

**Supplementary Table S1.** Baseline information table for exposed subject and outcome subjects

Subject	Year	Population	Author	GWAS ID	Sample size	n case	n control	n SNP
Exposed subject								
Emergency caesarean section	2018	European	Neale lab	ukb-d-41221_8	8,019	1,158	6,861	9,538,969
Outcome subjects								
Allergic disease	2017	European	Ferreira MA	ebi-a-GCST005038	360,838	180,129	180,709	8,133,670
Childhood allergy (age < 16)	2021	European	-	finn-b-CHILDHOOD_ALLERGY	218,792	2,748	216,044	16,380,466
Allergic asthma	2021	European	-	finn-b-ALLERG_ASTHMA	140,308	4,859	135,449	16,379,987
Allergic rhinitis	2021	European	-	finn-b-ALLERG_RHINITIS	217,914	5,527	212,387	16,380,461
Atopic dermatitis	2021	European	-	finn-b-L12_ATOPIC	205,764	7,024	198,740	16,380,443
Eczema	2014	European	Paternoster	ieu-a-996	40,835	10,788	30,047	11,059,641
Allergic urticaria	2021	European	-	finn-b-L12_URTICA_ALLERG	213,633	1,169	212,464	16,380,463
Allergic purpura	2021	European	-	finn-b-D3_ALLERGPURPURA	216,569	470	216,099	16,380,461
Allergic conjunctivitis	2021	European	-	finn-b-H7_ALLERGICCONJUNCTIVITIS	218,792	9,833	208,959	16,380,466
Lactose intolerance	2021	European	-	finn-b-E4_LACTOSEINT	197,704	445	197,259	16,380,377
Immunoglobulin E	2018	European	Sun BB	prot-a-1456	3,301	-	-	10,534,735
Eosinophil percentage	2020	Greater Middle Eastern	Pan-UKB team	ukb-e-30210_MID	1,546	1,546	-	11,885,437
Basophil percentage	2016	European	Astle WJ	ebi-a-GCST004631	171,996	-	-	29,167,217

**Supplementary Table S2.** Screening results of single nucleotide polymorphism

Exposed object	SNP	Beta	SE	EA	NEA	EAF	F
Emergency caesarean section	rs1337190	-0.068	0.015	T	G	0.037	21
Emergency caesarean section	rs62249929	-0.027	0.006	T	G	0.552	23
Emergency caesarean section	rs1397979	0.096	0.021	T	C	0.018	21
Emergency caesarean section	rs13353639	0.064	0.014	G	A	0.040	20
Emergency caesarean section	rs80322566	0.104	0.022	T	C	0.017	22
Emergency caesarean section	rs79298582	0.080	0.018	T	C	0.024	20
Emergency caesarean section	rs111349697	0.069	0.015	A	G	0.035	20
Emergency caesarean section	rs117784129	0.070	0.015	C	T	0.037	22
Emergency caesarean section	rs11755188	-0.053	0.011	T	C	0.065	22
Emergency caesarean section	rs184180733	-0.059	0.012	A	G	0.055	24
Emergency caesarean section	rs117068091	0.096	0.021	T	C	0.019	20
Emergency caesarean section	rs146249310	0.112	0.021	A	G	0.020	28
Emergency caesarean section	rs12415639	-0.026	0.006	C	T	0.417	22
Emergency caesarean section	rs201422416	0.073	0.015	A	C	0.039	25
Emergency caesarean section	rs12361778	0.083	0.018	A	C	0.024	22
Emergency caesarean section	rs659722	0.085	0.019	G	C	0.022	20
Emergency caesarean section	rs186094862	0.061	0.013	T	C	0.054	21
Emergency caesarean section	rs34015109	0.088	0.019	G	A	0.022	22

