Supplementary Table 1: Characteristics of CWP cases and controls among GWAS and replication stages

Variables		GWAS		Replication	
		Case (n=202)	Control (n=198)	Case (n=703)	Control (n=705)
Exposure years (mean ±SD)		25.89±7.91	28.52±8.41	24.91±8.54	25.47±7.05
Smoking status					
	Never	68 (33.66)	62 (31.31)	374 (53.20)	343 (48.65)
	Ever	134 (66.34)	136 (68.69)	329 (46.80)	362 (51.35)
Stage					
	I	132 (65.34)		431 (61.31)	
	II	43 (21.29)		209 (29.73)	
	III	27 (13.37)		63 (8.96)	

Supplementary Table 2: Associations of instrumental SNPs in the GWAS stages

Disease	SNP	Chr	Pos	EAF[a]	Effect Allele	Other	OR (95%CI)[b]	*P*[b]
Asthma	rs301819	1	8501786	0.17	A	G	1.00 (0.68 -1.49)	0.993
Asthma	rs7517302	1	25254317	0.44	T	C	1.19 (0.91 -1.57)	0.21
Asthma	rs3828058	1	151786281	0.11	A	G	0.93 (0.66 -1.32)	0.678
Asthma	rs12123821	1	152179152	0.00	NA	NA	NA(NA-NA)	NA
Asthma	rs61816761	1	152285861	0.00	NA	NA	NA(NA-NA)	NA

Asthma	rs4845774	1	152445621	0.40	T	C	1.00 (0.72 -1.38)	0.997
Asthma	rs72702900	1	152771963	0.00	NA	NA	NA(NA-NA)	NA
Asthma	rs115813648	1	152921586	0.00	NA	NA	NA(NA-NA)	NA
Asthma	rs2070901	1	161185058	0.45	G	T	1.01 (0.77 -1.33)	0.94
Asthma	rs7523907	1	167427247	0.06	C	T	0.72 (0.44 -1.19)	0.199
Asthma	rs76181804	1	198601705	0.00	NA	NA	NA(NA-NA)	NA
Asthma	rs903361	1	203091274	0.38	G	A	1.06 (0.80 -1.41)	0.688
Asthma	rs10178845	2	8443803	0.30	A	G	1.01 (0.73 -1.42)	0.934
Asthma	rs13022699	2	102287835	0.00	NA	NA	NA(NA-NA)	NA
Asthma	rs13427957	2	102689031	0.23	T	C	0.74 (0.53 -1.04)	0.084
Asthma	rs10515922	2	102914654	0.16	G	A	1.23 (0.82 -1.85)	0.313
Asthma	rs72823641	2	102936159	0.01	A	T	2.15 (0.71 -6.51)	0.174
Asthma	rs2241116	2	103003265	0.24	A	C	1.11 (0.76 -1.60)	0.6
Asthma	rs34290285	2	242698640	0.12	NA	NA	NA(NA-NA)	NA
Asthma	rs35570272	3	33047662	0.49	T	G	1.03 (0.78 -1.37)	0.818
Asthma	rs79337446	3	33088785	0.25	T	C	1.13 (0.80 -1.61)	0.484
Asthma	rs7626218	3	176852038	0.33	A	T	0.81 (0.59 -1.12)	0.204
Asthma	rs9852988	3	188045016	0.35	G	A	0.99 (0.71 -1.36)	0.935
Asthma	rs13099273	3	188133518	0.33	A	T	0.80 (0.59 -1.08)	0.137
Asthma	rs73194495	3	188328476	0.00	NA	NA	NA(NA-NA)	NA
Asthma	rs17670280	3	188400239	0.05	C	G	1.60 (0.86 -2.96)	0.136
Asthma	rs112336433	3	196349004	0.00	NA	NA	NA(NA-NA)	NA
Asthma	rs1684466	3	196359310	0.32	G	A	1.13 (0.85 -1.50)	0.396
Asthma	rs10021288	4	123005534	0.12	A	G	1.19 (0.75 -1.91)	0.463
Asthma	rs138538714	4	123115272	0.00	NA	NA	NA(NA-NA)	NA

Asthma	rs45613035	4	123141070	0.01	NA	NA	NA(NA-NA)	NA
Asthma	rs16903574	5	14610309	0.00	NA	NA	NA(NA-NA)	NA
Asthma	rs4594881	5	35846815	0.18	T	G	0.90 (0.60 -1.35)	0.606
Asthma	rs17513503	5	110146446	0.00	NA	NA	NA(NA-NA)	NA
Asthma	rs10056243	5	110259077	0.17	A	G	1.30 (0.87 -1.94)	0.206
Asthma	rs62375550	5	110387125	0.00	NA	NA	NA(NA-NA)	NA
Asthma	rs1837253	5	110401872	0.39	C	T	0.77 (0.58 -1.03)	0.076
Asthma	rs149096812	5	110418241	0.00	NA	NA	NA(NA-NA)	NA
Asthma	rs6594500	5	110470994	0.22	A	G	0.90 (0.64 -1.28)	0.567
Asthma	rs72793573	5	110564273	0.07	A	G	1.05 (0.61 -1.81)	0.864
Asthma	rs10478040	5	110590399	0.04	T	C	0.94 (0.34 -2.64)	0.911
Asthma	rs3813308	5	118690781	0.50	G	C	0.96 (0.72 -1.27)	0.767
Asthma	rs1023518	5	131793772	0.33	T	G	1.35 (1.00 -1.82)	0.053
Asthma	rs4705959	5	131865791	0.34	C	T	1.12 (0.84 -1.49)	0.443
Asthma	rs115008099	5	131991881	0.18	T	C	0.97 (0.66 -1.45)	0.894
Asthma	rs142117234	5	132008536	0.00	NA	NA	NA(NA-NA)	NA
Asthma	rs17510339	5	132029414	0.48	C	T	0.87 (0.65 -1.16)	0.34
Asthma	rs9327638	5	132069706	0.00	NA	NA	NA(NA-NA)	NA
Asthma	rs12655443	5	141467856	0.27	A	C	1.06 (0.77 -1.46)	0.734
Asthma	rs114357009	6	28965512	0.01	A	G	1.76 (0.50 -6.23)	0.38
Asthma	rs2428494	6	31322197	0.39	A	T	1.31 (0.99 -1.75)	0.064
Asthma	rs34437781	6	31324955	0.21	T	C	1.43 (1.00 -2.06)	0.053
Asthma	rs3093539	6	31538277	0.00	NA	NA	NA(NA-NA)	NA
Asthma	rs2844482	6	31539767	0.16	T	C	0.86 (0.58 -1.29)	0.467
Asthma	rs7760841	6	32574868	0.07	T	C	1.14 (0.59 -2.20)	0.691

Asthma	rs28688825	6	32587157	0.22	G	A	1.06 (0.74 -1.53)	0.749
Asthma	rs28383364	6	32606912	0.04	G	A	1.07 (0.68 -1.70)	0.773
Asthma	rs2647044	6	32667910	0.03	A	G	1.47 (0.68 -3.16)	0.328
Asthma	rs35449774	6	33031612	0.10	T	C	1.40 (0.88 -2.23)	0.162
Asthma	rs6899623	6	90986559	0.04	G	A	1.05 (0.54 -2.03)	0.889
Asthma	rs3190930	6	128291199	0.02	T	C	0.57 (0.16 -2.07)	0.393
Asthma	rs3757727	7	20411897	0.43	C	T	1.02 (0.77 -1.35)	0.9
Asthma	rs2390314	7	20455978	0.01	NA	NA	NA(NA-NA)	NA
Asthma	rs35621564	7	20586843	0.29	G	A	1.15 (0.84 -1.58)	0.385
Asthma	rs58507040	7	22792318	0.05	NA	NA	NA(NA-NA)	NA
Asthma	rs78823938	7	28140951	0.17	A	G	1.29 (0.92 -1.80)	0.139
Asthma	rs13263709	8	81287175	0.43	C	T	0.97 (0.73 -1.29)	0.81
Asthma	rs13277355	8	128777719	0.32	A	G	0.82 (0.61 -1.11)	0.207
Asthma	rs58029167	9	5850375	0.49	A	G	0.99 (0.74 -1.32)	0.959
Asthma	rs10975416	9	6051924	0.02	G	T	1.64 (0.75 -3.57)	0.212
Asthma	rs992969	9	6209697	0.05	A	G	1.83 (0.94 -3.57)	0.075
Asthma	rs146597587	9	6255967	0.00	NA	NA	NA(NA-NA)	NA
Asthma	rs139939994	9	6380605	0.00	NA	NA	NA(NA-NA)	NA
Asthma	rs7864027	9	6504189	0.00	NA	NA	NA(NA-NA)	NA
Asthma	rs75636497	9	6545605	0.24	G	C	0.81 (0.59 -1.11)	0.197
Asthma	rs10965947	9	23588583	0.16	T	C	0.66 (0.43 -1.01)	0.056
Asthma	rs9663421	10	6055604	0.05	T	C	1.06 (0.58 -1.92)	0.852
Asthma	rs12722502	10	6093139	0.00	NA	NA	NA(NA-NA)	NA
Asthma	rs62626322	10	6115639	0.21	G	T	0.88 (0.62 -1.26)	0.492
Asthma	rs7087058	10	8114922	0.25	G	A	1.09 (0.80 -1.50)	0.58

Asthma	rs12785018	10	8515348	0.38	C	T	1.22 (0.91 -1.62)	0.188
Asthma	rs2477923	10	8565990	0.26	T	C	0.92 (0.66 -1.28)	0.614
Asthma	rs827637	10	9010624	0.29	G	A	1.13 (0.83 -1.53)	0.44
Asthma	rs72782676	10	9032555	0.00	NA	NA	NA(NA-NA)	NA
Asthma	rs1444782	10	9058671	0.12	A	G	0.71 (0.44 -1.13)	0.15
Asthma	rs77000868	10	9070677	0.00	NA	NA	NA(NA-NA)	NA
Asthma	rs72784452	10	9111826	0.02	T	C	0.55 (0.13 -2.27)	0.408
Asthma	rs17406680	10	9208204	0.00	NA	NA	NA(NA-NA)	NA
Asthma	rs75125788	10	9255890	0.09	T	C	1.25 (0.79 -1.96)	0.34
Asthma	rs7918084	10	94429467	0.12	C	T	0.98 (0.62 -1.54)	0.925
Asthma	rs7936275	11	10660840	0.03	NA	NA	NA(NA-NA)	NA
Asthma	rs7130870	11	36344202	0.42	T	C	0.89 (0.68 -1.17)	0.412
Asthma	rs174566	11	61592362	0.43	G	A	1.12 (0.82 -1.52)	0.487
Asthma	rs10791824	11	65559266	0.50	G	A	0.88 (0.66 -1.17)	0.387
Asthma	rs55684690	11	76057946	0.00	NA	NA	NA(NA-NA)	NA
Asthma	rs7936312	11	76293726	0.48	T	G	1.16 (0.87 -1.57)	0.316
Asthma	rs12718488	11	76366690	0.35	G	T	0.98 (0.72 -1.32)	0.875
Asthma	rs11828343	11	111491322	0.05	G	A	1.53 (0.63 -3.73)	0.35
Asthma	rs12365699	11	118743286	0.04	A	G	1.22 (0.58 -2.55)	0.606
Asthma	**rs705700**	**12**	**56389293**	**0.24**	**C**	**T**	0.69 (0.48 -0.97)	**0.035**
Asthma	rs11172086	12	57449206	0.10	T	C	0.89 (0.51 -1.54)	0.671
Asthma	rs201011002	12	57498220	0.00	NA	NA	NA(NA-NA)	NA
Asthma	rs3122929	12	57509102	0.32	T	C	0.83 (0.60 -1.15)	0.26
Asthma	rs77741769	12	121363835	0.43	T	C	0.96 (0.71 -1.28)	0.759
Asthma	rs59186511	13	99986238	0.32	T	C	0.91 (0.67 -1.22)	0.524

