

Supplementary Figures

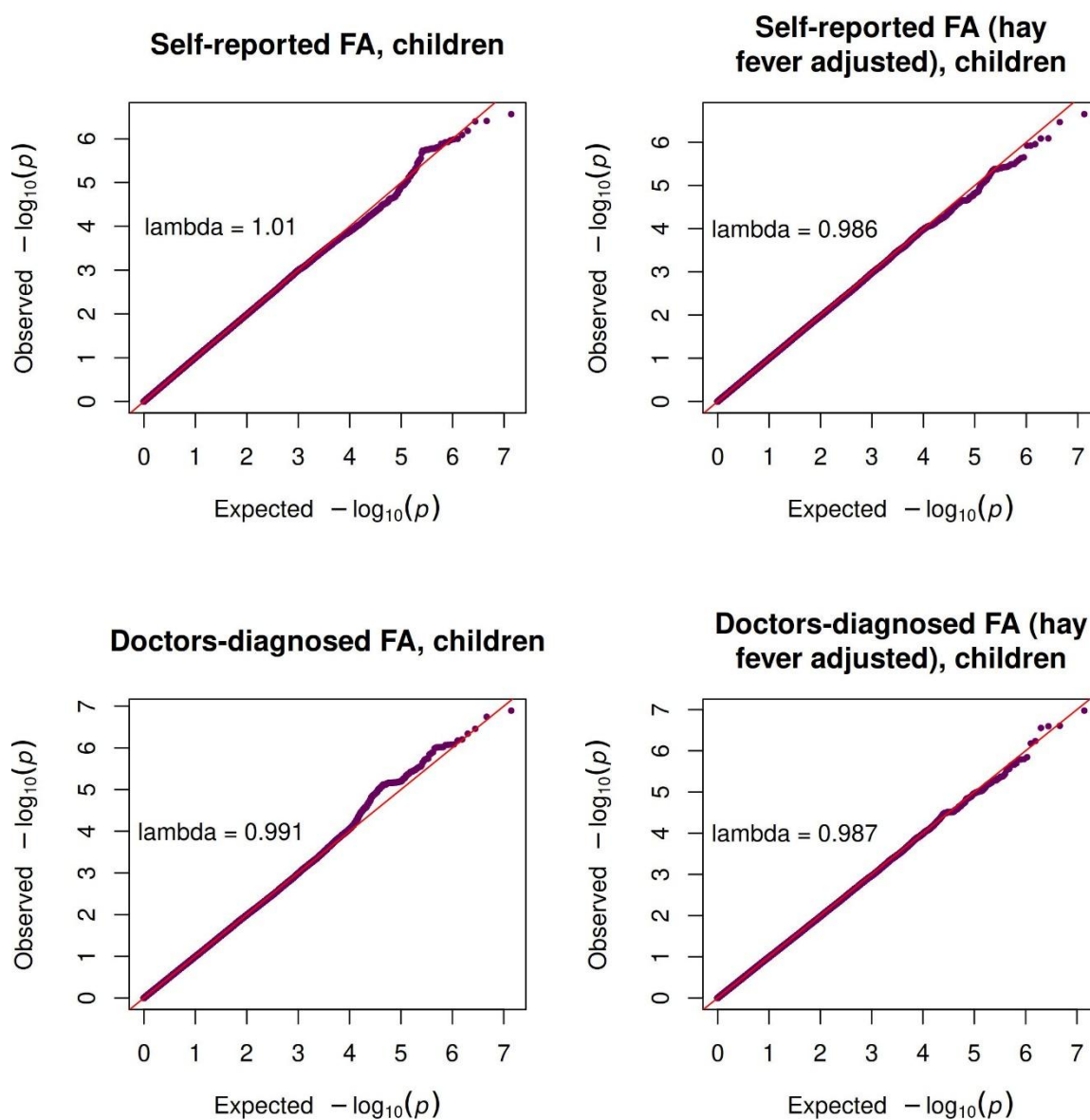
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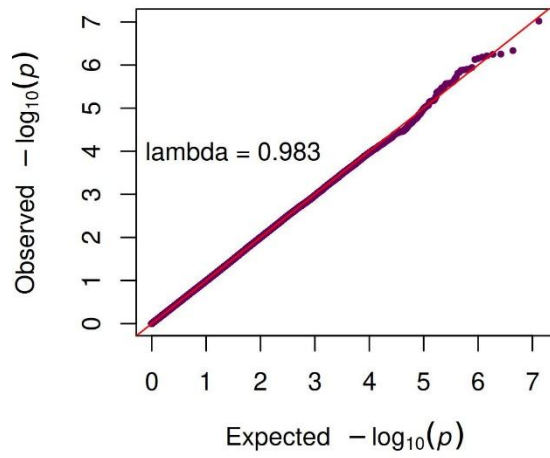
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Figure E1: QQ-plots and lambda of meta-analyses per phenotype, age group and model.

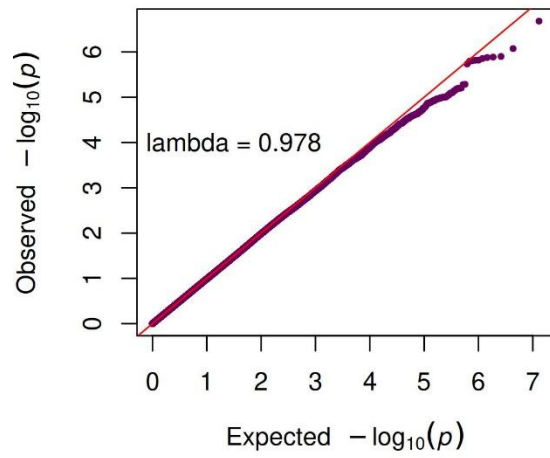
Children



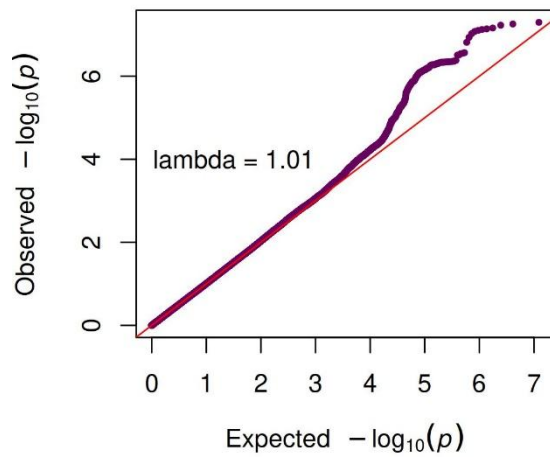
Sensitization, children



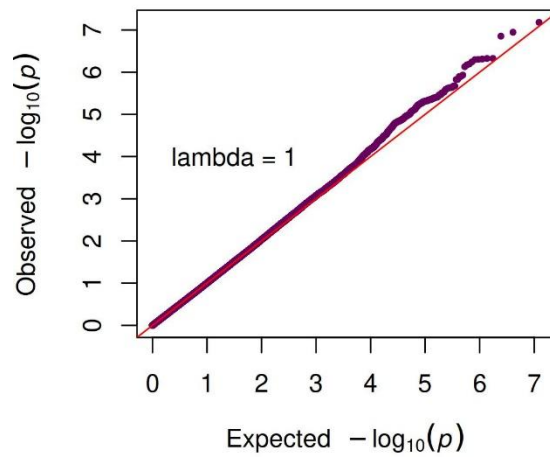
Sensitization (hay fever adjusted), children