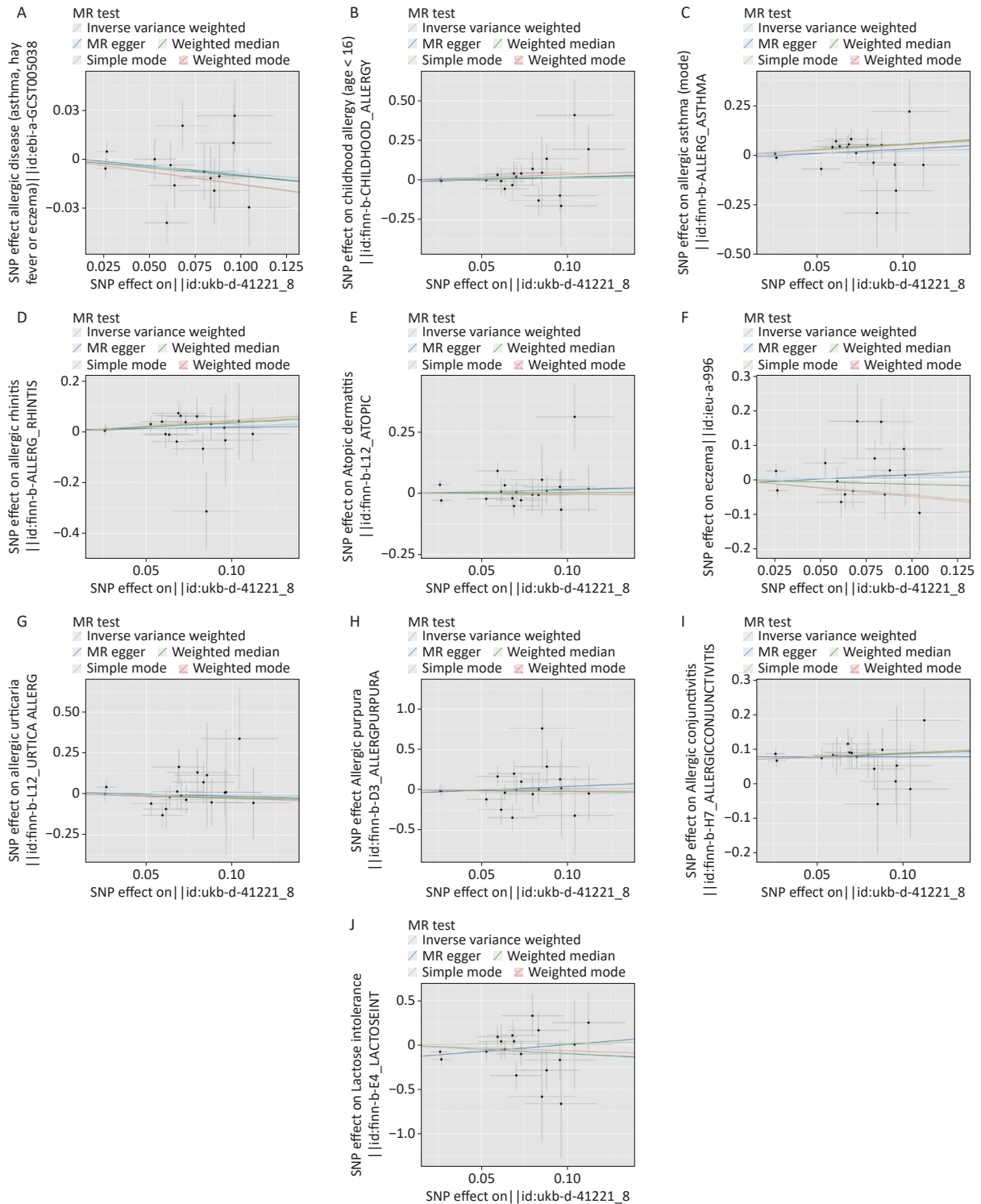
**Note.** SNP: single nucleotide polymorphism; SE: standard error; EA: effect allele; NEA: non-effect allele; EAF: effect allele frequency.