Asthma	rs10131490	14	68743307	0.01	NA	NA	NA(NA-NA)	NA
Asthma	rs34986765	15	61069201	0.12	C	T	1.03 (0.66 -1.60)	0.895
Asthma	rs28617673	15	67371244	0.47	T	C	1.08 (0.81 -1.43)	0.616
Asthma	rs72743461	15	67441750	0.03	A	C	2.30 (0.87 -6.07)	0.094
Asthma	rs10152595	15	67475488	0.44	NA	NA	NA(NA-NA)	NA
Asthma	rs35441874	16	11213021	0.08	A	T	0.81 (0.51 -1.28)	0.363
Asthma	rs145986476	16	27359515	0.00	NA	NA	NA(NA-NA)	NA
Asthma	rs3024622	16	27365453	0.46	G	C	0.89 (0.68 -1.18)	0.414
Asthma	rs77315098	16	27381648	0.10	A	C	1.07 (0.65 -1.76)	0.796
Asthma	rs801429	17	37435378	0.24	T	C	0.72 (0.51 -1.00)	0.052
Asthma	rs146644295	17	37574592	0.00	NA	NA	NA(NA-NA)	NA
Asthma	rs72827176	17	37810795	0.00	NA	NA	NA(NA-NA)	NA
Asthma	rs1008723	17	38066267	0.29	T	G	1.13 (0.82 -1.56)	0.452
Asthma	rs2305482	17	38140927	0.44	C	A	0.83 (0.63 -1.09)	0.178
Asthma	rs150260796	17	38168828	0.18	NA	NA	NA(NA-NA)	NA
Asthma	rs112401631	17	38764524	0.00	NA	NA	NA(NA-NA)	NA
Asthma	rs2253717	17	38868236	0.28	A	G	0.73 (0.53 -1.01)	0.058
Asthma	rs4247364	17	43336687	0.40	G	C	0.98 (0.72 -1.33)	0.908
Asthma	rs72833417	17	45873049	0.13	T	A	1.08 (0.71 -1.63)	0.728
Asthma	rs28412876	17	47454515	0.20	T	G	1.06 (0.73 -1.53)	0.76
Asthma	rs12964116	18	61442619	0.00	NA	NA	NA(NA-NA)	NA
Asthma	rs117710327	19	33726578	0.03	A	C	1.50 (0.64 -3.53)	0.352
Asthma	rs2315646	20	62379750	0.35	G	T	1.14 (0.85 -1.53)	0.377
Asthma	**rs2834787**	**21**	**36502558**	**0.04**	**G**	**A**	0.45 (0.20 -0.98)	**0.045**

Chronic obstructive pulmonary disease	rs9435731	1	17306029	0.25	A	C	1.18 (0.86 -1.60)	0.304
Chronic obstructive pulmonary disease	rs76841360	1	40060025	0.10	A	G	1.20 (0.80 -1.80)	0.367
Chronic obstructive pulmonary disease	rs4660861	1	45946636	0.41	G	T	1.04 (0.77 -1.40)	0.812
Chronic obstructive pulmonary disease	rs72673419	1	60913143	0.00	NA	NA	NA(NA-NA)	NA
Chronic obstructive pulmonary disease	rs629619	1	111738108	0.00	NA	NA	NA(NA-NA)	NA
Chronic obstructive pulmonary disease	rs3009947	1	218689155	0.24	C	T	1.03 (0.72 -1.47)	0.887
Chronic obstructive pulmonary disease	rs11118406	1	219924894	0.46	A	T	1.26 (0.95 -1.67)	0.103
Chronic obstructive pulmonary disease	rs11579382	1	239901006	0.40	C	G	0.81 (0.60 -1.10)	0.177
Chronic obstructive pulmonary disease	rs955277	2	9290357	0.15	C	T	1.10 (0.67 -1.79)	0.708
Chronic obstructive pulmonary disease	rs10929386	2	15906179	0.39	T	C	1.12 (0.83 -1.50)	0.467
Chronic obstructive pulmonary disease	rs12466981	2	42433247	0.42	T	C	1.28 (0.95 -1.71)	0.103
Chronic obstructive pulmonary disease	rs72902175	2	157013035	0.04	T	C	0.91 (0.44 -1.91)	0.81

Chronic obstructive pulmonary disease	rs2571445	2	218683154	0.38	A	G	0.84 (0.62 -1.13)	0.252
Chronic obstructive pulmonary disease	rs16825267	2	229569919	0.13	G	C	0.95 (0.64 -1.42)	0.818
Chronic obstructive pulmonary disease	rs62191105	2	239872704	0.29	T	C	0.94 (0.67 -1.32)	0.709
Chronic obstructive pulmonary disease	rs2442776	3	11640601	0.35	G	A	1.08 (0.80 -1.46)	0.621
Chronic obstructive pulmonary disease	rs1529672	3	25520582	0.39	A	C	1.29 (0.95 -1.74)	0.101
Chronic obstructive pulmonary disease	rs13073544	3	29472412	0.15	C	G	0.97 (0.62 -1.54)	0.906
Chronic obstructive pulmonary disease	rs17759204	3	55158224	0.11	G	A	0.86 (0.50 -1.47)	0.581
Chronic obstructive pulmonary disease	rs62259026	3	57746515	0.46	NA	NA	NA(NA-NA)	NA
Chronic obstructive pulmonary disease	rs4093840	3	123077042	0.27	A	T	0.84 (0.61 -1.16)	0.28
Chronic obstructive pulmonary disease	rs2955083	3	127961178	0.01	NA	NA	NA(NA-NA)	NA
Chronic obstructive pulmonary disease	rs7650602	3	141147414	0.33	C	T	0.88 (0.66 -1.18)	0.392
Chronic obstructive pulmonary disease	rs7642001	3	168746145	0.38	A	G	0.78 (0.58 -1.03)	0.082

Chronic obstructive pulmonary disease	rs4585380	4	75673363	0.04	A	G	0.78 (0.33 -1.86)	0.575
Chronic obstructive pulmonary disease	rs7671261	4	89883818	0.43	G	A	1.16 (0.88 -1.54)	0.291
Chronic obstructive pulmonary disease	rs34712979	4	106819053	0.00	NA	NA	NA(NA-NA)	NA
Chronic obstructive pulmonary disease	rs13140176	4	145489098	0.31	G	A	0.87 (0.63 -1.21)	0.412
Chronic obstructive pulmonary disease	rs1551943	5	52195033	0.18	A	G	1.06 (0.73 -1.54)	0.745
Chronic obstructive pulmonary disease	rs34651	5	72144005	0.14	C	T	1.42 (0.91 -2.21)	0.12
Chronic obstructive pulmonary disease	rs153916	5	95036700	0.24	C	T	0.94 (0.63 -1.40)	0.747
Chronic obstructive pulmonary disease	rs62375246	5	132439010	0.10	A	T	0.87 (0.54 -1.42)	0.586
Chronic obstructive pulmonary disease	rs10037493	5	147854970	0.27	C	T	1.12 (0.81 -1.55)	0.505
Chronic obstructive pulmonary disease	rs979453	5	150595073	0.20	G	A	0.75 (0.52 -1.09)	0.135
Chronic obstructive pulmonary disease	rs10866659	5	156937043	0.13	G	A	1.34 (0.90 -1.99)	0.148
Chronic obstructive pulmonary disease	rs12519165	5	170901586	0.31	T	A	0.90 (0.64 -1.25)	0.513

Chronic obstructive pulmonary disease	rs1334576	6	7211818	0.47	G	A	0.87 (0.65 -1.16)	0.348
Chronic obstructive pulmonary disease	rs9350191	6	19842661	0.02	C	T	0.82 (0.33 -2.02)	0.663
Chronic obstructive pulmonary disease	rs13198656	6	22004909	0.20	T	C	1.23 (0.87 -1.76)	0.247
Chronic obstructive pulmonary disease	rs2284174	6	30713580	0.10	C	T	0.93 (0.58 -1.49)	0.756
Chronic obstructive pulmonary disease	rs2070600	6	32151443	0.22	T	C	0.79 (0.55 -1.13)	0.192
Chronic obstructive pulmonary disease	rs2806356	6	109266255	0.29	C	T	1.11 (0.79 -1.56)	0.545
Chronic obstructive pulmonary disease	rs674621	6	117257018	0.43	C	T	0.99 (0.75 -1.31)	0.938
Chronic obstructive pulmonary disease	rs646695	6	140280398	0.41	C	T	1.10 (0.83 -1.46)	0.521
Chronic obstructive pulmonary disease	rs9399401	6	142668901	0.35	C	T	0.89 (0.66 -1.21)	0.467
Chronic obstructive pulmonary disease	rs798565	7	2752152	0.20	A	G	1.10 (0.76 -1.58)	0.63
Chronic obstructive pulmonary disease	rs2040732	7	20418134	0.41	T	C	0.93 (0.70 -1.23)	0.6
Chronic obstructive pulmonary disease	rs2897075	7	99630342	0.41	T	C	1.06 (0.80 -1.41)	0.692

Chronic obstructive pulmonary disease	rs9329170	8	8697658	0.00	NA	NA	NA(NA-NA)	NA
Chronic obstructive pulmonary disease	rs10114763	9	4143749	0.19	T	A	1.00 (0.67 -1.48)	0.993
Chronic obstructive pulmonary disease	rs7866939	9	85126163	0.46	T	C	1.20 (0.90 -1.59)	0.221
Chronic obstructive pulmonary disease	**rs10760580**	**9**	**101661650**	**0.33**	**A**	**G**	1.37 (1.01 -1.86)	**0.045**
Chronic obstructive pulmonary disease	rs803923	9	119401650	0.14	G	A	0.83 (0.56 -1.22)	0.338
Chronic obstructive pulmonary disease	rs7068966	10	12277992	0.33	T	C	1.14 (0.85 -1.54)	0.39
Chronic obstructive pulmonary disease	rs2579762	10	78318879	0.36	C	A	0.89 (0.66 -1.21)	0.457
Chronic obstructive pulmonary disease	rs721917	10	81706324	0.38	A	G	0.77 (0.57 -1.03)	0.081
Chronic obstructive pulmonary disease	rs1570221	10	105656874	0.36	G	A	1.27 (0.93 -1.72)	0.129
Chronic obstructive pulmonary disease	rs4757118	11	13171236	0.37	T	C	1.10 (0.83 -1.46)	0.519
Chronic obstructive pulmonary disease	rs117261012	11	86444761	0.00	NA	NA	NA(NA-NA)	NA
Chronic obstructive pulmonary disease	rs11049386	12	28320536	0.04	A	T	1.53 (0.83 -2.81)	0.175

Chronic obstructive pulmonary disease	rs7307510	12	96237570	0.13	T	C	0.98 (0.65 -1.46)	0.903
Chronic obstructive pulmonary disease	rs7958945	12	115947901	0.13	G	A	0.93 (0.65 -1.35)	0.712
Chronic obstructive pulmonary disease	rs9525927	13	44842503	0.42	A	G	1.10 (0.82 -1.48)	0.524
Chronic obstructive pulmonary disease	rs72699855	14	93105953	0.00	NA	NA	NA(NA-NA)	NA
Chronic obstructive pulmonary disease	rs72731149	15	49984710	0.22	C	G	1.17 (0.86 -1.59)	0.328
Chronic obstructive pulmonary disease	rs1441358	15	71612514	0.26	G	T	1.15 (0.84 -1.58)	0.387
Chronic obstructive pulmonary disease	rs55676755	15	78898932	0.03	G	C	0.80 (0.30 -2.15)	0.663
Chronic obstructive pulmonary disease	rs10152300	15	84392907	0.03	G	A	0.65 (0.25 -1.67)	0.369
Chronic obstructive pulmonary disease	rs56134392	16	10709013	0.42	NA	NA	NA(NA-NA)	NA
Chronic obstructive pulmonary disease	rs8044657	16	58022625	0.06	A	G	1.79 (0.85 -3.76)	0.123
Chronic obstructive pulmonary disease	rs4888379	16	75340231	0.46	T	A	1.15 (0.86 -1.54)	0.349
Chronic obstructive pulmonary disease	rs8080772	17	28413129	0.08	C	T	1.09 (0.64 -1.85)	0.762

