.008	33	203	9.45E-05	Lung cancer
<i>FBXO27</i>	Missense; LOF	0.001	0.013	0.004	29	99	9.60E-05	Pneumonia

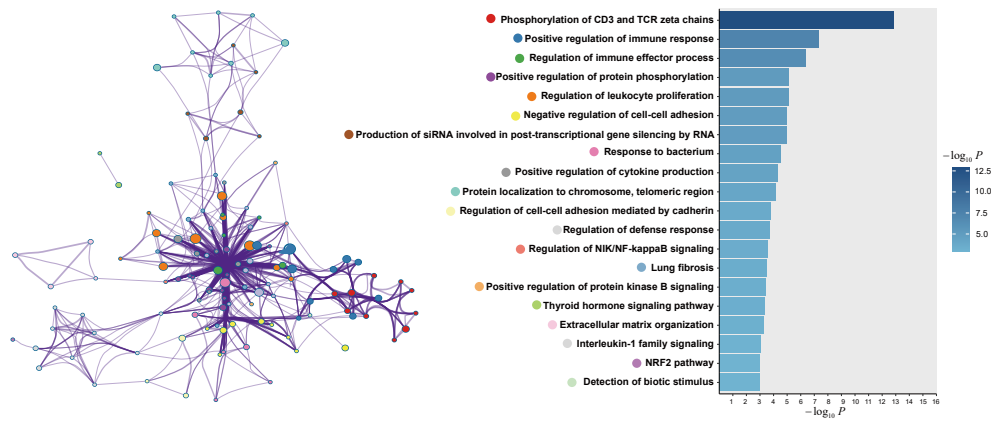
Max_MAF, maximum MAF cutoff; MAF, minor allele frequency; BETA, effect size of allele; SE, standard error of BETA; number_rare, number of markers that are not ultra-rare with MAC >10; number_ultra_rare: number of markers that are ultra-rare with MAC ≤10; MAC, minor allele count; LOF, loss-of-function; COPD, chronic obstructive pulmonary disease.

Table S5 AUC of PGSs used for mediation analyses

PGS based on shared variants	AUC	95% CI	P
PGS_AS	0.536	0.533–0.539	4.70E-207
PGS_COPD	0.543	0.539–0.547	1.46E-278
PGS_EM	0.562	0.553–0.571	2.76E-318
PGS_FI	0.544	0.533–0.556	2.89E-130
PGS_PN	0.524	0.520–0.528	2.83E-149

AUC, area under the receiver operator characteristic curve; PGS, polygenic score; CI, confidence interval; AS, asthma; COPD, chronic obstructive pulmonary disease; EM, emphysema; FI, fibrosis; PN, pneumonia.

A



B

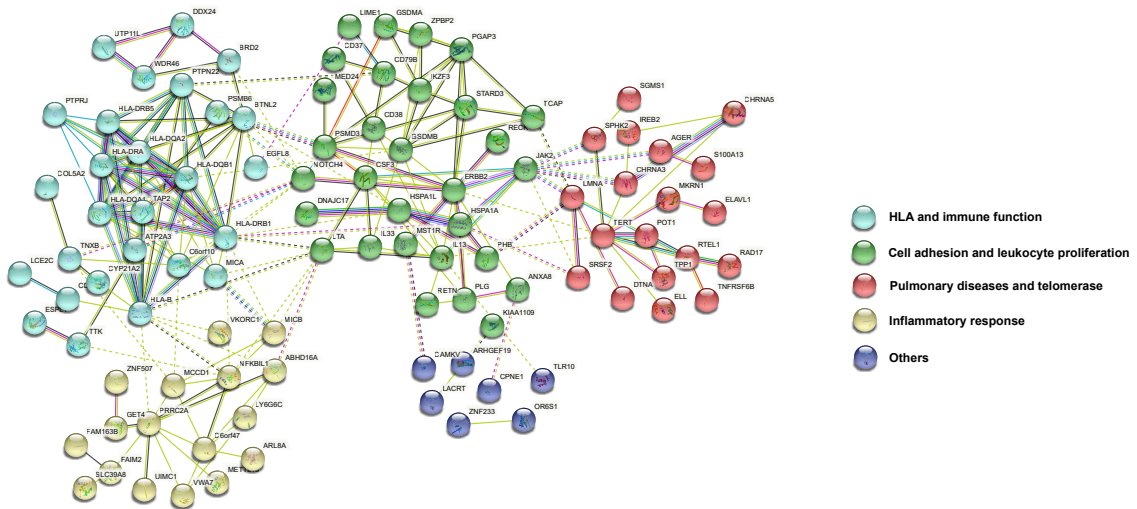


Figure S3 Genetic functional analysis. (A) Left of figure shows the clustering process of the significant enrichment pathway, and those with the same color are grouped into the same class. The most statistically significant term within a cluster is chosen to exhibit in nearby bar plot. (B) Protein-protein interaction network of the signal genes and pleiotropic genes. HLA, human leukocyte antigen.