**Supplementary Table S3.** Sensitivity analysis

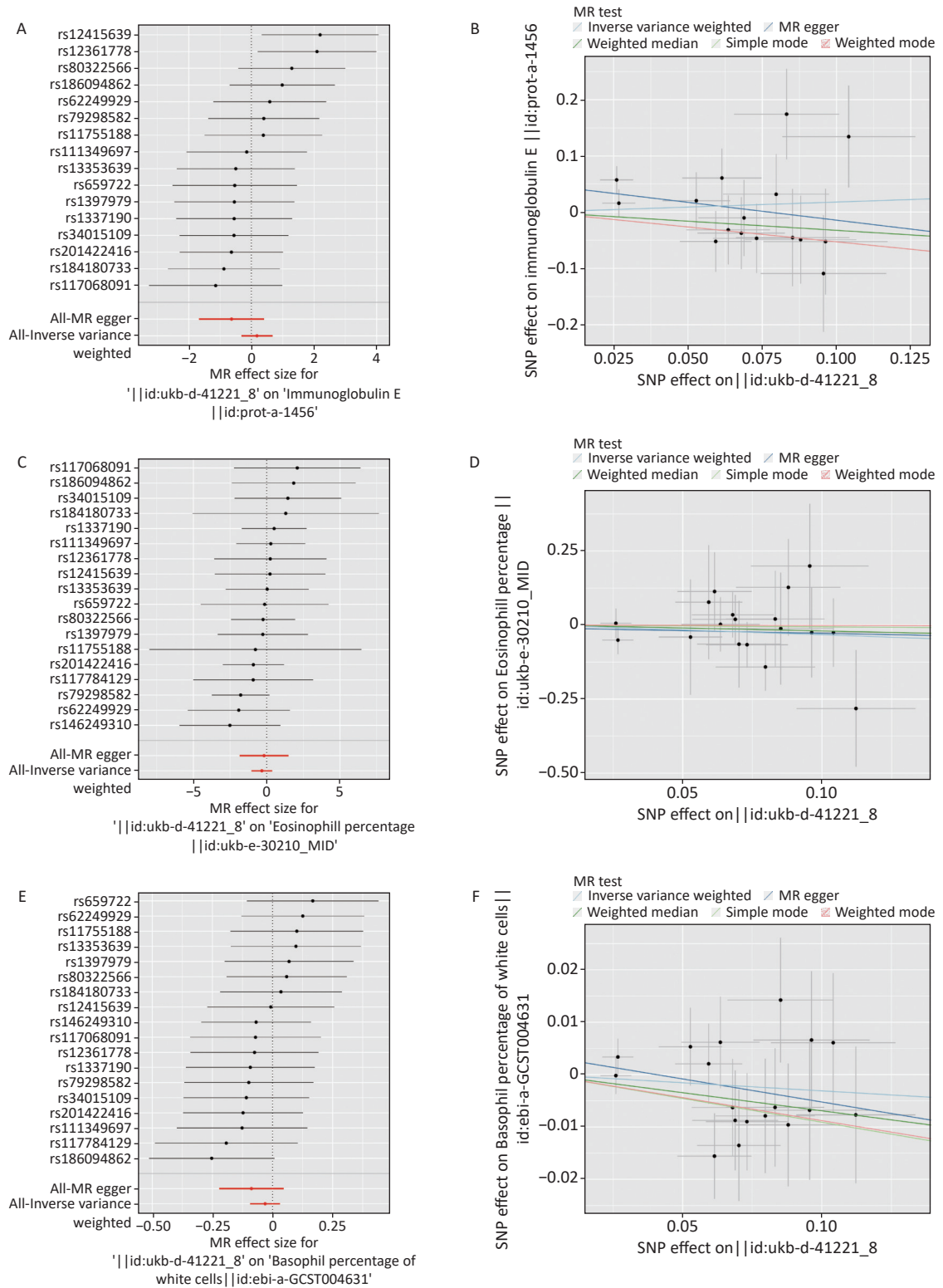
Outcome	Heterogeneity		Pleiotropy	
	Q	P	Intercept	p
Allergic disease	16	0.224	0.002	0.841
Childhood allergy (age <16)	13	0.735	-0.013	0.717
Allergic asthma	19	0.346	-0.014	0.605
Allergic rhinitis	13	0.762	0.007	0.751
Atopic dermatitis	22	0.174	-0.003	0.905
Eczema	21	0.099	-0.011	0.684
Allergic urticaria	10	0.888	0.012	0.815
Allergic purpura	15	0.571	-0.045	0.565
Allergic conjunctivitis	6	0.995	0.009	0.632
Lactose intolerance	18	0.360	-0.150	0.073
Immunoglobulin E	18	0.268	0.049	0.108
Eosinophil percentage	9	0.933	-0.010	0.848
Basophil percentage	13	0.768	0.004	0.363