Chronic obstructive pulmonary disease	rs34727469	17	36835079	0.00	NA	NA	NA(NA-NA)	NA
Chronic obstructive pulmonary disease	rs62065216	17	38218773	0.46	G	A	0.86 (0.65 -1.14)	0.292
Chronic obstructive pulmonary disease	rs12373142	17	43924200	0.00	NA	NA	NA(NA-NA)	NA
Chronic obstructive pulmonary disease	rs11655567	17	69216687	0.38	C	T	0.95 (0.70 -1.29)	0.725
Chronic obstructive pulmonary disease	rs647097	18	8808464	0.46	C	T	1.14 (0.86 -1.52)	0.365
Chronic obstructive pulmonary disease	rs72626215	19	46294136	0.29	A	G	0.97 (0.67 -1.41)	0.881
Chronic obstructive pulmonary disease	rs2096468	21	35661745	0.38	C	A	1.13 (0.85 -1.50)	0.404
Chronic obstructive pulmonary disease	rs9617650	22	18488883	0.05	NA	NA	NA(NA-NA)	NA
Chronic obstructive pulmonary disease	rs73158393	22	33335386	0.03	G	C	0.66 (0.26 -1.66)	0.378
Idiopathic Pulmonary Fibrosis	rs78238620	3	44902386	0.04	A	T	2.09 (0.86 -5.08)	0.105
Idiopathic Pulmonary Fibrosis	rs12696304	3	169481271	0.32	C	G	0.95 (0.68 -1.34)	0.78
Idiopathic Pulmonary Fibrosis	rs2013701	4	89885086	0.45	G	T	1.23 (0.93 -1.63)	0.153

Idiopathic Pulmonary Fibrosis	rs7725218	5	1282414	0.38	A	G	1.00 (0.75 -1.35)	0.983
Idiopathic Pulmonary Fibrosis	rs2076295	6	7563232	0.47	G	T	0.95 (0.71 -1.26)	0.715
Idiopathic Pulmonary Fibrosis	rs12699415	7	1909479	0.35	A	G	0.93 (0.69 -1.26)	0.633
Idiopathic Pulmonary Fibrosis	rs2897075	7	99630342	0.41	T	C	1.06 (0.80 -1.41)	0.692
Idiopathic Pulmonary Fibrosis	rs28513081	8	120934126	0.07	G	A	1.48 (0.73 -2.99)	0.278
Idiopathic Pulmonary Fibrosis	rs537322302	10	93271016	0.00	NA	NA	NA(NA-NA)	NA
Idiopathic Pulmonary Fibrosis	rs35705950	11	1241221	0.01	NA	NA	NA(NA-NA)	NA
Idiopathic Pulmonary Fibrosis	rs9577395	13	113534984	0.20	G	C	0.90 (0.65 -1.23)	0.492
Idiopathic Pulmonary Fibrosis	rs59424629	15	40720542	0.23	G	T	0.86 (0.61 -1.21)	0.389
Idiopathic Pulmonary Fibrosis	rs62023891	15	86097216	0.04	A	G	1.36 (0.64 -2.90)	0.428
Idiopathic Pulmonary Fibrosis	rs2077551	17	44214888	0.00	NA	NA	NA(NA-NA)	NA
Idiopathic Pulmonary Fibrosis	rs12610495	19	4717672	0.14	G	A	0.88 (0.61 -1.28)	0.498

Idiopathic Pulmonary Fibrosis	rs41308092	20	62324391	0.00	NA	NA	NA(NA-NA)	NA
Interstitial lung disease	rs73199442	3	106571023	0.00	NA	NA	NA(NA-NA)	NA
Interstitial lung disease	rs6793295	3	169518455	0.32	T	C	0.98 (0.70 -1.38)	0.919
Interstitial lung disease	**rs2609255**	**4**	**89811195**	**0.42**	**G**	**T**	1.35 (1.02 -1.80)	**0.038**
Interstitial lung disease	rs2736100	5	1286516	0.41	C	A	1.12 (0.83 -1.49)	0.46
Interstitial lung disease	rs6886640	5	62172476	0.39	A	G	1.20 (0.91 -1.59)	0.19
Interstitial lung disease	rs7744971	6	87737841	0.19	G	A	1.07 (0.73 -1.57)	0.736
Interstitial lung disease	rs7739124	6	87749815	0.33	C	A	1.04 (0.76 -1.43)	0.815
Interstitial lung disease	rs912535	6	87752321	0.20	G	A	1.01 (0.70 -1.46)	0.964
Interstitial lung disease	rs4727443	7	99593346	0.36	C	A	1.04 (0.77 -1.40)	0.819
Interstitial lung disease	rs1379326	8	4617810	0.35	C	T	1.18 (0.87 -1.60)	0.277
Interstitial lung disease	rs11191865	10	105672842	0.34	A	G	1.28 (0.94 -1.75)	0.114

Interstitial lung disease	rs7934606	11	1093945	0.01	NA	NA	NA(NA-NA)	NA
Interstitial lung disease	rs35705950	11	1241221	0.01	NA	NA	NA(NA-NA)	NA
Interstitial lung disease	**rs1278769**	**13**	**113536627**	**0.27**	**A**	**G**	0.72 (0.54 -0.96)	**0.023**
Interstitial lung disease	rs2034650	15	40717302	0.23	G	A	0.87 (0.62 -1.23)	0.442
Interstitial lung disease	rs1981997	17	44056767	0.00	NA	NA	NA(NA-NA)	NA
Interstitial lung disease	rs12610495	19	4717672	0.14	G	A	0.88 (0.61 -1.28)	0.498
Lung Function	rs9661802	1	6678864	0.39	C	A	1.00 (0.75 -1.31)	0.97
Lung Function	rs2284746	1	17306675	0.25	G	C	0.86 (0.63 -1.17)	0.338
Lung Function	rs12737805	1	22612690	0.17	G	A	1.16 (0.78 -1.71)	0.465
Lung Function	rs9438626	1	26775367	0.29	G	C	0.78 (0.56 -1.09)	0.139
Lung Function	rs12096239	1	26796922	0.13	C	G	0.68 (0.45 -1.03)	0.071
Lung Function	rs17513135	1	40035686	0.10	T	C	1.18 (0.78 -1.78)	0.446
Lung Function	rs1416685	1	51243374	0.15	C	G	1.00 (0.69 -1.45)	0.991
Lung Function	rs72673461	1	60966772	0.01	G	T	0.65 (0.29 -1.48)	0.305
Lung Function	rs9661687	1	78387270	0.23	C	T	0.87 (0.59 -1.28)	0.483
Lung Function	rs1192404	1	92068967	0.14	G	A	1.06 (0.69 -1.62)	0.803
Lung Function	rs10874851	1	92106637	0.08	C	A	1.66 (0.93 -2.97)	0.085
Lung Function	rs12140637	1	92374517	0.22	T	C	0.95 (0.66 -1.39)	0.806
Lung Function	rs9970286	1	111737398	0.38	A	G	1.20 (0.90 -1.60)	0.223

Lung Function	rs200154334	1	118862070	0.33	NA	NA	NA(NA-NA)	NA
Lung Function	rs11205354	1	150249101	0.31	C	A	1.15 (0.85 -1.56)	0.369
Lung Function	rs6681426	1	150586971	0.35	G	A	0.82 (0.60 -1.12)	0.208
Lung Function	rs141942982	1	155137395	0.02	T	G	0.68 (0.16 -2.99)	0.611
Lung Function	**rs4651005**	**1**	**178719306**	**0.11**	**T**	**C**	1.69 (1.07 -2.67)	**0.026**
Lung Function	rs2146098	1	186090370	0.43	A	G	1.05 (0.78 -1.41)	0.766
Lung Function	rs17531405	1	186113852	0.01	C	G	0.80 (0.33 -1.92)	0.616
Lung Function	rs10919604	1	198898157	0.21	A	G	0.83 (0.58 -1.18)	0.299
Lung Function	**rs2821332**	**1**	**200085714**	**0.32**	**T**	**A**	0.73 (0.53 -0.99)	**0.046**
Lung Function	rs4309038	1	201884647	0.44	G	C	1.27 (0.95 -1.68)	0.102
Lung Function	rs12092943	1	204434927	0.50	T	G	0.91 (0.67 -1.22)	0.52
Lung Function	rs2799098	1	218521609	0.19	G	A	1.01 (0.72 -1.43)	0.945
Lung Function	rs993925	1	218860068	0.46	C	T	0.98 (0.73 -1.31)	0.869
Lung Function	rs75128958	1	219483218	0.00	NA	NA	NA(NA-NA)	NA
Lung Function	rs4328080	1	219963088	0.39	A	G	1.04 (0.79 -1.38)	0.764
Lung Function	rs17009288	1	221204299	0.35	C	A	1.02 (0.76 -1.37)	0.879
Lung Function	rs6657854	1	221630555	0.34	C	A	0.80 (0.59 -1.08)	0.149
Lung Function	rs6688537	1	239850588	0.48	NA	NA	NA(NA-NA)	NA
Lung Function	rs2544536	2	15906854	0.38	T	C	0.94 (0.70 -1.25)	0.662
Lung Function	rs62126408	2	18309132	0.06	C	T	1.28 (0.56 -2.90)	0.557
Lung Function	rs6751968	2	18570024	0.41	A	C	0.87 (0.66 -1.16)	0.347
Lung Function	rs13430465	2	18702313	0.34	C	T	1.02 (0.76 -1.37)	0.895
Lung Function	rs13009582	2	24018480	0.22	G	A	1.19 (0.82 -1.72)	0.356
Lung Function	rs732990	2	26842146	0.13	G	C	0.95 (0.62 -1.44)	0.799
Lung Function	rs4952564	2	42243850	0.38	G	A	0.95 (0.71 -1.27)	0.718

Lung Function	rs1430193	2	56120853	0.12	A	T	0.76 (0.45 -1.29)	0.312
Lung Function	rs12470864	2	102926362	0.46	A	G	1.02 (0.76 -1.38)	0.891
Lung Function	rs2322659	2	136555659	0.46	C	T	0.97 (0.72 -1.30)	0.832
Lung Function	rs1406225	2	145797829	0.08	T	G	0.67 (0.42 -1.07)	0.094
Lung Function	rs72904209	2	157046432	0.04	C	T	1.01 (0.49 -2.08)	0.972
Lung Function	rs7424771	2	161276378	0.14	G	A	1.13 (0.77 -1.65)	0.531
Lung Function	rs2304340	2	179260382	0.43	G	A	1.12 (0.83 -1.51)	0.475
Lung Function	rs2084448	2	187530520	0.17	C	T	1.08 (0.73 -1.60)	0.702
Lung Function	rs1249096	2	199723365	0.17	A	G	1.16 (0.78 -1.73)	0.469
Lung Function	**rs985256**	**2**	**201208692**	**0.19**	**A**	**C**	0.64 (0.42 -0.96)	**0.032**
Lung Function	rs12997625	2	202970250	0.20	T	C	1.13 (0.78 -1.63)	0.519
Lung Function	rs6435952	2	217614730	0.17	A	T	0.74 (0.48 -1.12)	0.149
Lung Function	rs4294980	2	218604356	0.19	G	A	0.93 (0.67 -1.31)	0.694
Lung Function	rs2571445	2	218683154	0.38	A	G	0.84 (0.62 -1.13)	0.252
Lung Function	rs4674407	2	220382700	0.23	T	C	0.88 (0.64 -1.22)	0.452
Lung Function	rs10498230	2	229502503	0.13	T	C	0.93 (0.63 -1.39)	0.736
Lung Function	rs61332075	2	239316560	0.05	C	G	0.94 (0.41 -2.19)	0.892
Lung Function	rs6431620	2	239604970	0.11	G	T	0.78 (0.48 -1.25)	0.3
Lung Function	rs12477314	2	239877148	0.29	T	C	0.96 (0.68 -1.35)	0.827
Lung Function	rs6733504	2	242495953	0.49	G	A	1.11 (0.83 -1.48)	0.484
Lung Function	rs2974389	3	13787641	0.46	A	G	1.02 (0.77 -1.35)	0.915
Lung Function	rs73048404	3	25179533	0.00	NA	NA	NA(NA-NA)	NA
Lung Function	rs1529672	3	25520582	0.39	A	C	1.29 (0.95 -1.74)	0.101
Lung Function	rs17666332	3	29469675	0.16	G	T	1.04 (0.66 -1.63)	0.864
Lung Function	rs1458979	3	55150677	0.13	G	A	0.96 (0.60 -1.54)	0.876