Doctors-diagnosed FA + sensitization, children

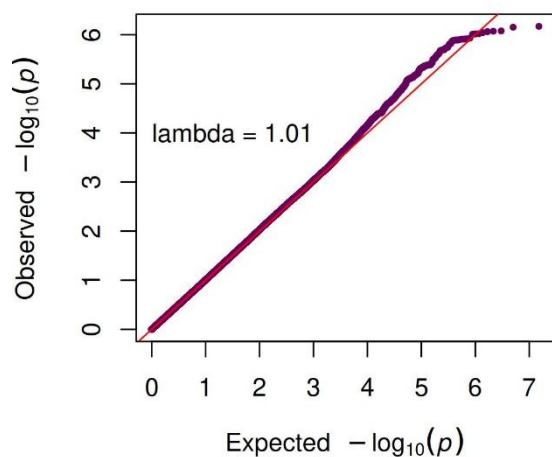


Doctors-diagnosed FA + sensitization (hay fever adjusted), children

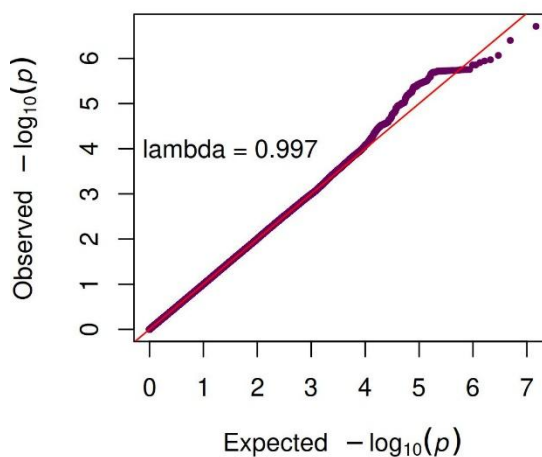


Adults

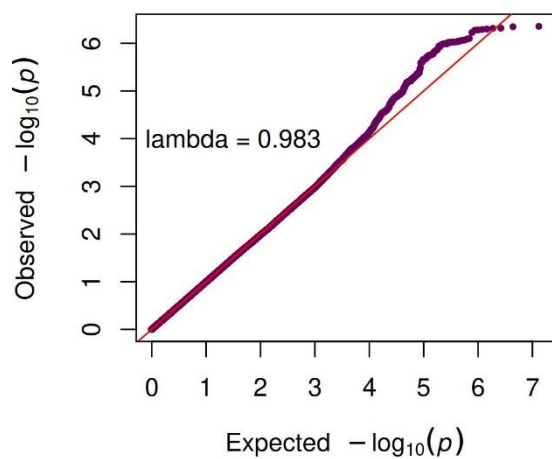
Self-reported FA, adults



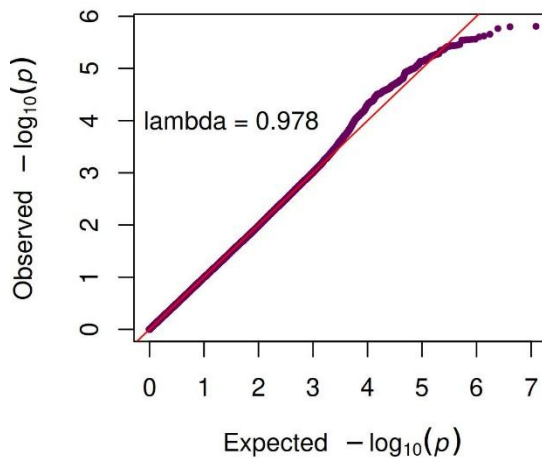
Self-reported FA (hay fever adjusted), adults