**Supplementary Table S4.** Differentially expressed genes associated with caesarean section

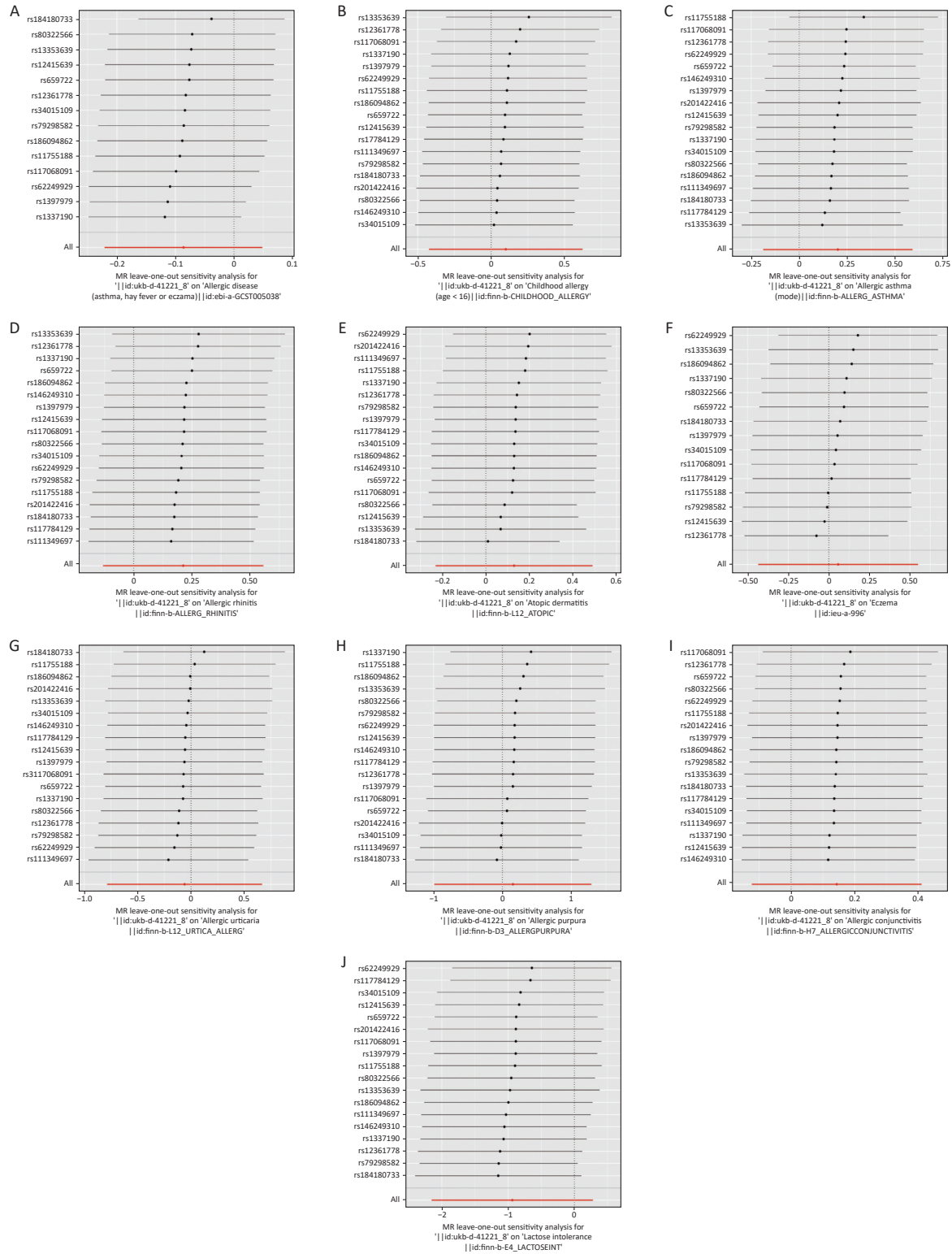
Gene	ID	logFC	adj.P.Val	Expression
HINT3	228697_at	3.259010636	0.000469954	up
IGF2BP3	216493_s_at	-3.027401576	3.14647E-05	down
BMP7	209591_s_at	-2.734693518	6.10673E-05	down
LNPEP	243532_at	-2.595499519	0.000148732	down
BCLAF1	201101_s_at	-2.527165559	0.000166675	down
SVEP1	224543_at	-2.520435946	0.00046041	down
APOLD1	221031_s_at	2.472906932	0.000634009	up
CFDP1	210701_at	2.358095612	0.000511744	up
AGO2	225827_at	-2.283314268	3.33373E-05	down
PDK4	1562321_at	2.275045549	0.001499066	up
NR1D2	209750_at	-2.271033433	0.000622949	down
DDX17	208151_x_at	-2.243062921	0.019070058	down
RABGAP1L	215342_s_at	-2.215114208	0.010436147	down
PIP5K1A	211205_x_at	-2.21060312	2.30491E-05	down
IQGAP1	213446_s_at	-2.193546636	1.83871E-05	down
RBM39	227223_at	-2.185378461	0.00072474	down
SIK1	208078_s_at	2.148953725	0.001194315	up
DNAJC3	235341_at	-2.112963349	0.042014383	down
KIAA0907	230028_at	-2.083202112	2.88288E-06	down
SESN3	235150_at	-2.071194078	0.00272332	down
ORMDL3	235136_at	-2.004201728	5.59057E-05	down