Lung Function	rs79294353	3	57494433	0.00	NA	NA	NA(NA-NA)	NA
Lung Function	rs1490265	3	67452043	0.38	C	A	1.13 (0.85 -1.49)	0.401
Lung Function	rs35480566	3	71583177	0.00	NA	NA	NA(NA-NA)	NA
Lung Function	rs586936	3	73862616	0.30	A	G	1.15 (0.85 -1.54)	0.371
Lung Function	rs6778584	3	98815640	0.25	C	T	1.13 (0.80 -1.58)	0.499
Lung Function	rs1610265	3	99420192	0.11	T	C	0.76 (0.47 -1.22)	0.256
Lung Function	rs2811415	3	127991527	0.01	NA	NA	NA(NA-NA)	NA
Lung Function	rs1595029	3	158241767	0.40	C	A	1.14 (0.85 -1.52)	0.389
Lung Function	rs1799807	3	165548529	0.00	NA	NA	NA(NA-NA)	NA
Lung Function	rs1344555	3	169300219	0.32	C	T	0.94 (0.68 -1.30)	0.702
Lung Function	rs6780171	3	185503456	0.25	A	T	1.10 (0.80 -1.52)	0.545
Lung Function	rs28520091	4	7846240	0.29	T	C	1.25 (0.92 -1.70)	0.154
Lung Function	rs12331869	4	56012149	0.16	A	G	1.00 (0.68 -1.46)	0.996
Lung Function	rs62316310	4	75676529	0.04	A	G	0.69 (0.28 -1.68)	0.411
Lung Function	**rs11098196**	**4**	**79403952**	**0.48**	**G**	**T**	0.72 (0.54 -0.95)	**0.021**
Lung Function	rs13110699	4	89815695	0.40	T	G	0.79 (0.59 -1.05)	0.101
Lung Function	rs2045517	4	89870964	0.46	C	T	1.21 (0.92 -1.60)	0.173
Lung Function	rs2047409	4	106137033	0.19	A	G	0.93 (0.65 -1.31)	0.669
Lung Function	rs10516526	4	106688904	0.00	NA	NA	NA(NA-NA)	NA
Lung Function	rs34712979	4	106819053	0.00	NA	NA	NA(NA-NA)	NA
Lung Function	rs13109426	4	145330628	0.46	G	A	0.79 (0.59 -1.05)	0.107
Lung Function	rs13116999	4	145442364	0.36	G	A	1.29 (0.96 -1.72)	0.088
Lung Function	rs138641402	4	145445779	0.32	T	A	0.88 (0.64 -1.21)	0.418
Lung Function	rs111898810	4	146174040	0.00	NA	NA	NA(NA-NA)	NA
Lung Function	rs11739847	5	609661	0.01	NA	NA	NA(NA-NA)	NA

Lung Function	rs91731	5	33334312	0.41	C	A	1.24 (0.93 -1.65)	0.148
Lung Function	rs4866846	5	43976162	0.23	A	G	0.91 (0.63 -1.30)	0.592
Lung Function	rs1448044	5	44296986	0.46	A	G	1.01 (0.77 -1.34)	0.923
Lung Function	rs1551943	5	52195033	0.18	A	G	1.06 (0.73 -1.54)	0.745
Lung Function	rs2441026	5	53444498	0.13	T	C	0.92 (0.64 -1.32)	0.642
Lung Function	rs72776440	5	77440196	0.07	C	G	0.89 (0.49 -1.62)	0.695
Lung Function	rs153916	5	95036700	0.24	C	T	0.94 (0.63 -1.40)	0.747
Lung Function	rs10059661	5	121410529	0.15	G	C	1.32 (0.87 -2.00)	0.192
Lung Function	rs17163397	5	128767384	0.19	G	A	1.37 (0.90 -2.08)	0.144
Lung Function	rs7713065	5	131788334	0.33	A	C	1.35 (1.00 -1.82)	0.053
Lung Function	rs7715901	5	147856392	0.36	A	G	1.06 (0.79 -1.43)	0.697
Lung Function	rs1800888	5	148206885	0.00	NA	NA	NA(NA-NA)	NA
Lung Function	rs3839234	5	148596693	0.40	NA	NA	NA(NA-NA)	NA
Lung Function	rs10515750	5	156810072	0.00	NA	NA	NA(NA-NA)	NA
Lung Function	rs1990950	5	156920756	0.28	G	T	0.81 (0.60 -1.09)	0.17
Lung Function	rs10059996	5	170901463	0.32	G	T	0.86 (0.62 -1.19)	0.358
Lung Function	rs79898473	5	179598771	0.16	C	T	1.10 (0.72 -1.66)	0.669
Lung Function	rs1294421	6	6743149	0.26	G	T	1.04 (0.74 -1.48)	0.813
Lung Function	rs12198986	6	7720059	0.23	A	G	1.02 (0.72 -1.45)	0.893
Lung Function	rs6924424	6	7801611	0.00	NA	NA	NA(NA-NA)	NA
Lung Function	rs1928168	6	22017738	0.17	C	T	1.29 (0.88 -1.88)	0.196
Lung Function	rs34864796	6	27459923	0.00	NA	NA	NA(NA-NA)	NA
Lung Function	rs2070600	6	32151443	0.22	T	C	0.79 (0.55 -1.13)	0.192
Lung Function	rs114544105	6	32635629	0.07	A	G	1.33 (0.83 -2.12)	0.237
Lung Function	rs9689096	6	34188892	0.02	C	A	1.22 (0.52 -2.89)	0.648

Lung Function	rs9357446	6	44447598	0.12	G	A	0.74 (0.49 -1.13)	0.166
Lung Function	rs12202314	6	45530471	0.25	C	T	1.01 (0.73 -1.40)	0.939
Lung Function	rs9472541	6	45622748	0.38	T	A	0.94 (0.70 -1.26)	0.666
Lung Function	rs2894837	6	56336406	0.28	G	A	1.22 (0.89 -1.67)	0.227
Lung Function	rs141651520	6	73670095	0.27	NA	NA	NA(NA-NA)	NA
Lung Function	rs2768551	6	109270656	0.29	A	G	1.01 (0.71 -1.42)	0.974
Lung Function	rs11759026	6	126792095	0.45	NA	NA	NA(NA-NA)	NA
Lung Function	rs2627237	6	134339265	0.43	G	A	1.00 (0.74 -1.36)	0.987
Lung Function	rs1102077	6	140271357	0.41	C	A	1.10 (0.83 -1.46)	0.521
Lung Function	rs9385988	6	142560957	0.26	A	G	1.04 (0.76 -1.44)	0.802
Lung Function	rs7753012	6	142745883	0.24	T	G	1.06 (0.76 -1.47)	0.724
Lung Function	rs148274477	6	142838173	0.02	NA	NA	NA(NA-NA)	NA
Lung Function	rs10246303	7	7286445	0.07	A	T	0.85 (0.43 -1.67)	0.637
Lung Function	rs55905169	7	15506529	0.38	G	C	0.98 (0.74 -1.31)	0.885
Lung Function	rs4721457	7	15872324	0.05	C	T	0.56 (0.30 -1.03)	0.06
Lung Function	rs559233	7	26848830	0.17	T	C	0.92 (0.61 -1.39)	0.7
Lung Function	rs62454414	7	27182329	0.26	G	T	1.31 (0.96 -1.79)	0.091
Lung Function	rs1513272	7	28200097	0.02	NA	NA	NA(NA-NA)	NA
Lung Function	rs17232687	7	46448518	0.23	C	T	1.03 (0.74 -1.42)	0.879
Lung Function	rs12707691	7	84569510	0.05	G	C	0.83 (0.45 -1.54)	0.552
Lung Function	rs72615157	7	99635967	0.37	A	G	1.17 (0.87 -1.57)	0.31
Lung Function	rs193686	7	116431427	0.12	C	T	1.61 (0.94 -2.74)	0.081
Lung Function	rs12698403	7	156127246	0.29	A	G	0.90 (0.67 -1.22)	0.507
Lung Function	rs330939	8	9018590	0.16	T	G	1.11 (0.79 -1.56)	0.568
Lung Function	rs4128298	8	11823332	0.01	C	T	1.27 (0.45 -3.57)	0.65

Lung Function	rs7465401	8	70367248	0.43	C	T	1.12 (0.83 -1.50)	0.452
Lung Function	rs7838717	8	145504343	0.30	C	T	0.96 (0.69 -1.34)	0.81
Lung Function	rs771924	9	1555835	0.27	A	T	1.00 (0.73 -1.36)	0.991
Lung Function	rs7872188	9	4124377	0.16	T	C	1.19 (0.76 -1.87)	0.437
Lung Function	rs7041139	9	18013733	0.40	T	C	0.92 (0.69 -1.22)	0.551
Lung Function	rs10965947	9	23588583	0.16	T	C	0.66 (0.43 -1.01)	0.056
Lung Function	rs16909859	9	98204792	0.16	A	G	0.87 (0.61 -1.23)	0.428
Lung Function	rs72743974	9	98878881	0.15	G	A	0.79 (0.53 -1.17)	0.238
Lung Function	rs57649467	9	101632854	0.40	A	G	0.99 (0.75 -1.32)	0.947
Lung Function	rs2451951	9	109496630	0.45	T	C	1.30 (0.95 -1.79)	0.104
Lung Function	rs803923	9	119401650	0.14	G	A	0.83 (0.56 -1.22)	0.338
Lung Function	rs967497	9	131943843	0.35	A	G	0.95 (0.71 -1.26)	0.718
Lung Function	rs10858246	9	139102831	0.12	C	G	0.83 (0.58 -1.20)	0.329
Lung Function	rs10870202	9	139257411	0.33	C	T	1.34 (0.97 -1.86)	0.08
Lung Function	rs7090277	10	12278021	0.33	A	T	1.14 (0.85 -1.54)	0.39
Lung Function	rs3847402	10	30267810	0.17	G	A	0.85 (0.59 -1.22)	0.371
Lung Function	rs1274475	10	34480582	0.06	A	G	1.39 (0.77 -2.48)	0.273
Lung Function	rs7899503	10	65087468	0.35	C	G	0.94 (0.70 -1.25)	0.661
Lung Function	rs7095607	10	69957350	0.24	A	G	0.86 (0.61 -1.22)	0.402
Lung Function	rs3849969	10	75525999	0.24	G	A	1.17 (0.83 -1.66)	0.368
Lung Function	rs60820984	10	75639578	0.26	T	C	0.96 (0.69 -1.34)	0.818
Lung Function	rs2637254	10	78312002	0.41	A	G	0.93 (0.69 -1.25)	0.623
Lung Function	rs11191841	10	105639611	0.34	C	T	1.30 (0.95 -1.77)	0.096
Lung Function	rs2293871	10	124273671	0.41	T	C	1.28 (0.95 -1.71)	0.101
Lung Function	rs10836366	11	35308988	0.19	C	T	1.11 (0.80 -1.55)	0.534

Lung Function	rs4237643	11	43648368	0.20	T	G	1.07 (0.71 -1.62)	0.753
Lung Function	rs2863171	11	45250732	0.00	NA	NA	NA(NA-NA)	NA
Lung Function	rs2509961	11	62310909	0.06	C	T	1.67 (0.93 -2.99)	0.085
Lung Function	rs11234757	11	86443072	0.00	NA	NA	NA(NA-NA)	NA
Lung Function	rs567508	11	126008910	0.47	G	A	0.91 (0.69 -1.21)	0.535
Lung Function	rs56196860	12	2908330	0.00	NA	NA	NA(NA-NA)	NA
Lung Function	rs12811814	12	4243749	0.07	C	T	1.56 (0.92 -2.66)	0.101
Lung Function	rs10841302	12	19808912	0.25	C	G	1.01 (0.69 -1.46)	0.98
Lung Function	rs2348418	12	28689514	0.43	C	T	1.02 (0.76 -1.36)	0.903
Lung Function	rs772920	12	56390364	0.22	G	C	0.74 (0.52 -1.05)	0.09
Lung Function	rs11172113	12	57527283	0.25	C	T	0.77 (0.56 -1.06)	0.112
Lung Function	rs1244869	12	65075332	0.20	G	T	1.14 (0.81 -1.62)	0.452
Lung Function	rs1494502	12	65824670	0.42	A	G	0.86 (0.65 -1.15)	0.304
Lung Function	rs11176001	12	66409367	0.00	NA	NA	NA(NA-NA)	NA
Lung Function	rs7971039	12	85724305	0.16	A	G	1.02 (0.66 -1.57)	0.943
Lung Function	rs113745635	12	95554771	0.12	T	C	1.05 (0.71 -1.54)	0.804
Lung Function	rs12820313	12	96255704	0.38	C	T	1.02 (0.75 -1.39)	0.887
Lung Function	rs972936	12	102824921	0.44	T	C	0.81 (0.61 -1.08)	0.15
Lung Function	rs2701110	12	114669870	0.10	A	C	1.06 (0.64 -1.74)	0.829
Lung Function	rs10850377	12	115201436	0.02	A	G	0.89 (0.42 -1.91)	0.766
Lung Function	rs35506	12	115500691	0.47	A	T	1.25 (0.92 -1.70)	0.152
Lung Function	rs9533803	13	44820608	0.42	C	T	1.24 (0.93 -1.66)	0.151
Lung Function	rs2812208	13	50707087	0.00	NA	NA	NA(NA-NA)	NA
Lung Function	rs803765	13	71647588	0.19	A	C	0.89 (0.64 -1.24)	0.489
Lung Function	rs4885681	13	80467235	0.31	C	T	0.91 (0.67 -1.24)	0.551