Doctors-diagnosed FA, adults



Doctors-diagnosed FA (hay fever adjusted), adults



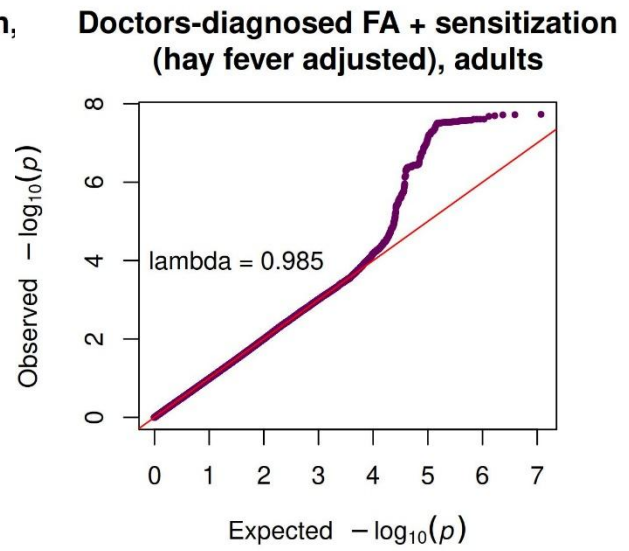
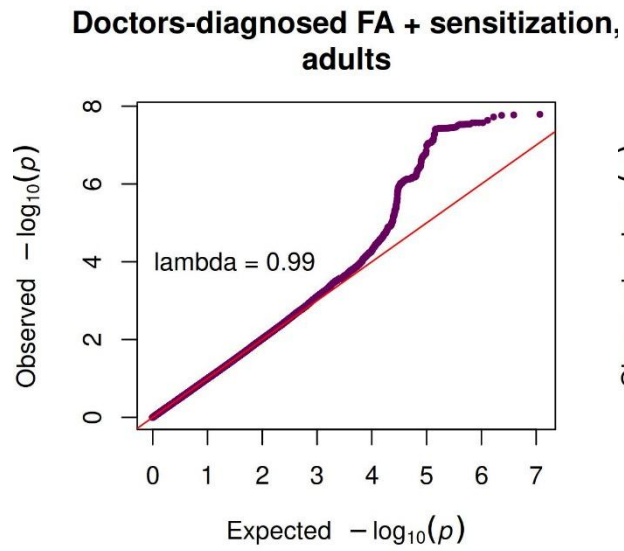
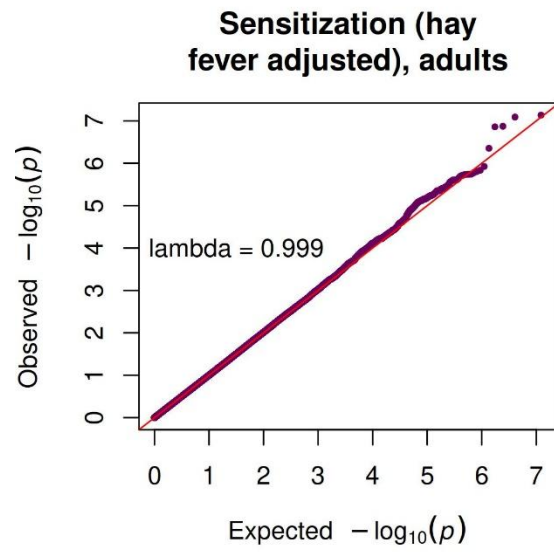
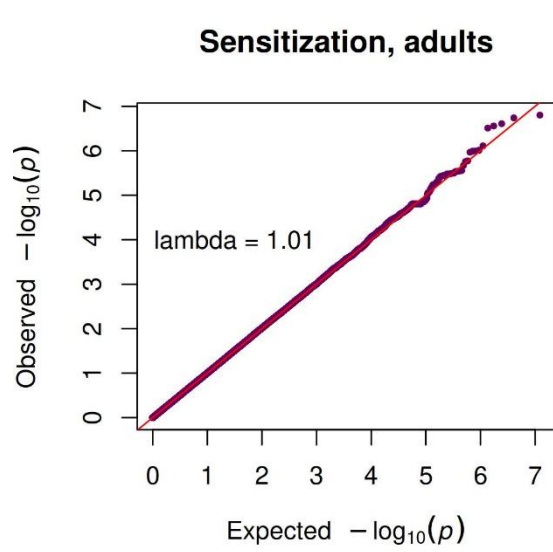
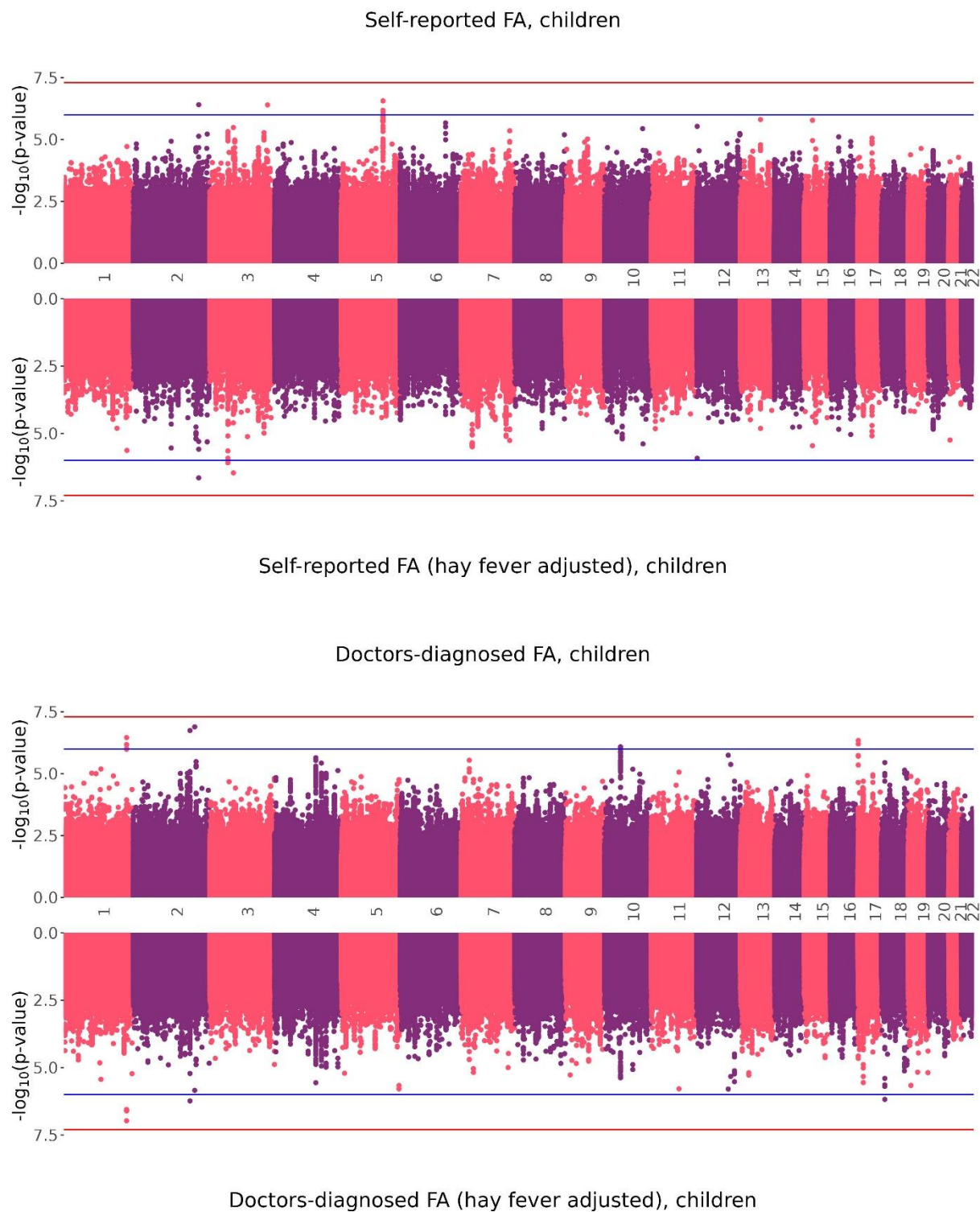
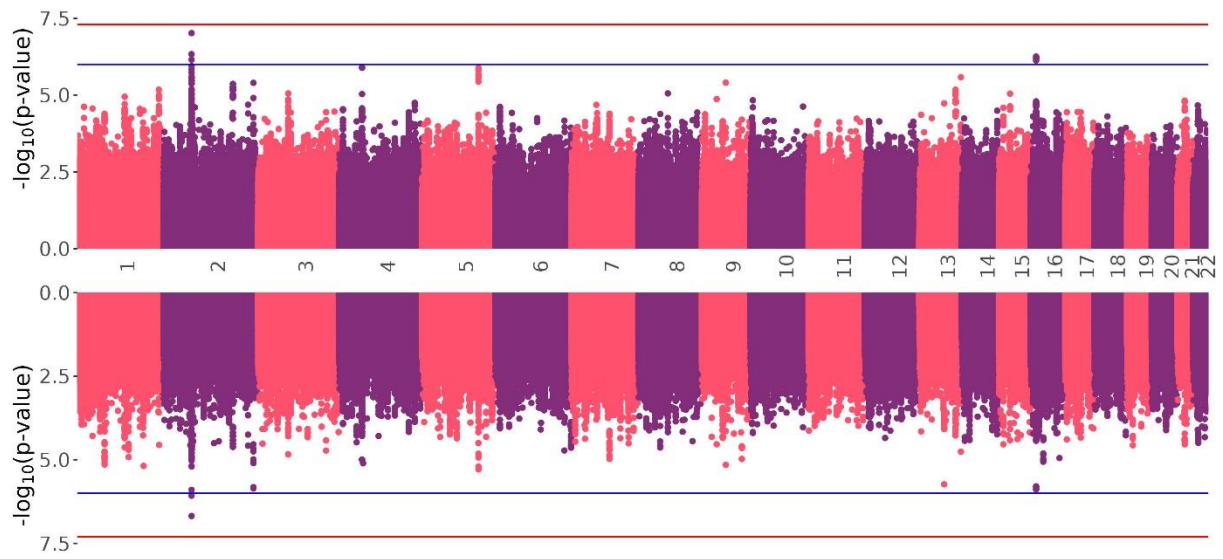


Figure E2: Miami plots of meta-analyses per phenotype and age group. Mirrored plots display the main model of the respective phenotype on the top and the hay fever adjusted model on the bottom. Blue line indicate suggestive significance ($p < 1 \times 10^{-6}$) and red line genome-wide significance ($p < 5 \times 10^{-8}$).