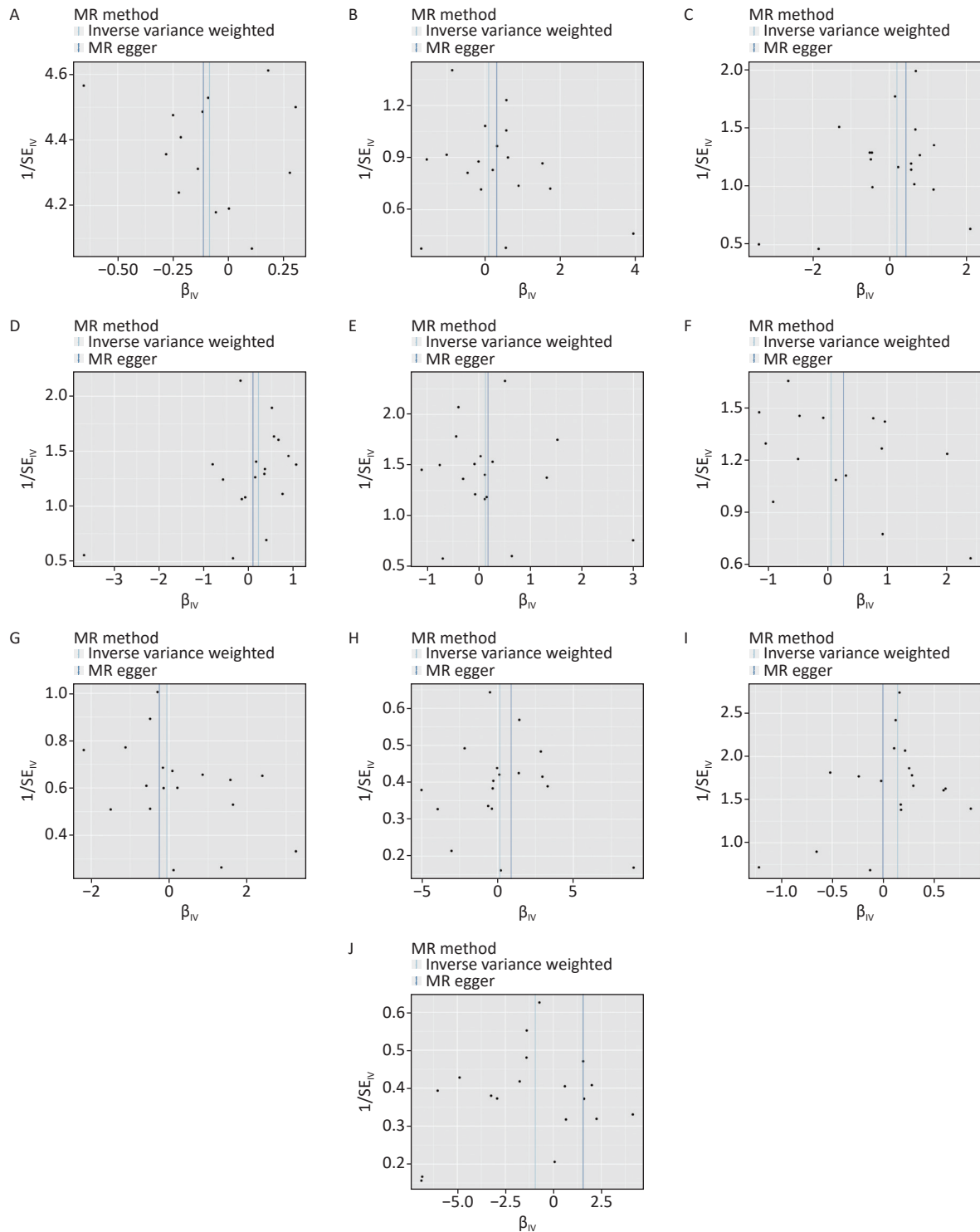
**Supplementary Figure S1.** Scatter plot of MR analysis. (A) allergic disease. (B) childhood allergy (age < 16). (C) allergic asthma. (D) allergic rhinitis. (E) atopic dermatitis. (F) eczema. (G) allergic urticaria. (H) allergic purpura. (I) allergic conjunctivitis. (J) lactose intolerance. MR: mendelian randomization.