Lung Function	rs11620380	13	99665512	0.01	A	C	2.04 (0.94 -4.47)	0.073
Lung Function	rs9634470	13	109918493	0.15	C	T	1.21 (0.77 -1.92)	0.41
Lung Function	rs1951121	14	23429729	0.20	G	T	1.30 (0.93 -1.82)	0.122
Lung Function	rs74053129	14	54346010	0.25	A	G	1.19 (0.86 -1.67)	0.299
Lung Function	rs4444235	14	54410919	0.47	C	T	0.98 (0.73 -1.30)	0.868
Lung Function	rs10141786	14	74817418	0.37	A	G	1.17 (0.86 -1.61)	0.32
Lung Function	rs1698268	14	84309664	0.35	T	A	1.19 (0.88 -1.61)	0.264
Lung Function	rs7155279	14	92485881	0.33	T	G	0.99 (0.74 -1.34)	0.953
Lung Function	rs754388	14	93115410	0.00	NA	NA	NA(NA-NA)	NA
Lung Function	rs34245505	15	40397191	0.16	G	C	1.09 (0.69 -1.71)	0.726
Lung Function	rs2304645	15	40716253	0.34	G	C	0.82 (0.60 -1.12)	0.211
Lung Function	rs4924525	15	41255396	0.34	C	A	0.85 (0.63 -1.16)	0.311
Lung Function	rs1200345	15	41819716	0.35	T	C	0.86 (0.64 -1.18)	0.356
Lung Function	rs72724130	15	41977690	0.00	NA	NA	NA(NA-NA)	NA
Lung Function	rs79234094	15	49409527	0.18	A	G	1.19 (0.86 -1.64)	0.297
Lung Function	rs35251997	15	49706145	0.15	T	A	1.19 (0.85 -1.66)	0.317
Lung Function	rs62012772	15	63866877	0.00	NA	NA	NA(NA-NA)	NA
Lung Function	rs8025774	15	67483276	0.43	T	C	1.24 (0.94 -1.64)	0.135
Lung Function	rs10851839	15	71628370	0.26	T	A	1.08 (0.79 -1.48)	0.62
Lung Function	rs12591467	15	71788387	0.11	C	T	1.21 (0.79 -1.87)	0.382
Lung Function	rs7176074	15	73833600	0.12	T	G	1.08 (0.70 -1.65)	0.728
Lung Function	rs66650179	15	84261689	0.48	NA	NA	NA(NA-NA)	NA
Lung Function	rs3751837	16	3583173	0.25	T	C	0.88 (0.64 -1.20)	0.412
Lung Function	rs56104880	16	4361138	0.26	C	T	0.87 (0.63 -1.21)	0.412
Lung Function	**rs11074547**	**16**	**10136889**	**0.45**	**T**	**G**	1.33 (1.00 -1.76)	**0.048**

Lung Function	rs12149828	16	10706328	0.29	A	G	0.78 (0.56 -1.08)	0.138
Lung Function	rs76219171	16	50188929	0.00	NA	NA	NA(NA-NA)	NA
Lung Function	rs35420030	16	53935407	0.00	NA	NA	NA(NA-NA)	NA
Lung Function	rs12447804	16	58075282	0.35	T	C	1.07 (0.79 -1.45)	0.682
Lung Function	rs3973397	16	70040398	0.11	G	A	0.86 (0.57 -1.28)	0.449
Lung Function	rs3743609	16	75467021	0.49	C	G	1.06 (0.79 -1.43)	0.69
Lung Function	rs1079572	16	78187138	0.46	G	A	0.89 (0.66 -1.19)	0.43
Lung Function	rs12918140	16	86403821	0.14	C	G	1.00 (0.65 -1.55)	0.985
Lung Function	**rs6539952**	**16**	**86579223**	**0.49**	**C**	**A**	1.42 (1.07 -1.90)	**0.017**
Lung Function	rs8082036	17	3882613	0.25	C	G	1.17 (0.84 -1.62)	0.347
Lung Function	rs4796334	17	6469793	0.37	A	G	0.80 (0.58 -1.09)	0.152
Lung Function	rs1215	17	7163350	0.09	G	A	0.92 (0.56 -1.49)	0.723
Lung Function	rs4968200	17	7448457	0.38	C	G	1.00 (0.74 -1.35)	0.983
Lung Function	rs34351630	17	16030520	0.16	C	T	1.29 (0.83 -2.02)	0.26
Lung Function	rs62070631	17	29087285	0.12	A	G	0.83 (0.52 -1.31)	0.412
Lung Function	rs11658500	17	36886828	0.00	NA	NA	NA(NA-NA)	NA
Lung Function	rs8067511	17	37611352	0.24	C	T	0.74 (0.53 -1.05)	0.092
Lung Function	rs35524223	17	44192590	0.00	NA	NA	NA(NA-NA)	NA
Lung Function	rs12945803	17	46552229	0.15	C	T	0.94 (0.58 -1.51)	0.798
Lung Function	rs28519449	17	54195453	0.48	C	T	0.86 (0.64 -1.14)	0.29
Lung Function	rs8068952	17	59286644	0.13	NA	NA	NA(NA-NA)	NA
Lung Function	rs77672322	17	62497964	0.00	NA	NA	NA(NA-NA)	NA
Lung Function	rs11653958	17	62686730	0.15	G	A	0.91 (0.60 -1.40)	0.68
Lung Function	rs6501431	17	68976415	0.03	C	T	1.16 (0.38 -3.57)	0.795
Lung Function	rs1859962	17	69108753	0.37	G	T	1.03 (0.76 -1.40)	0.839

Lung Function	rs996865	17	69371318	0.00	NA	NA	NA(NA-NA)	NA
Lung Function	rs7218675	17	73513185	0.45	A	C	1.09 (0.81 -1.46)	0.569
Lung Function	rs59606152	17	79952944	0.00	NA	NA	NA(NA-NA)	NA
Lung Function	rs8089099	18	10078071	0.28	A	G	0.95 (0.69 -1.31)	0.739
Lung Function	rs1985511	18	19816712	0.45	T	A	0.94 (0.71 -1.25)	0.659
Lung Function	rs7243351	18	20148531	0.45	T	C	0.91 (0.69 -1.21)	0.529
Lung Function	rs7238093	18	20728158	0.14	A	T	1.04 (0.72 -1.51)	0.828
Lung Function	rs303752	18	21074255	0.08	A	G	0.79 (0.44 -1.43)	0.436
Lung Function	rs1668091	18	22290711	0.38	C	T	0.87 (0.64 -1.18)	0.36
Lung Function	rs9807668	18	42827898	0.04	T	C	1.12 (0.48 -2.62)	0.803
Lung Function	rs8089865	18	50957922	0.26	A	G	1.14 (0.84 -1.57)	0.402
Lung Function	rs2202572	18	53566471	0.02	NA	NA	NA(NA-NA)	NA
Lung Function	rs11085744	19	10819967	0.36	T	C	0.80 (0.58 -1.09)	0.149
Lung Function	rs9636166	19	31829613	0.44	NA	NA	NA(NA-NA)	NA
Lung Function	rs2967516	19	36881643	0.19	G	A	0.89 (0.63 -1.24)	0.483
Lung Function	rs113473882	19	41124155	0.00	NA	NA	NA(NA-NA)	NA
Lung Function	rs6140050	20	6632901	0.11	C	A	0.76 (0.51 -1.13)	0.176
Lung Function	rs6032942	20	10745545	0.23	C	G	0.86 (0.62 -1.19)	0.364
Lung Function	rs6138639	20	25669052	0.35	G	C	0.98 (0.74 -1.31)	0.911
Lung Function	rs1737889	20	31042176	0.19	T	C	0.92 (0.63 -1.35)	0.679
Lung Function	rs6088813	20	33975181	0.29	C	A	0.91 (0.67 -1.23)	0.528
Lung Function	rs2236519	20	45529571	0.32	A	G	1.07 (0.80 -1.43)	0.662
Lung Function	rs72448466	20	62363640	0.36	NA	NA	NA(NA-NA)	NA
Lung Function	rs12627254	21	35368402	0.18	T	G	0.89 (0.63 -1.26)	0.523
Lung Function	rs2834440	21	35690499	0.46	A	G	1.11 (0.82 -1.49)	0.498

Lung Function	rs11704827	22	18450287	0.04	T	A	0.90 (0.37 -2.20)	0.819
Lung Function	rs4820216	22	20854161	0.13	T	C	0.90 (0.59 -1.38)	0.626
Lung Function	rs2283847	22	28181399	0.39	T	C	1.01 (0.76 -1.34)	0.927
Lung Function	rs113111175	22	50867711	0.00	NA	NA	NA(NA-NA)	NA

[a] EAF: Effect allele frequency in 1000 Genome database.

[b] Derived from the logistic regression model adjusting for significant eigenvectors, accumulating time of exposure to dust, job type, and smoking status assuming an additive genetic model.

Supplementary Table 3. Association details of the variants that are not validated in the replication stage

Disease	Snp	Chr	Pos	Stage	Effect/Other	EAF [a]		OR (95%CI) [b]
						Cases	controls	
Interstitial lung disease	rs1278769	13	113536627	GWAS	A/G	0.30	0.39	0.72(0.54-0.96)
				Replication	A/G	0.31	0.33	0.94(0.8-1.1)
Lung Function	rs2821332	1	200085714	GWAS	T/A	0.26	0.33	0.73(0.53-0.99)
				Replication	T/A	0.31	0.32	0.93(0.79-1.08)
Lung Function	rs11098196	4	79403952	GWAS	G/T	0.45	0.55	0.72(0.54-0.95)
				Replication	G/T	0.48	0.51	0.89(0.77-1.02)
Lung Function	rs11074547	16	10136889	GWAS	T/G	0.53	0.47	1.33(1-1.76)
				Replication	G/T	0.46	0.48	0.96(0.82-1.11)
Asthma	rs705700	12	56389293	GWAS	C/T	0.21	0.28	0.69(0.48-0.97)
				Replication	C/T	0.27	0.28	0.93(0.79-1.1)
Asthma	rs2834787	21	36502558	GWAS	G/A	0.03	0.05	0.45(0.2-0.98)
				Replication	G/A	0.04	0.05	0.77(0.54-1.11)
Chronic obstructive pulmonary disease	rs10760580	9	101661650	GWAS	A/G	0.38	0.31	1.37(1.01-1.86)
				Replication	A/G	0.35	0.35	0.99(0.85-1.16)

[a] EAF: Effect allele frequency.

[b] Derived from the logistic regression model adjusting for significant eigenvectors (GWAS stage), accumulating time of exposure to dust, job type, and smoking status if appropriate assuming an additive genetic model.