Children

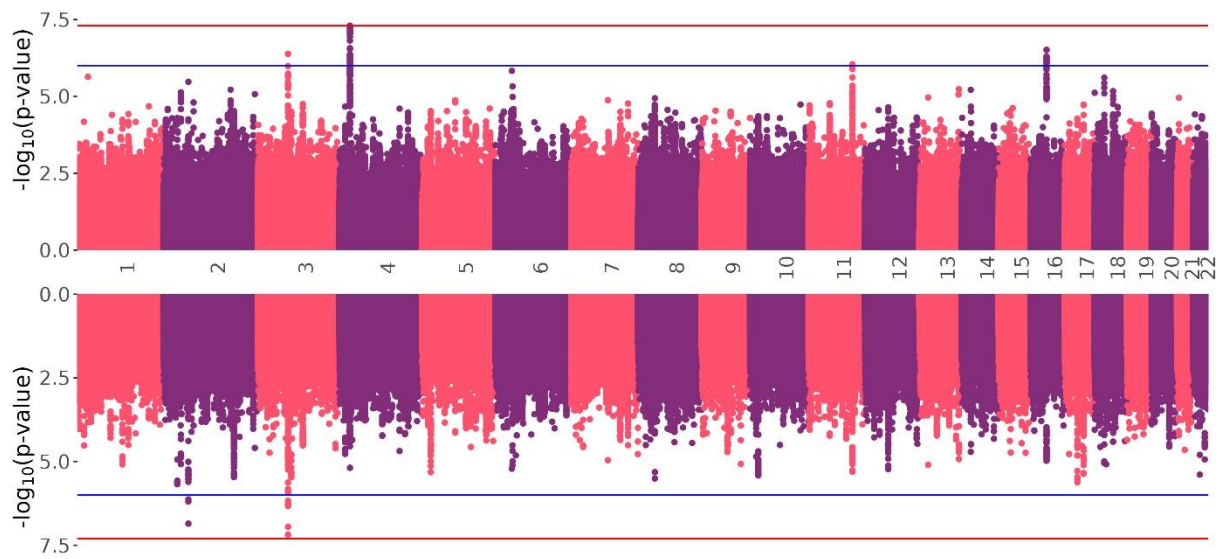


Sensitization, children



Sensitization (hay fever adjusted), children

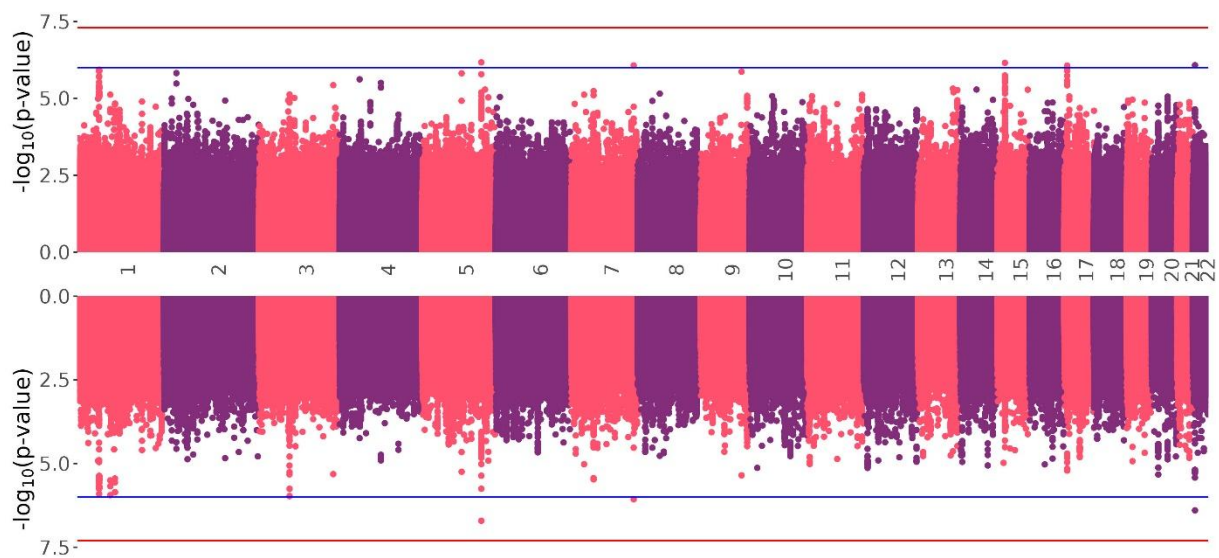
Doctors-diagnosed FA + sensitization, children



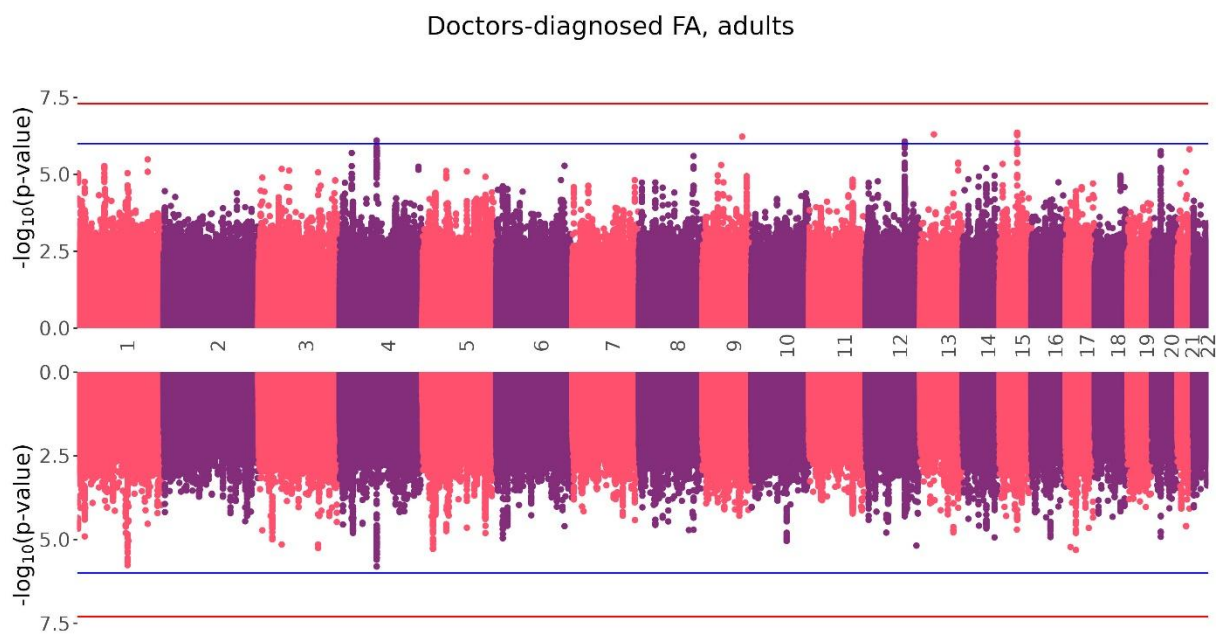
Doctors-diagnosed FA + sensitization (hay fever adjusted), children