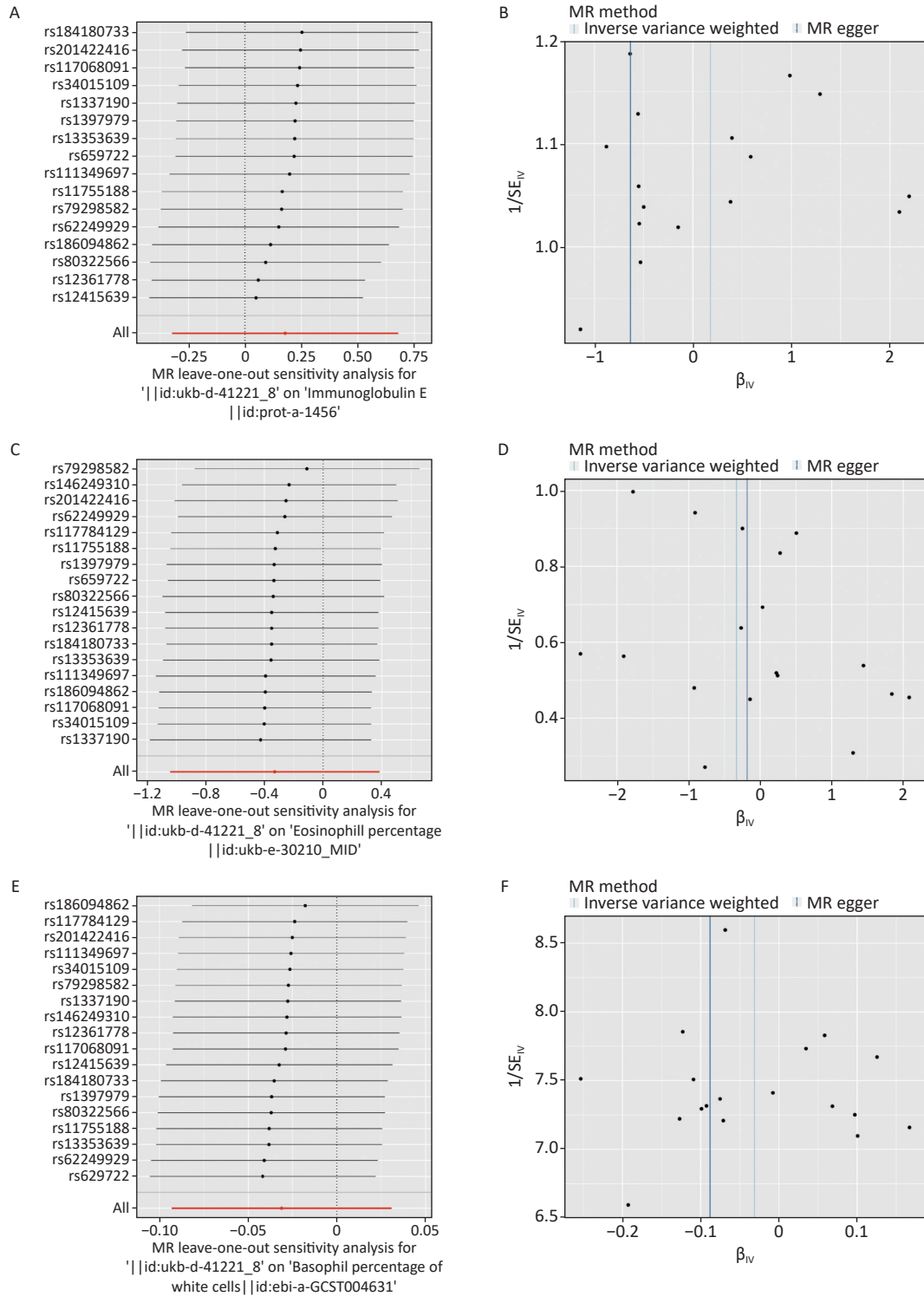
**Supplementary Figure S2.** Forest diagram and scatter plot of MR analysis. (A–B) Ig E. (C–D) eosinophil percentage. (E–F) basophil percentage. MR: mendelian randomization; Ig E: Immunoglobulin E.