Supplementary Table 4. Stratified analysis by exposure time, smoking status and clinical stages for the four identified SNPs

Variables	Case/Control	rs2609255		rs4651005		rs985256		rs6539952	
		OR(95%CI) [a]	*P* [b]	OR(95%CI) [a]	*P* [b]	OR(95%CI) [a]	*P* [b]	OR(95%CI) [a]	*P* [b]
Exposure years			0.348		0.325		0.215		0.109
⩽25	430/429	1.20(1.00-1.45)		1.63(1.22-2.18)		0.68(0.52-0.89)		1.11(0.92-1.35)	
>25	475/474	1.36(1.13-1.63)		1.32(1-1.77)		0.86(0.67-1.1)		1.39(1.15-1.68)	
Smoking status			0.427		0.991		0.271		0.5
Never	442/405	1.34(1.11-1.63)		1.46(1.09-1.97)		0.85(0.65-1.12)		1.17(0.96-1.44)	
Ever	463/498	1.21(1.01-1.44)		1.45(1.1-1.93)		0.69(0.54-0.89)		1.29(1.08-1.54)	
Jobtype			0.888		0.872		0.568		0.983
Tunnel and coal mining	752/751	1.26(1.09-1.46)		1.46(1.18-1.83)		0.75(0.61-0.92)		1.23(1.06-1.43)	
Other	153/152	1.29(0.93-1.80)		1.4(0.84-2.38)		0.85(0.57-1.28)		1.24(0.9-1.71)	
Stage			0.757		0.798		0.107		0.74
I	563/903	1.26(1.09-1.47)		1.39(1.1-1.75)		0.73(0.59-0.9)		1.27(1.09-1.48)	
II	252/903	1.30(1.07-1.58)		1.49(1.11-1.98)		0.94(0.71-1.23)		1.15(0.84-1.57)	
III	90/903	1.13(0.84-1.53)		1.63(1.04-2.48)		0.52(0.3-0.85)		1.16(0.95-1.43)	

[a] Derived from the logistic regression model adjusting for accumulating time of exposure to dust, job type, and smoking status if appropriate assuming an additive genetic model;

[b] P value for Cochran's chi-square-based heterogeneity test.

Supplementary Table 5. Functional annotation of the identified variants as well as their high LD variants (r2>0.6) according to 1000 Genome database.

chr	pos (hg38)	LD (r^2)	LD (D')	variant	Ref	Alt	ASN freq	Promoter histone marks	Enhancer histone marks	DNAse	Motifs changed	GENCODE genes	dbSNP func annot
4	88835242	0.75	-0.98	rs60955950	C	G	0.49	SKIN			TCF12	FAM13A	intronic
4	88835438	0.75	-0.98	rs75729130	GT	G	0.49				CEBPB,LXR,NF-AT1	FAM13A	intronic
4	88835931	0.75	-0.98	rs59473955	T	C	0.49				RXRA	FAM13A	intronic
4	88836154	0.75	-0.98	rs12643428	C	T	0.49				8 altered motifs	FAM13A	intronic
4	88837373	0.75	-0.98	rs72872126	C	T	0.49				Mef2	FAM13A	intronic
4	88838549	0.67	-0.94	rs10023099	T	C	0.51				6 altered motifs	FAM13A	intronic
4	88838583	0.75	-0.98	rs10011267	C	T	0.49				4 altered motifs	FAM13A	intronic
4	88843046	0.75	-0.98	rs10024506	G	C	0.49					FAM13A	intronic
4	88844510	0.6	0.97	rs7682431	G	C	0.45		ESDR, GI, PANC		6 altered motifs	FAM13A	intronic
4	88844721	0.74	-0.98	rs9991039	A	T	0.5		ESDR, GI, PANC			FAM13A	intronic
4	88847670	0.75	-0.98	rs28514678	C	T	0.49		LIV		Zbtb3	FAM13A	intronic
4	88848691	0.74	-0.86	rs56158219	G	A	0.44				4 altered motifs	FAM13A	intronic
4	88849432	0.8	-0.93	rs10461165	G	A	0.42				Homez	FAM13A	intronic
4	88857403	0.81	-0.93	rs12640274	G	A	0.42		BLD, SKIN			FAM13A	intronic
4	88858758	0.82	-0.93	rs2085600	G	A	0.42	BLD	9 tissues	BLD,LNG,BLD	Pou2f2	FAM13A	intronic
4	88874458	0.8	-0.92	rs137908034	C	T	0.42				HNF6,Pou2f2,Pou6f1	FAM13A	intronic
4	88875003	0.91	-1	rs74710229	T	C	0.46				RXRA	FAM13A	intronic
4	88879741	0.89	-1	rs1379932	C	T	0.41		5 tissues		AIRE,CDP	FAM13A	intronic

4	88880005	0.89	-1	rs1379933	T	C	0.41		6 tissues		10 altered motifs	FAM13A	intronic
4	88884906	1	-1	rs2869952	A	C	0.44				9 altered motifs	FAM13A	intronic
4	88889244	0.85	1	rs4693974	A	G	0.52		5 tissues	ADRL		FAM13A	intronic
4	**88890044**	**1**	**1**	**rs2609255**	**G**	**T**	**0.56**		**5 tissues**		**4 altered motifs**	**FAM13A**	**intronic**
4	88891091	1	1	rs1458551	T	C	0.56		GI		Barx1,Pax-4,TFIIA	FAM13A	intronic
4	88891267	0.99	1	rs2704570	A	T	0.57		GI		15 altered motifs	FAM13A	intronic
4	88892133	0.99	1	rs6815970	T	C	0.57		GI		ZID	FAM13A	intronic
4	88894253	0.96	0.99	rs2704581	A	G	0.56		FAT, SKIN	4 tissues	Foxj1,Ncx,Pou5f1	FAM13A	intronic
4	88894544	0.77	0.91	rs13110699	T	G	0.58		SKIN		4 altered motifs	FAM13A	intronic
4	88896513	0.96	0.99	rs2464528	C	A	0.56				Mef2	FAM13A	intronic
4	88897370	0.96	0.99	rs2704582	T	C	0.56		FAT, MUS, SKIN	8 tissues		FAM13A	intronic
4	88897492	0.96	0.99	rs2704583	A	G	0.56		FAT, MUS, SKIN	8 tissues	TAL1	FAM13A	intronic
4	88898173	0.8	0.97	rs7690839	G	A	0.52				Pou2f2	FAM13A	intronic
4	88898272	0.96	0.99	rs1246629	T	C	0.56				Myc,NF-kappaB,YY1	FAM13A	intronic
4	88899136	0.96	0.99	rs1246631	G	A	0.56				6 altered motifs	FAM13A	intronic
4	88901015	0.96	0.99	rs1246632	C	T	0.56		FAT, BRN			FAM13A	intronic
4	88902647	0.95	0.99	rs1246634	G	A	0.56					FAM13A	intronic
4	88904464	0.81	0.98	rs4505789	C	A	0.52				4 altered motifs	FAM13A	intronic
4	88904721	0.96	0.99	rs2446304	C	A	0.56				PLZF,ZEB1	FAM13A	intronic

4	88904907	0.96	0.99	rs2446303	T	C	0.56				11 altered motifs	FAM13A	intronic
4	88905815	0.96	0.99	rs2609265	T	C	0.56					FAM13A	intronic
4	88905920	0.96	0.99	rs6813090	A	C	0.56				9 altered motifs	FAM13A	intronic
4	88906929	0.96	0.99	rs2609264	C	T	0.56				DMRT7	FAM13A	intronic
4	88910124	0.91	0.96	rs2446301	T	G	0.56		FAT, BLD, GI		Zic	FAM13A	intronic
4	88910576	0.9	0.96	rs2446300	T	G	0.56		FAT, BLD, GI		TATA	FAM13A	intronic
4	88913451	0.73	0.93	rs144494414	GGAA	G	0.52				HDAC2	FAM13A	intronic
4	88914287	0.9	0.96	rs2609262	A	G	0.56				Gfi1b,Pou2f2,Sox	FAM13A	intronic
4	88914334	0.9	0.96	rs2609261	A	G	0.56				9 altered motifs	FAM13A	intronic
4	88915668	0.77	0.94	rs2609260	C	T	0.6				5 altered motifs	FAM13A	intronic
4	88915996	0.9	0.96	rs1563689	T	G	0.56					FAM13A	intronic
4	88916657	0.9	0.96	rs2609259	A	C	0.56				5 altered motifs	FAM13A	intronic
4	88918443	0.9	0.96	rs2609258	C	T	0.56					FAM13A	intronic
4	88919919	0.76	0.96	rs6824218	C	T	0.52					FAM13A	intronic
4	88920782	0.88	0.94	rs7673818	C	G	0.56				EBF,HDAC2	FAM13A	intronic
4	88920926	0.68	0.95	rs7698458	T	C	0.49				CDP	FAM13A	intronic
4	88922294	0.66	0.94	rs1268481	A	G	0.49				Hoxa4,Nkx2,PEBP	FAM13A	intronic
4	88925598	0.84	0.92	rs9997652	T	A	0.57				AFP1,BATF,Nkx1-1	FAM13A	intronic
4	88927432	0.86	0.94	rs2704589	T	C	0.56		BLD		6 altered motifs	FAM13A	intronic
		0.75	0.92	rs200472431	G	GC	0.6		BLD			FAM13A	intronic
4	88928854	0.88	0.94	rs2704587	C	T	0.56		BLD		19 altered motifs	FAM13A	intronic
4	88929112	0.75	0.92	rs2609282	A	G	0.6		BLD		4 altered motifs	FAM13A	intronic

4	88929391	0.81	0.94	rs2125409	T	C,G	0.54		BLD			FAM13A	intronic
4	88929868	0.75	0.92	rs2464520	C	G	0.6		BLD		Nkx2	FAM13A	intronic
4	88930357	0.88	0.94	rs2704604	A	G	0.56	GI	BLD		GR,Sox	FAM13A	intronic
4	88932447	0.73	0.95	rs1458562	C	T	0.51	PLCNT	FAT, BLD		EBF,NF-kappaB,NRSF	FAM13A	intronic
4	88933016	0.74	0.94	rs4693978	A	C	0.52	PLCNT	BLD		6 altered motifs	FAM13A	intronic
4	88933041	0.74	0.94	rs10008568	G	A	0.52				Foxa,HNF4	FAM13A	intronic
4	88933810	0.87	0.94	rs2609280	A	G	0.56	PLCNT	BLD, GI, PANC	GI	Nkx2	FAM13A	intronic
4	88933843	0.74	0.94	rs13149750	G	A	0.52	PLCNT	BLD, GI, PANC	GI,GI		FAM13A	intronic
4	88934344	0.87	0.94	rs2609279	T	C	0.56	PLCNT	GI, PANC		CTCF,Sox	FAM13A	intronic
4	88939679	0.71	0.92	rs7682317	C	T	0.52		8 tissues			FAM13A	intronic
4	88939692	0.84	0.92	rs2464522	G	A	0.56		8 tissues		5 altered motifs	FAM13A	intronic
4	88939696	0.84	0.92	rs2464523	C	T	0.56		8 tissues		4 altered motifs	FAM13A	intronic
4	88943295	0.82	0.91	rs1246642	C	T	0.56		BLD		5 altered motifs	FAM13A	intronic
4	88945562	0.7	0.92	rs4416442	T	C	0.52		ESC, IPSC, BRN			FAM13A	intronic
4	88947927	0.7	0.92	rs2869966	C	T	0.52				Pou1f1,Pou2f2,Pou6f1	FAM13A	intronic
4	88948181	0.7	0.92	rs2869967	T	C	0.52		BLD, PLCNT		4 altered motifs	FAM13A	intronic
4	88948767	0.71	0.92	rs1812329	G	A	0.52				8 altered motifs	FAM13A	intronic
4	88949813	0.71	0.92	rs2045517	C	T	0.52		BLD, OVRY, GI	5 tissues	7 altered motifs	FAM13A	intronic

4	88951025	0.71	0.92	rs7674369	G	A	0.52		6 tissues	PLCNT	Rhox11	FAM13A	intronic
4	88951941	0.71	0.93	rs6837671	A	G	0.52		FAT, BLD, SKIN		5 altered motifs	FAM13A	intronic
4	88954758	0.65	0.86	rs1964516	C	T	0.53		BLD, PLCNT		E2F,GZF1,Zfp161	FAM13A	intronic
4	88958045	0.69	0.91	rs1585258	G	T	0.61	BLD	9 tissues		CEBPB	FAM13A	intronic
4	88962828	0.69	0.89	rs7671167	C	T	0.53		8 tissues	GI,BRST	NF-kappaB,Pou2f2	FAM13A	intronic
4	88962963	0.69	0.89	rs11347214	TG	T	0.53		7 tissues	BRST	9 altered motifs	FAM13A	intronic
4	88963935	0.69	0.89	rs2013701	G	T	0.53	FAT, LNG, BLD	13 tissues	16 tissues		FAM13A	intronic
4	88964563	0.69	0.89	rs2904259	T	C	0.53		9 tissues	19 tissues	6 altered motifs	FAM13A	intronic
4	88971647	0.66	-0.9	rs10031518	T	A	0.38			PLCNT	5 altered motifs	FAM13A	intronic
4	88974885	0.63	-0.89	rs6838424	G	A	0.38		ESC		Maf,Pou5f1	FAM13A	intronic
4	88979301	0.64	-0.89	rs10470936	A	G	0.38			LNG	4 altered motifs	FAM13A	intronic
4	88979578	0.64	-0.89	rs9307058	T	G	0.38		FAT, SKIN, LNG			FAM13A	intronic
4	88985599	0.63	-0.89	rs11722033	A	C	0.38		9 tissues	18 tissues	Irx	FAM13A	intronic
4	88986453	0.63	-0.89	rs7691363	C	T	0.38				Myc,XBP-1	FAM13A	intronic
1	178729201	0.93	-0.97	rs2811284	T	G	0.88	FAT, BLD, SKIN	BLD, LIV			RALGPS2	intronic