Adults

Self-reported FA, adults

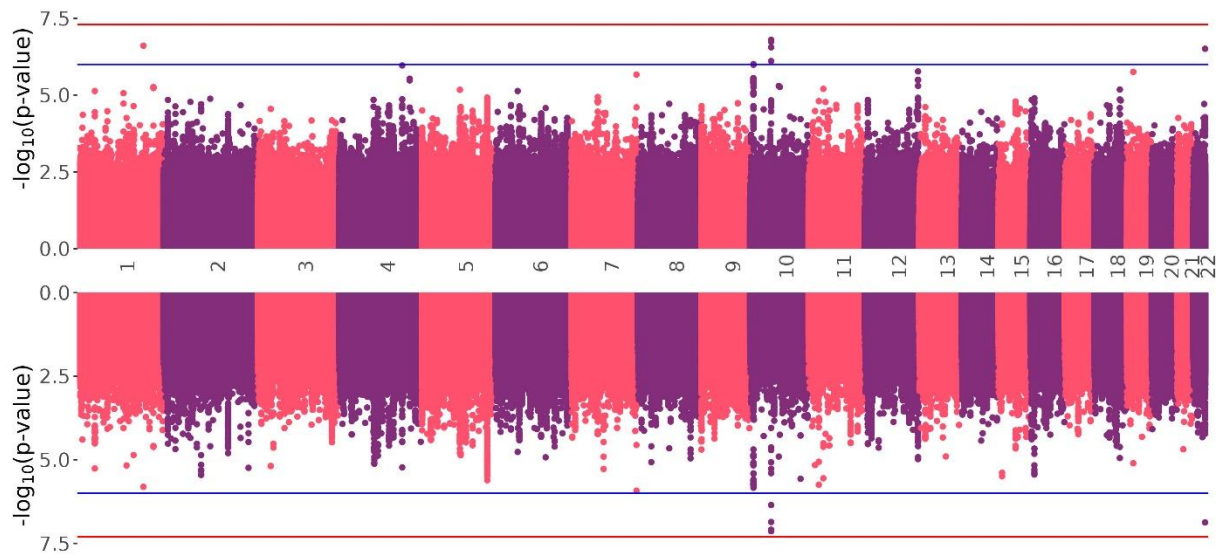


Self-reported FA (hay fever adjusted), adults



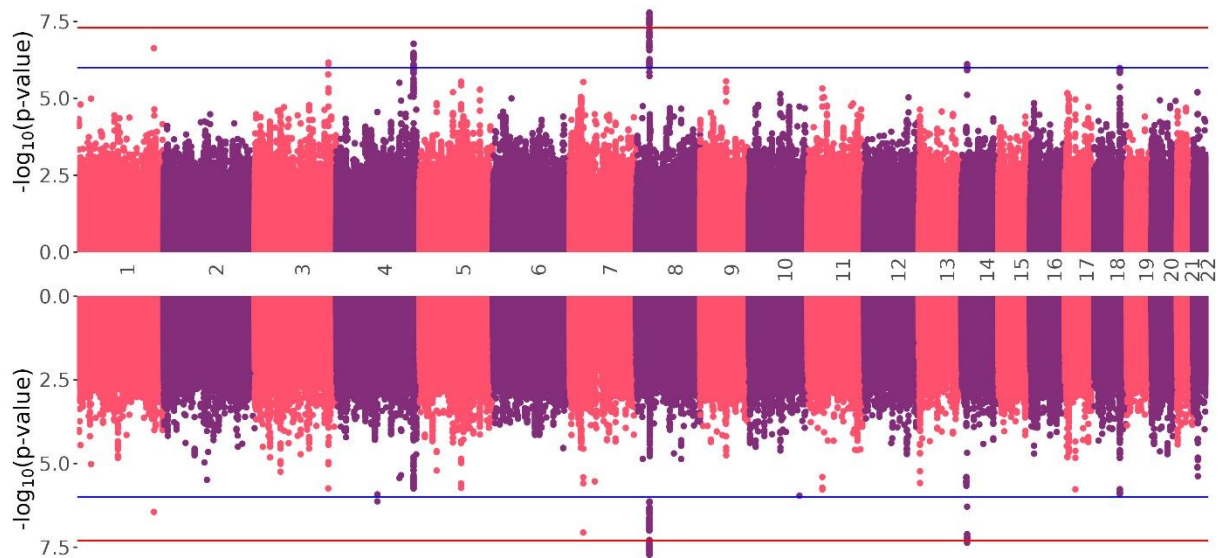
Doctors-diagnosed FA (hay fever adjusted), adults

Sensitization, adults



Sensitization (hay fever adjusted), adults

Doctors-diagnosed FA + sensitization, adults

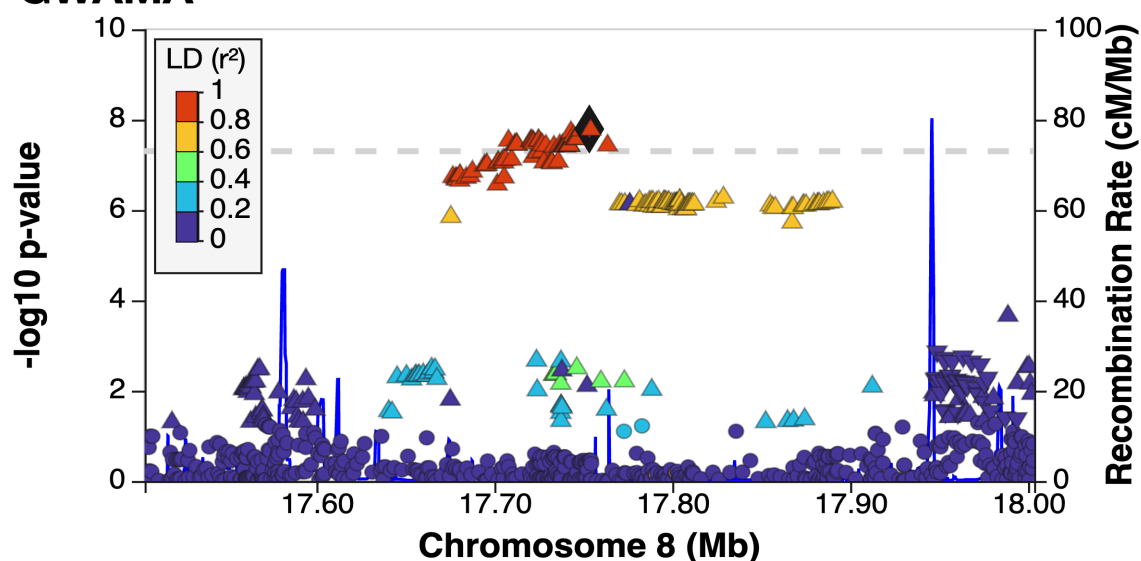


Doctors-diagnosed FA + sensitization (hay fever adjusted), adults

Figure E3: Locus zoom plots of lead SNPs are shown.

Figure E3.1 Locus zoom plots of rs116936231 (8:17753408) in doctors-diagnosed FA + sensitization phenotype adults, baseline model.

GWAMA



GWAS Catalog hits for GWAMA

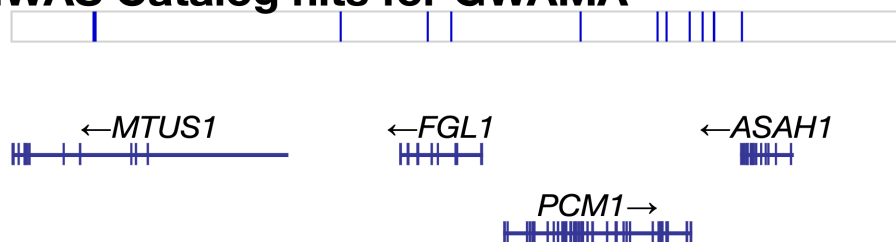
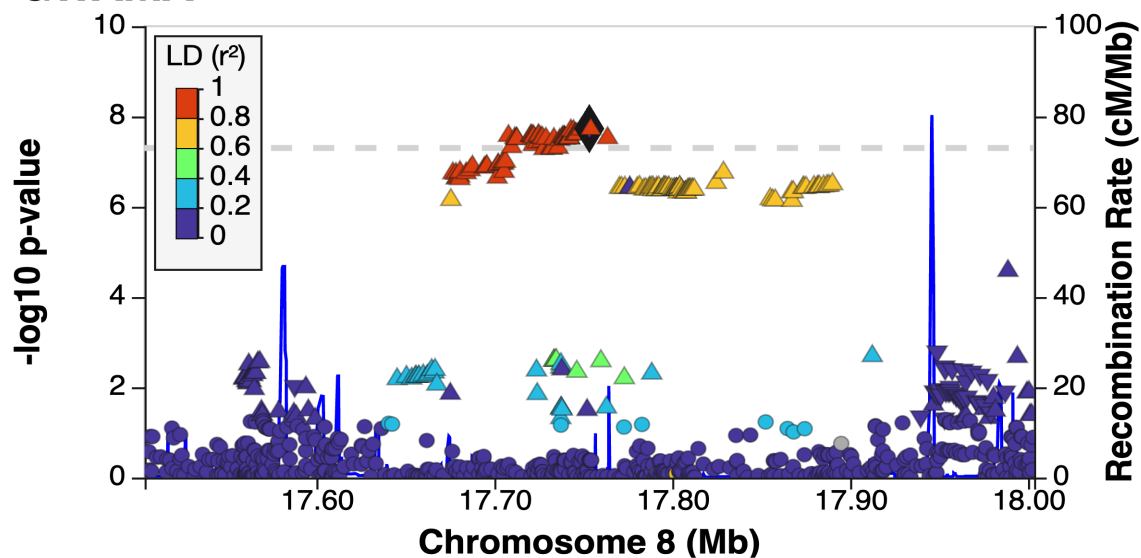


Figure E3.2 Locus zoom plots of rs116936231 (8:17753408) in doctors-diagnosed FA + sensitization phenotype adults, hay fever adjusted model.