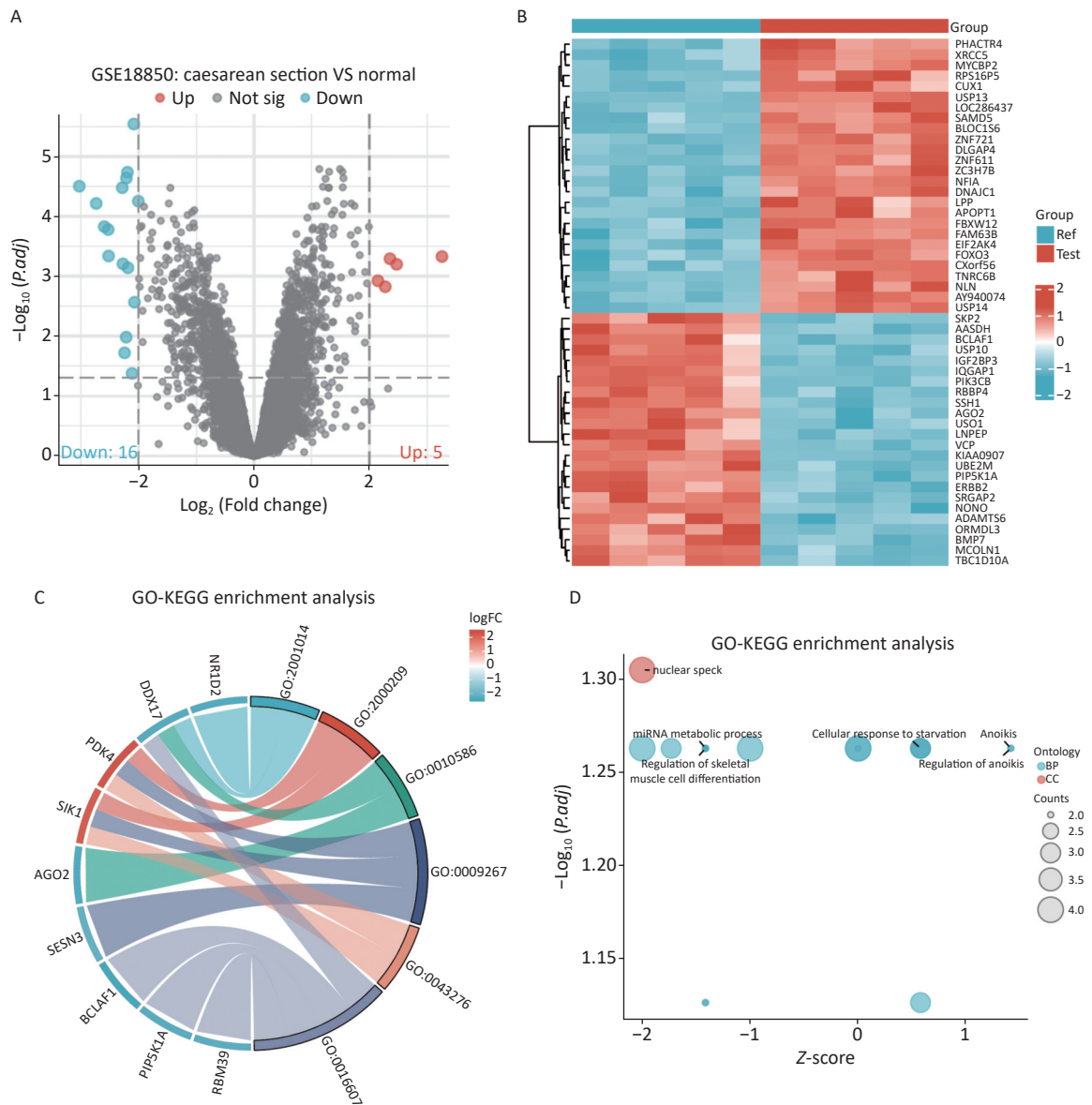
**Supplementary Figure S3.** The leave-one-out sensitivity analysis. (A) allergic disease. (B) childhood allergy (age < 16). (C) allergic asthma. (D) allergic rhinitis. (E) atopic dermatitis. (F) eczema. (G) allergic urticaria. (H) allergic purpura. (I) allergic conjunctivitis. (J) lactose intolerance.



**Supplementary Figure S4.** Funnel diagram of MR analysis. (A) allergic disease. (B) childhood allergy (age < 16). (C) allergic asthma. (D) allergic rhinitis. (E) atopic dermatitis. (F) eczema. (G) allergic urticaria. (H) allergic purpura. (I) allergic conjunctivitis. (J) lactose intolerance. MR: mendelian randomization.



**Supplementary Figure S5.** The leave-one-out sensitivity analysis and funnel diagram of MR analysis. (A–B) Ig E. (C–D) eosinophil percentage. (E–F) basophil percentage. MR: mendelian randomization; Ig E: Immunoglobulin E.



**Supplementary Figure S6.** Screening and enrichment analysis of DEGs for caesarean section. (A) Volcano map. (B) Heat map. (C–D) GO enrichment analysis of DEGs. DEGs: differentially expressed genes; GO: Gene Ontology.