1	178730362	0.93	0.97	rs4652316	C	T	0.12	BLD	BLD		5 altered motifs	RALGPS2	intronic
1	178735774	0.93	0.97	rs4652318	A	G	0.12		BLD, VAS		7 altered motifs	RALGPS2	intronic
1	178736181	0.82	0.94	rs116092635	T	C	0.11		BLD		6 altered motifs	RALGPS2	intronic
1	178740831	0.97	0.98	rs4652319	C	T	0.12		FAT, BLD		Pdx1	RALGPS2	intronic
1	178741809	0.95	0.98	rs35069178	A	G	0.12				5 altered motifs	RALGPS2	intronic
1	178744699	0.95	0.98	rs4617357	C	T	0.11		LIV		LUN-1,Pitx2,STAT	RALGPS2	intronic
1	178747694	0.97	0.98	rs4651004	G	A	0.12		MUS	MUS	8 altered motifs	RALGPS2	intronic
1	178749401	0.85	0.93	rs6425501	A	G	0.11		4 tissues		HNF4,Nkx2,RXRA	RALGPS2	intronic
1	**178750171**	**1**	**1**	**rs4651005**	**C**	**T**	**0.12**		**4 tissues**		**5 altered motifs**	**RALGPS2**	**intronic**
1	178753981	0.97	1	rs4652320	G	A	0.11				Rad21,Znf143,p300	RALGPS2	intronic
1	178760485	0.98	1	rs4652323	A	G	0.12				E4BP4,Mef2	RALGPS2	intronic
1	178760982	0.98	1	rs200563516	T	TA	0.12				11 altered motifs	RALGPS2	intronic
1	178760983	0.98	1	rs12736799	T	A	0.12				11 altered motifs	RALGPS2	intronic
1	178762340	1	1	rs35105644	G	A	0.12				BRCA1,Nanog,Sox	RALGPS2	intronic
1	178767547	0.94	1	rs2862519	C	T	0.12		5 tissues		Pou2f2	RALGPS2	intronic
1	178776896	0.98	1	rs75184054	C	T	0.12				7 altered motifs	RALGPS2	intronic
1	178782096	0.97	1	rs11801661	A	G	0.12		LNG, BLD, GI		GR	RALGPS2	intronic
1	178783627	0.97	1	rs883561	C	T	0.12		FAT, BLD, VAS		7 altered motifs	RALGPS2	intronic
1	178787420	0.98	1	rs4652325	G	A	0.12				Irx	RALGPS2	intronic
1	178789091	0.98	1	rs12752114	C	G	0.12				Mef2,Zfp187	RALGPS2	intronic
1	178793934	0.97	1	rs4652326	T	A	0.12		BLD		BCL,RXRA,STAT	RALGPS2	intronic
1	178799370	0.77	0.96	rs201849160	T	TG	0.1				6 altered motifs	RALGPS2	intronic

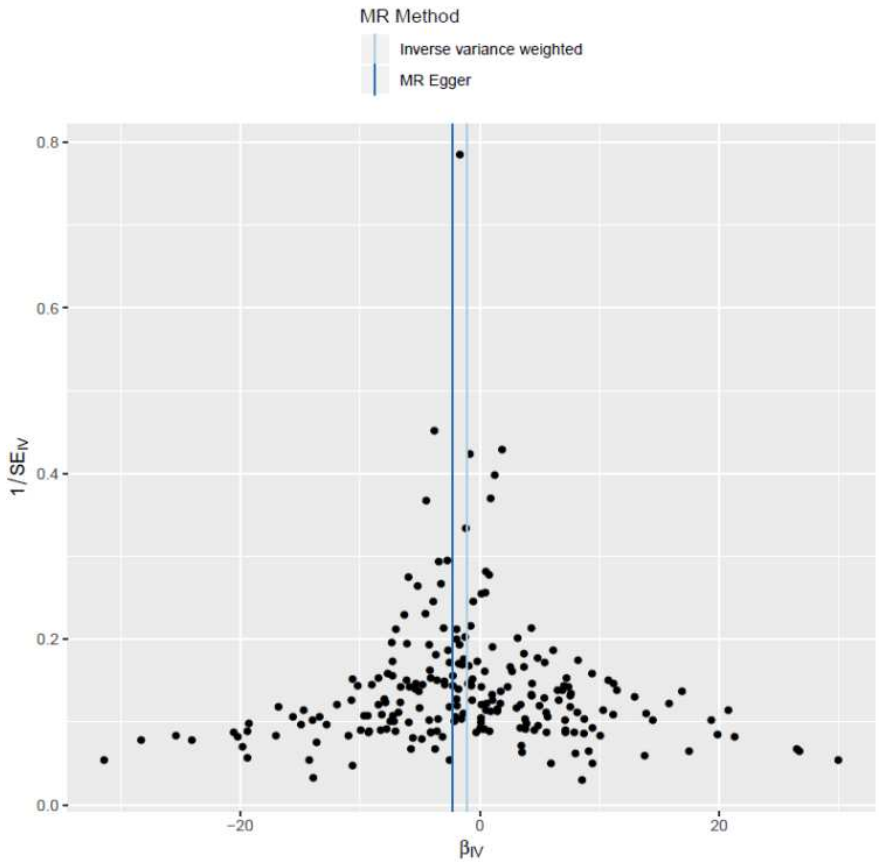
1	178799373	0.97	1	rs4652327	A	G	0.12				HDAC2,Ik-1,NF-AT1	RALGPS2	intronic
1	178803701	0.97	1	rs71108080	ATTTC	A	0.12				5 altered motifs	RALGPS2	intronic
1	178804505	0.85	1	rs11807349	C	T	0.13				Brachyury,Pax-8	RALGPS2	intronic
1	178808495	0.97	1	rs35200367	A	C	0.12				22 altered motifs	RALGPS2	intronic
1	178810617	0.95	1	rs17361747	G	T	0.12				ERalpha-a,GATA,Irx	RALGPS2	intronic
1	178810739	0.98	1	rs71628299	C	G	0.12				8 altered motifs	RALGPS2	intronic
1	178810866	0.98	1	rs71628300	T	A	0.12				5 altered motifs	RALGPS2	intronic
1	178819591	0.97	1	rs17724873	T	A	0.12		5 tissues			RALGPS2	intronic
1	178820264	0.97	1	rs3766645	G	A	0.12		BLD			RALGPS2	intronic
1	178825447	0.97	1	rs34775255	G	A	0.12				BDP1,GATA,TAL1	RALGPS2	intronic
1	178827114	0.9	0.97	rs71628301	A	G	0.12					RALGPS2	intronic
1	178828344	0.98	1	rs11800240	C	A	0.12					RALGPS2	intronic
1	178832639	0.98	1	rs3766644	T	C	0.12				6 altered motifs	RALGPS2	intronic
1	178833985	0.97	1	rs17673998	C	G	0.12				GATA,Pbx-1	RALGPS2	intronic
1	178837715	0.81	0.95	rs12757429	G	A	0.13					RALGPS2	intronic
1	178839605	0.97	1	rs141212793	T	C	0.12				13 altered motifs	RALGPS2	intronic
1	178839624	0.97	1	rs138616906	C	G	0.12				Ik-3,RFX5	RALGPS2	intronic
1	178858028	0.9	0.97	rs12757284	T	C	0.12		BRN		AP-2rep	ANGPTL1	intronic
1	178860120	0.9	0.97	rs35702974	C	G	0.12				HNF4,Hsf	ANGPTL1	intronic
1	178867836	0.9	0.95	rs3753535	T	C	0.12	16 tissues	4 tissues	18 tissues	12 altered motifs	ANGPTL1	intronic
1	178880220	0.87	0.95	rs4500277	T	G	0.12				6 altered motifs	RALGPS2	intronic
1	178889489	0.9	0.95	rs34280213	A	T	0.12				4 altered motifs	RALGPS2	intronic
1	178893269	0.9	0.95	rs12728968	T	C	0.12				Irf	RALGPS2	intronic
1	178897539	0.92	0.97	rs17674780	A	G	0.12				GATA	RALGPS2	intronic

1	178900219	0.92	0.97	rs17725787	A	G	0.12				Hoxb8	RALGPS2	intronic
1	178900483	0.88	0.95	rs34866383	T	G	0.11				6 altered motifs	RALGPS2	intronic
1	178909922	0.98	1	rs34163314	T	G	0.12				Pitx2	RALGPS2	intronic
1	178921650	0.95	0.98	rs7366	A	G	0.12	BLD	ESDR, BLD, LIV		Nkx2,Nkx3	1.5kb 3' of RALGPS2	
1	178927212	0.92	0.97	rs4652333	G	C	0.11		5 tissues	HRT,GI	NF-AT	7.1kb 3' of RALGPS2	
1	178928183	0.93	0.97	rs71630204	T	C	0.12		7 tissues	SKIN,SKIN	5 altered motifs	8.1kb 3' of RALGPS2	
1	178929896	0.85	0.95	rs10718126	CA	C	0.11				4 altered motifs	9.8kb 3' of RALGPS2	
1	178932055	0.86	0.95	rs35810656	A	G	0.12	FAT, GI	17 tissues	13 tissues		12kb 3' of RALGPS2	
1	178932319	0.9	0.95	rs202115048	G	GGC	0.12	GI	18 tissues	19 tissues	SP1	12kb 3' of RALGPS2	
1	178934192	0.86	0.95	rs7546750	G	A	0.12	GI	13 tissues	6 tissues	Egr-1,NF-Y	14kb 3' of RALGPS2	
1	178934502	0.86	0.95	rs871631	G	A	0.12	GI	10 tissues		ATF3	14kb 3' of RALGPS2	
1	178934631	0.9	0.95	rs871632	T	C	0.12	GI	10 tissues	MUS		15kb 3' of RALGPS2	
1	178936975	0.73	0.96	rs12751889	C	T	0.09		5 tissues			17kb 3' of RALGPS2	
1	178937190	0.82	0.96	rs113318616	C	T	0.1		4 tissues		CEBPA,CEBPD,Zbtb3	17kb 3' of RALGPS2	

2	200267412	0.6	-0.9	rs73054578	A	G	0.15		LNG		4 altered motifs	38kb 5' of SPATS2L	
2	200326009	0.69	-1	rs76913544	G	A	0.14		ESC, LIV		5 altered motifs	SPATS2L	intronic
2	200336095	1	1	rs6435049	A	G	0.81		7 tissues		IRC900814,RFX5,STAT	SPATS2L	intronic
2	200336404	0.69	1	rs200067957	A	AT	0.75		5 tissues		8 altered motifs	SPATS2L	intronic
2	200336408	1	1	rs4673948	A	T	0.81		5 tissues		6 altered motifs	SPATS2L	intronic
2	200336467	0.69	1	rs995521	T	G	0.86		5 tissues		HNF4,RXRA,TCF4	SPATS2L	intronic
2	200339658	0.98	1	rs3769468	A	T	0.81		13 tissues			SPATS2L	intronic
2	200339806	1	1	rs2881718	A	T	0.81		14 tissues		8 altered motifs	SPATS2L	intronic
2	200343085	0.67	0.97	rs1966710	A	T	0.86		STRM	BRN,BRN	Maf	SPATS2L	intronic
2	**200343969**	**1**	**1**	**rs985256**	**A**	**C**	**0.81**				**Foxp1,Pou2f2**	**SPATS2L**	**intronic**
2	200348784	0.69	1	rs7575286	A	T	0.86		6 tissues	MUS	p300	SPATS2L	intronic
2	200349871	0.69	1	rs13036124	A	G	0.86		5 tissues	ESDR,ESC,IPSC	Pou2f2	SPATS2L	intronic
2	200350600	0.67	0.97	rs4673988	T	C	0.86		5 tissues		Zbtb3	SPATS2L	intronic
2	200351557	0.69	-1	rs3769464	C	T	0.14		13 tissues	MUS	7 altered motifs	SPATS2L	intronic
2	200353102	0.69	1	rs3754800	G	T	0.86	BONE	16 tissues	10 tissues	6 altered motifs	SPATS2L	intronic
2	200357436	0.6	-0.92	rs295145	C	T	0.14		19 tissues	7 tissues	ERalpha-a	SPATS2L	intronic
2	200381149	0.8	-0.91	rs842826	A	G	0.19	STRM, BLD, BRN	18 tissues	10 tissues	4 altered motifs	SPATS2L	intronic
2	200382145	0.79	-0.91	rs842827	C	T	0.18		12 tissues	IPSC	7 altered motifs	SPATS2L	intronic
2	200382768	0.79	-0.91	rs842828	C	T	0.18		14 tissues		Mrg1::Hoxa9,Pou2f2	SPATS2L	intronic
2	200383095	0.79	-0.91	rs842829	C	T	0.18	4 tissues	19 tissues	6 tissues	CTCF,SP1	SPATS2L	intronic
2	200389326	0.71	0.86	rs3820881	G	C	0.82				Egr-1,Myc,SRF	SPATS2L	intronic