GWAMA



GWAS Catalog hits for GWAMA

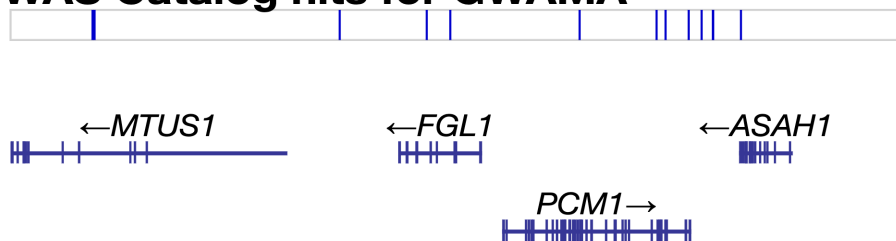
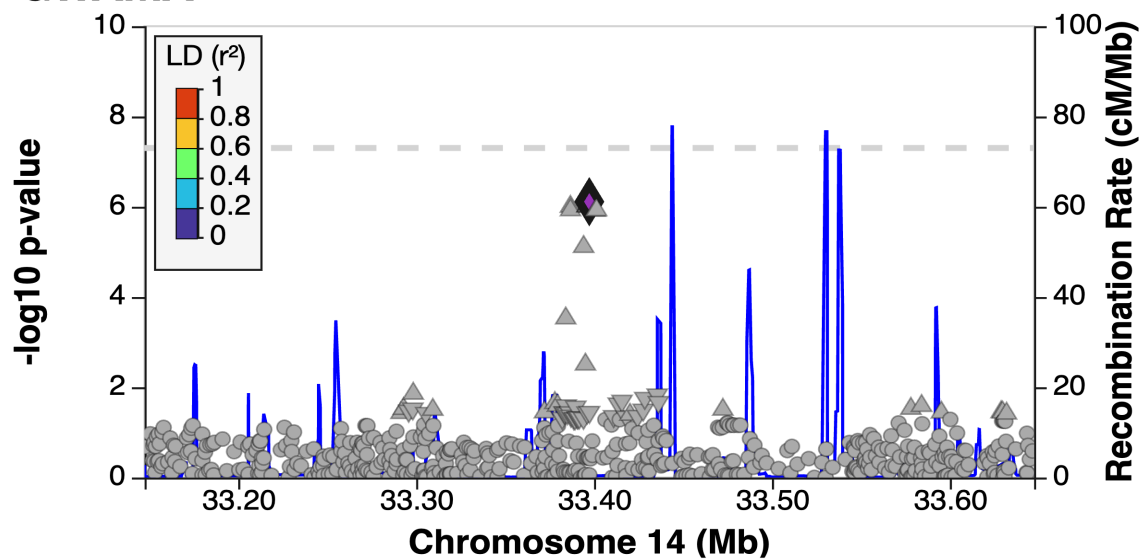


Figure E3.3 Locus zoom plots of rs8022829 (14:33397346) in doctors-diagnosed FA + sensitization phenotype adults, baseline model.

GWAMA

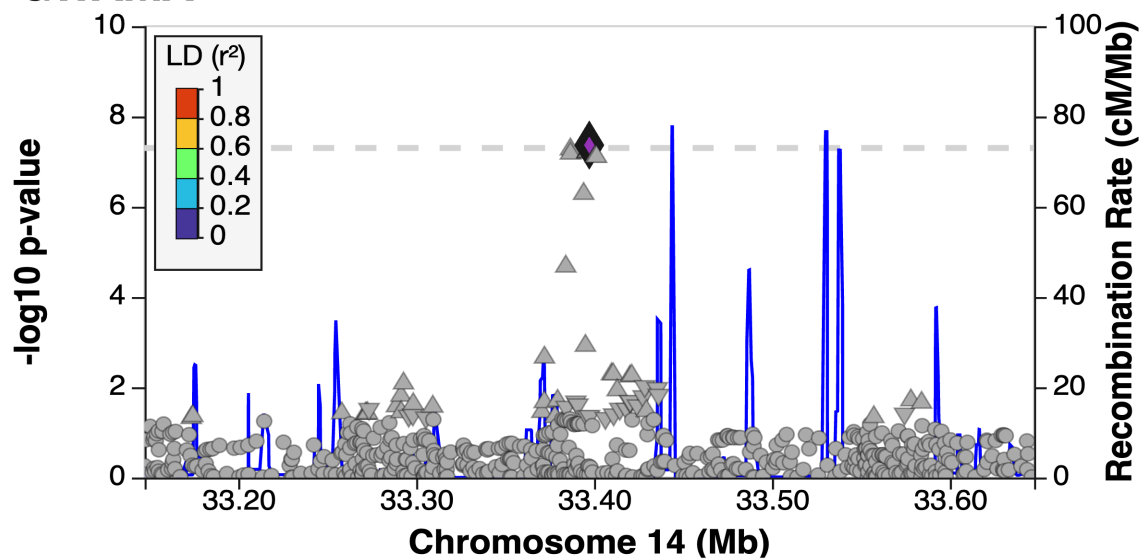


GWAS Catalog hits for GWAMA



Figure E3.4 Locus zoom plots of rs8022829 (14:33397346) in doctors-diagnosed FA + sensitization phenotype adults, hay fever adjusted model.

GWAMA

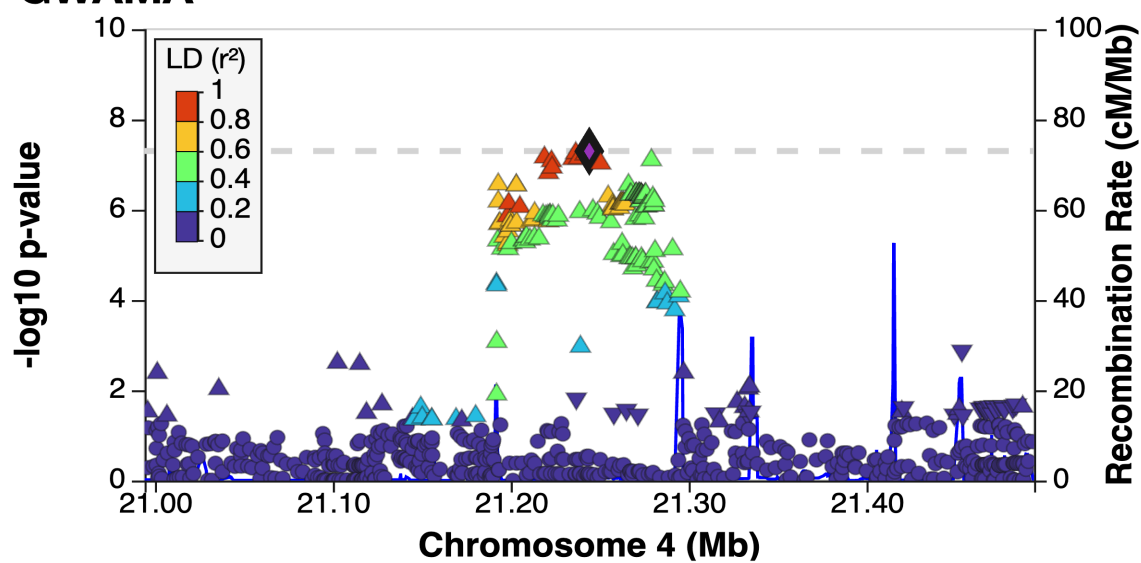


GWAS Catalog hits for GWAMA



Figure E3.5 Locus zoom plots of rs6833463 (4:21244175) in doctors-diagnosed FA + sensitization phenotype children, baseline model.

GWAMA



GWAS Catalog hits for GWAMA

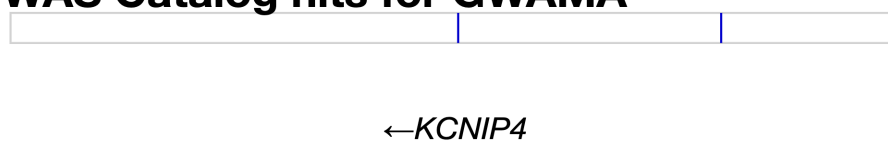
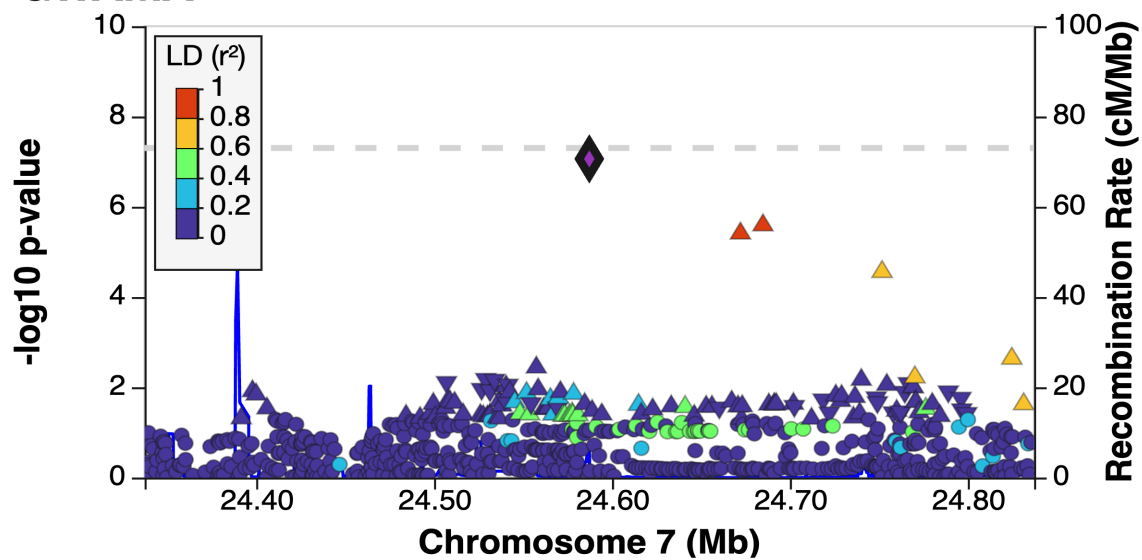


