

Supplementary Table 1. SNPs used to construct the polygenic risk score for AR.

rsID	Chr	Position	Locus	EA	EAF	OR (95% CI)
rs2070902	1	161187665	1q23.3	T	0.25	1.05 (1.04,1.06)
rs2815765	1	72752230	1p31.1	T	0.37	0.96 (0.95,0.97)
rs950881	2	102932512	2q12.1	T	0.15	0.88 (0.87,0.90)
rs13395467	2	8451498	2p25.1	G	0.28	0.94 (0.92,0.95)
rs2164068	2	198943852	2q33.1	A	0.49	0.94 (0.93,0.96)
rs11677002	2	28614401	2p23.2	C	0.45	0.97 (0.96,0.97)
rs6738964	2	228739135	2q36.3	G	0.24	0.96 (0.95,0.97)
rs2030519	3	188119901	3q28	G	0.49	1.06 (1.04,1.07)
rs62257549	3	51522676	3p21.2	A	0.20	0.95 (0.94,0.97)
rs5743618	4	38798648	4p14	A	0.27	0.90 (0.89,0.92)
rs148505069	4	123417564	4q27	G	0.33	1.07 (1.05,1.08)
rs12509403	4	103525350	4q24	T	0.32	0.96 (0.95,0.97)
rs1438673	5	110467499	5q22.1	C	0.50	1.08 (1.07,1.10)
rs9687749	5	131955577	5q31.1	T	0.44	1.06 (1.04,1.09)
rs7717955	5	35862841	5p13.2	T	0.27	0.94 (0.93,0.95)
rs34004019	6	32626403	6p21.32	G	0.27	0.89 (0.87,0.90)
rs2428494	6	31322197	6p21.33	A	0.42	1.08 (1.06,1.09)
rs1504215	6	91006227	6q15	A	0.34	0.95 (0.94,0.96)
rs9648346	7	28160113	7p15.1	G	0.22	1.05 (1.03,1.06)
rs7824993	8	81262896	8q21.13	A	0.37	1.05 (1.04,1.07)
rs6470578	8	128809557	8q24.21	T	0.28	1.05 (1.03,1.07)
rs9775039	9	6177453	9p24.1	A	0.16	1.08 (1.06,1.10)
rs2519093	9	136141870	9q34.2	T	0.20	1.05 (1.04,1.07)
rs11256017	10	9043919	10p14	T	0.18	1.07 (1.05,1.09)
rs7936323	11	76293758	11q13.5	A	0.48	1.08 (1.06,1.09)
rs28361986	11	118693161	11q23.3	A	0.20	0.94 (0.92,0.95)
rs2461475	12	121290174	12q24.31	C	0.47	1.03 (1.02,1.04)
rs7328203	13	42988546	13q14.11	G	0.46	1.03 (1.02,1.04)
rs61977073	14	38151255	14q21.1	G	0.22	1.06 (1.04,1.08)
rs17294280	15	67468285	15q22.33	G	0.25	1.07 (1.05,1.09)
rs111371454	15	41760617	15q15.1	G	0.21	1.05 (1.03,1.06)
rs11644510	16	11277358	16p13.13	T	0.37	0.93 (0.92,0.95)
rs12939457	17	38032188	17q12	C	0.44	0.94 (0.92,0.95)
rs11671925	19	33718053	19q13.11	A	0.17	0.95 (0.94,0.96)
rs3787184	20	50157837	20q13.2	G	0.19	0.94 (0.93,0.96)

Abbreviations: AR, allergic rhinitis; Chr, Chromosome; CI, confidence interval; EA, effect allele; EAF, effect allele frequency; GWAS, genome-wide association study; OR odds ratio; SNP, single nucleotide polymorphism.

Supplementary Table 2. Risk of incident Allergic rhinitis according to PRS score

	Total No. of Participants	No. of dementia cases/person-years	HR (95% CI)	P value
Model 1^a				
Low	30686	223/380620	1[reference]	—
Intermediate	61372	547/761627	1.23(1.05,1.44)	0.009
High	30686	381/380807	1.72(1.46,2.03)	<0.001
Model 2^b				
Low	30686	223/380620	1[reference]	—
Intermediate	61372	547/761627	1.19(1.02,1.39)	0.026
High	30686	381/380807	1.62(1.37,1.91)	<0.001

HRs and 95% CIs were computed by Cox proportional hazard regressions.

^a Model 1 was adjusted for age, sex, ethnicity, education, TDI.

^b Model 2 was adjusted for model 1 + BMI, sleep duration, smoking status, drinking status, asthma, diabetes, hypertension, and physical activity.

Low, quartile 1; Intermediate, quartile 2 to 3; High, quartile 4.

Supplementary Table 3. Sensitivity analysis of dietary AGEs intake and the risk of rhinitis

	No. of cases/participants	AGEs	CEL	CML	MG-H1
Sensitivity analysis 1					
HR (95%CI)	962/108997	1.25 (1.04, 1.50)	1.16(0.96, 1.39)	1.11(0.92, 1.34)	1.12 (0.93, 1.34)
P trend		0.018	0.114	0.268	0.234
Sensitivity analysis 2					
HR (95%CI)	840/108875	1.25 (1.03, 1.53)	1.17(0.97, 1.42)	1.11(0.91, 1.34)	1.15 (0.94, 1.40)
P trend		0.024	0.107	0.323	0.152

Sensitivity analysis 1: excluded cases with related diseases such as asthma, nasal and pharyngeal diseases, diabetes, and severe heart disease at baseline.

Sensitivity analysis 2: excluded participants with allergic rhinitis during the first five-year follow-up.

Sensitivity analysis was adjusted for fitted model 2. Covariates adjusted for age, sex, education, race, TDI, BMI, sleep duration, smoking status, drinking status, asthma, diabetes, hypertension and physical activity.

Abbreviations: AGEs, advanced glycation end products (AGEs); CEL, Nε-(1-carboxyethyl) lysine; CML, Nε-(carboxymethyl) lysine; MG-H1, Nδ-(5-hydro-5-methyl-4-imidazolone-2-yl)-ornithine; TDI, Townsend deprivation index; BMI, Body mass index.