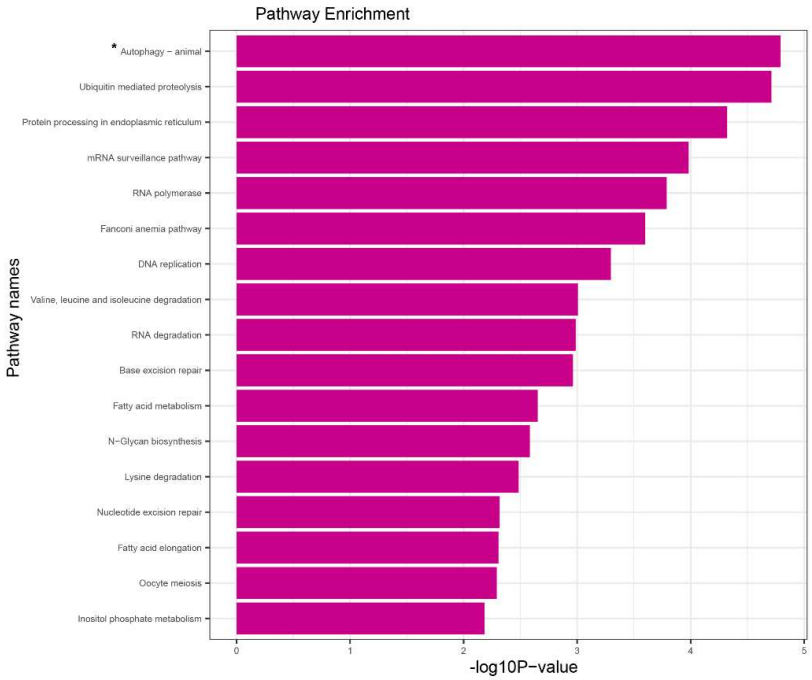
2	200390411	0.68	-0.86	rs842825	G	A	0.17		BLD	BLD	BCL,Sin3Ak-20	SPATS2L	intronic
2	200391851	0.68	-0.86	rs7585698	A	C	0.17				5 altered motifs	SPATS2L	intronic
2	200407293	0.65	0.84	rs1217061	G	C	0.82		18 tissues	BLD	GATA	SPATS2L	intronic
2	200408857	0.64	0.83	rs13024020	G	T	0.82	9 tissues	19 tissues	11 tissues	Nkx2	SPATS2L	intronic
2	200411609	0.61	0.83	rs893355	T	G	0.83		6 tissues		4 altered motifs	SPATS2L	intronic
2	200415016	0.61	0.83	rs3769448	T	A	0.83				Nkx3	SPATS2L	intronic
16	86528861	0.6	0.87	rs4843979	C	T	0.49		STRM, OVRY, MUS	4 tissues		1.3kb 3' of MTHFSD	
16	86529970	0.61	0.85	rs8052458	T	C	0.51				6 altered motifs	205bp 3' of MTHFSD	
16	86531065	0.61	0.86	rs1046200	G	T	0.5			7 tissues	4 altered motifs	MTHFSD	3'-UTR
16	86531880	0.61	0.83	rs3829536	T	C	0.52		5 tissues	OVRY	4 altered motifs	MTHFSD	3'-UTR
16	86533886	0.67	0.89	rs3751797	A	T	0.51		BRN		4 altered motifs	MTHFSD	intronic
16	86534724	0.67	0.89	rs16941442	A	G	0.51		BRN			MTHFSD	intronic
16	86543651	0.87	1	rs1019548	G	A	0.59				SEF-1	MTHFSD	intronic
16	**86545617**	**1**	**1**	**rs6539952**	**C**	**A**	**0.55**		**4 tissues**		**AP-2,HEY1**	**MTHFSD**	**intronic**
16	86547760	0.94	0.99	rs2059258	G	A	0.56				17 altered motifs	MTHFSD	intronic
16	86554251	0.92	0.97	rs12102689	A	G	0.56	16 tissues	12 tissues	4 tissues		MTHFSD	intronic
16	86559998	0.65	0.96	rs35198771	G	A	0.47			MUS	4 altered motifs	4.8kb 5' of MTHFSD	

Supplementary Figure 1. Funnel plot of SNPs associated with lung function and their effect on coal worker's pneumoconiosis

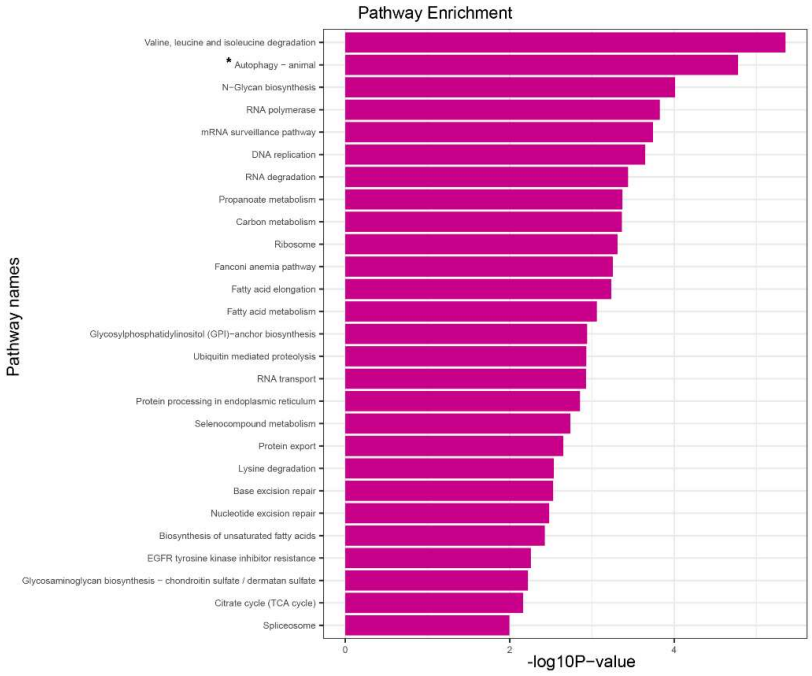


Supplementary Figure 2. KEGG enrichment analysis for genes co-expressed with FAM13A (A), ANGPTL1 (B), SPATS2L (C), and RP11-463O9.9 (D) according to RNA-sequencing results of normal lung tissues from GTEx-V8.

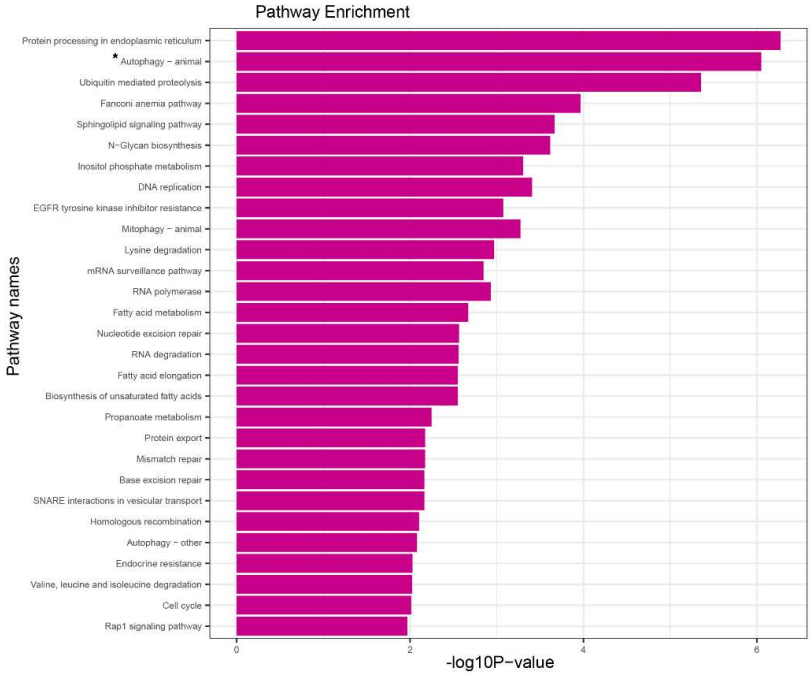
A



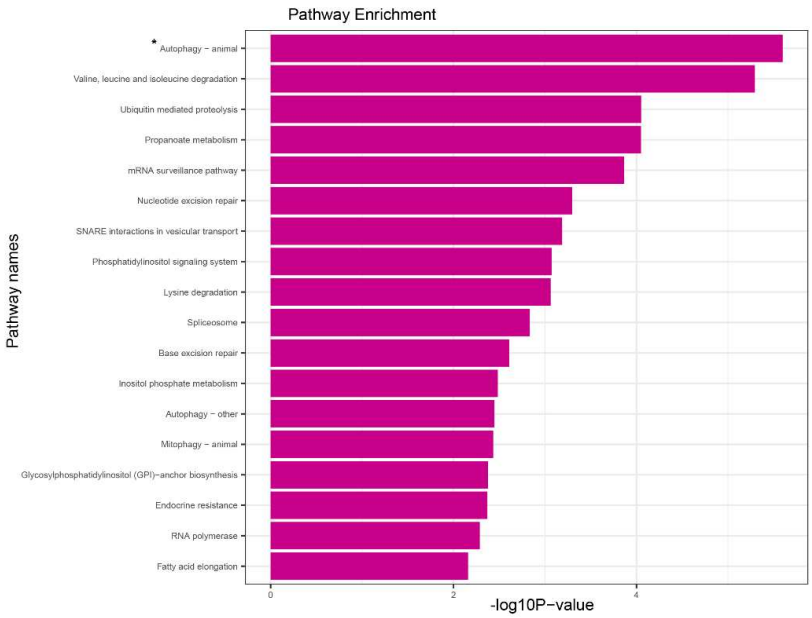
B



C


Pathway Enrichment
Protein processing in endoplasmic reticulum
* Autophagy − animal
Ubiquitin mediated proteolysis
Fanconi anemia pathway
Sphingolipid signaling pathway
N−Glycan biosynthesis
Inositol phosphate metabolism
DNA replication
EGFR tyrosine kinase inhibitor resistance
Mitophagy − animal
Lysine degradation
mRNA surveillance pathway
RNA polymerase
Fatty acid metabolism
Nucleotide excision repair
RNA degradation
Fatty acid elongation
Biosynthesis of unsaturated fatty acids
Propanoate metabolism
Protein export
Mismatch repair
Base excision repair
SNARE interactions in vesicular transport
Homologous recombination
Autophagy − other
Endocrine resistance
Valine, leucine and isoleucine degradation
Cell cycle
Rap1 signaling pathway
Pathway names
0
2
4
6
-log10P−value

D


Pathway Enrichment
* Autophagy − animal
Valine, leucine and isoleucine degradation
Ubiquitin mediated proteolysis
Propanoate metabolism
mRNA surveillance pathway
Nucleotide excision repair
SNARE interactions in vesicular transport
Phosphatidylinositol signaling system
Lysine degradation
Spliceosome
Base excision repair
Inositol phosphate metabolism
Autophagy − other
Mitophagy − animal
Glycosylphosphatidylinositol (GPI)−anchor biosynthesis
Endocrine resistance
RNA polymerase
Fatty acid elongation
Pathway names
0
2
4
-log10P−value