Figure E3.6 Locus zoom plots of rs11761070 (7:24587280) in doctors-diagnosed FA + sensitization phenotype adults, hay fever adjusted model.

GWAMA



GWAS Catalog hits for GWAMA

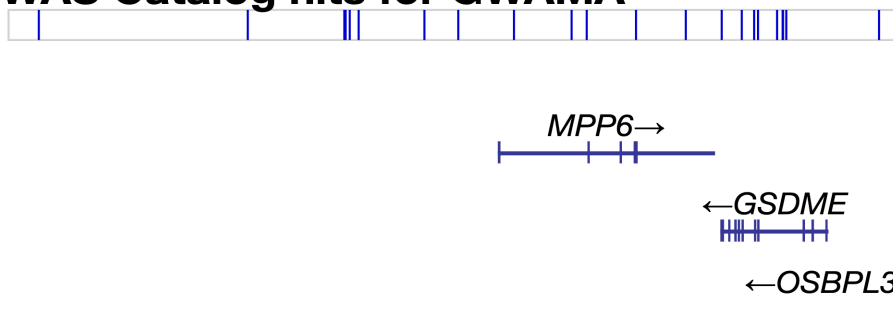
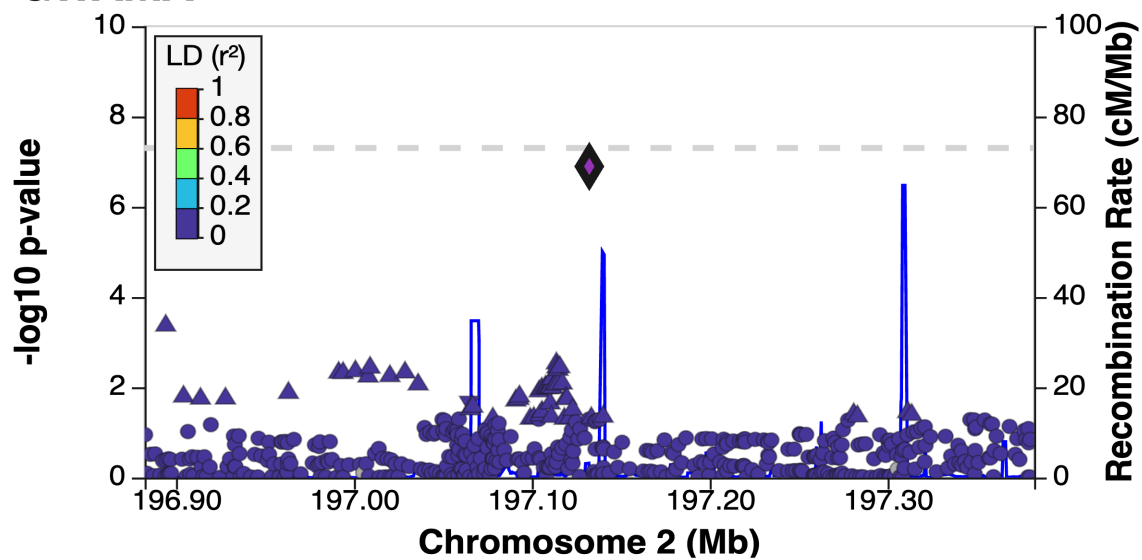


Figure E3.7 Locus zoom plots of rs74531285 (2:197132359) in doctors-diagnosed FA phenotype children, baseline model.

GWAMA



GWAS Catalog hits for GWAMA

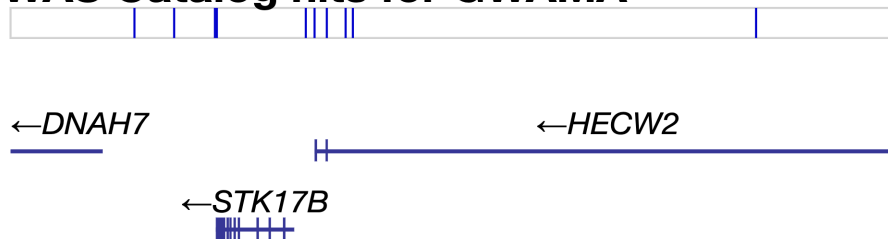
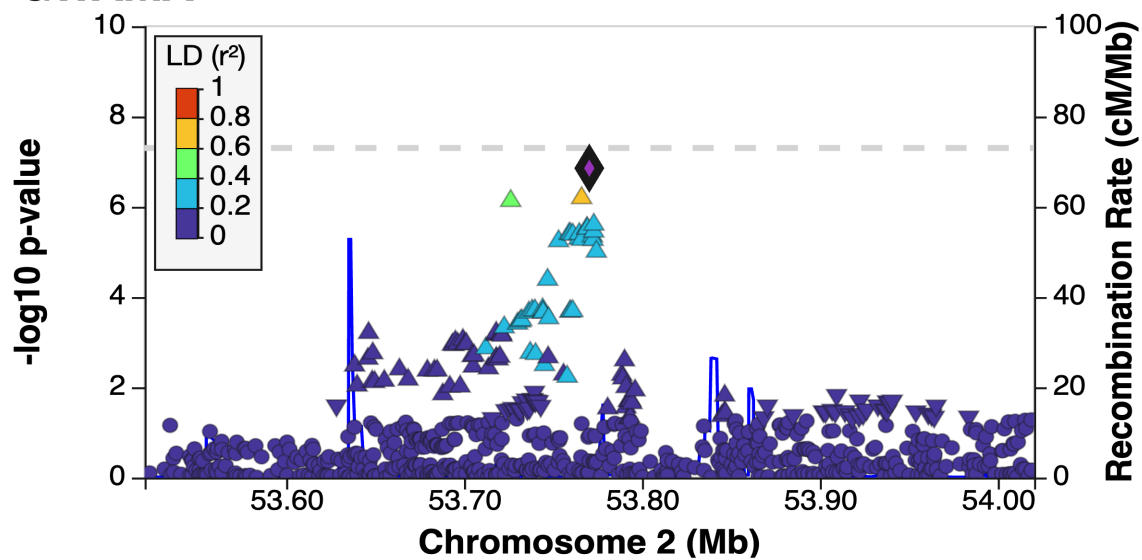


Figure E3.8 Locus zoom plots of rs78609709 (2:53770433) in doctors-diagnosed FA + sensitization phenotype children, hay fever adjusted model.

GWAMA

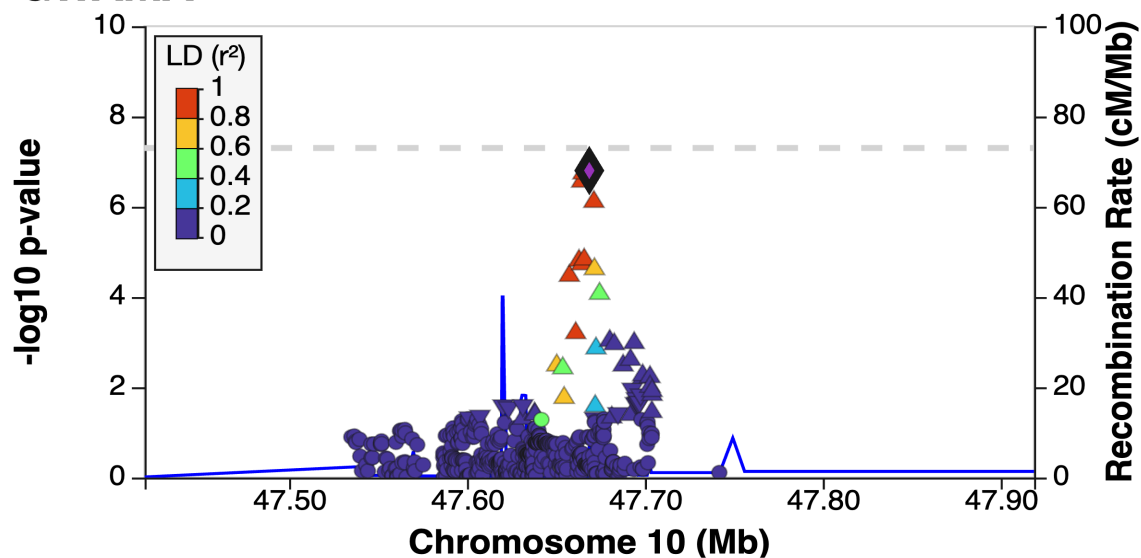


GWAS Catalog hits for GWAMA



Figure E3.9 Locus zoom plots of rs117319649 (10:47668777) in sensitization phenotype adults, baseline model.

GWAMA



GWAS Catalog hits for GWAMA

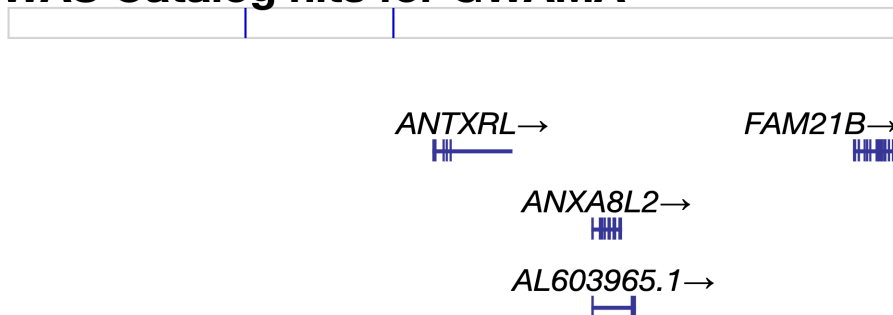
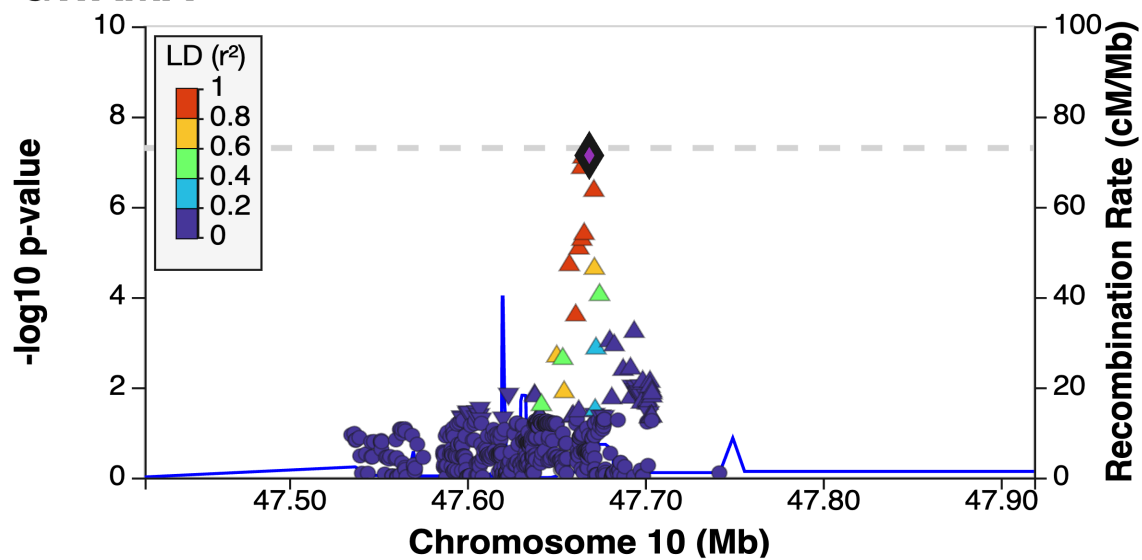


Figure E3.10 Locus zoom plots of rs117319649 (10:47668777) in sensitization phenotype adults, hay fever adjusted model.

GWAMA



GWAS Catalog hits for GWAMA

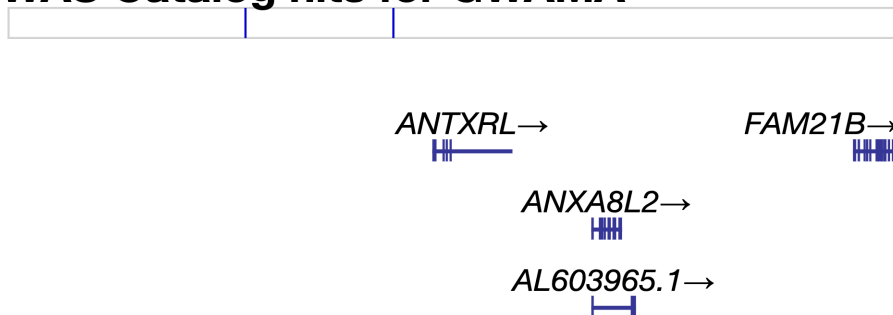
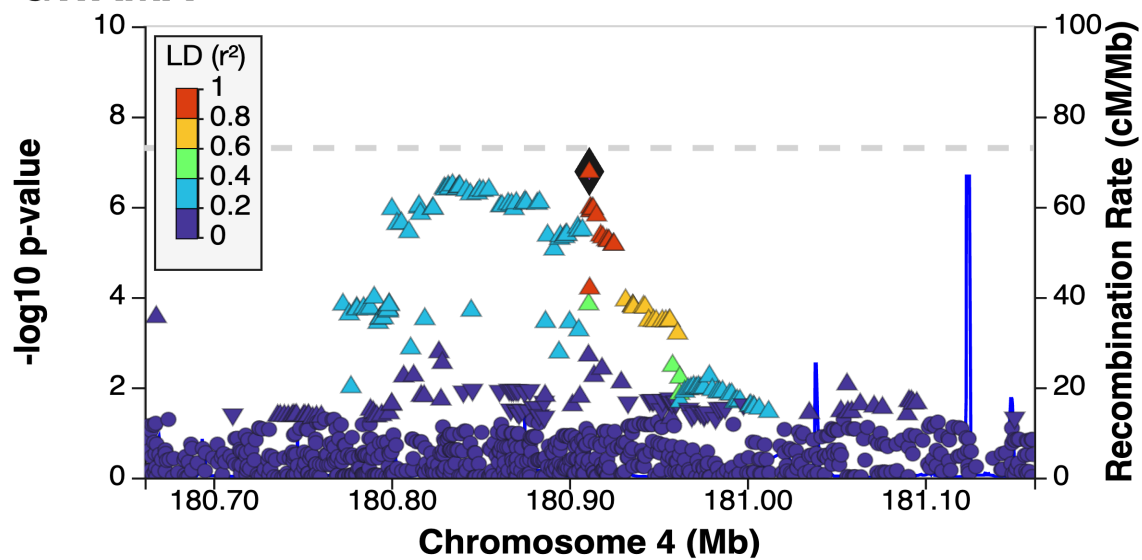


Figure E3.11 Locus zoom plots of rs72705776 (4:180911393) in doctors-diagnosed FA + sensitization phenotype adults, baseline model.

GWAMA

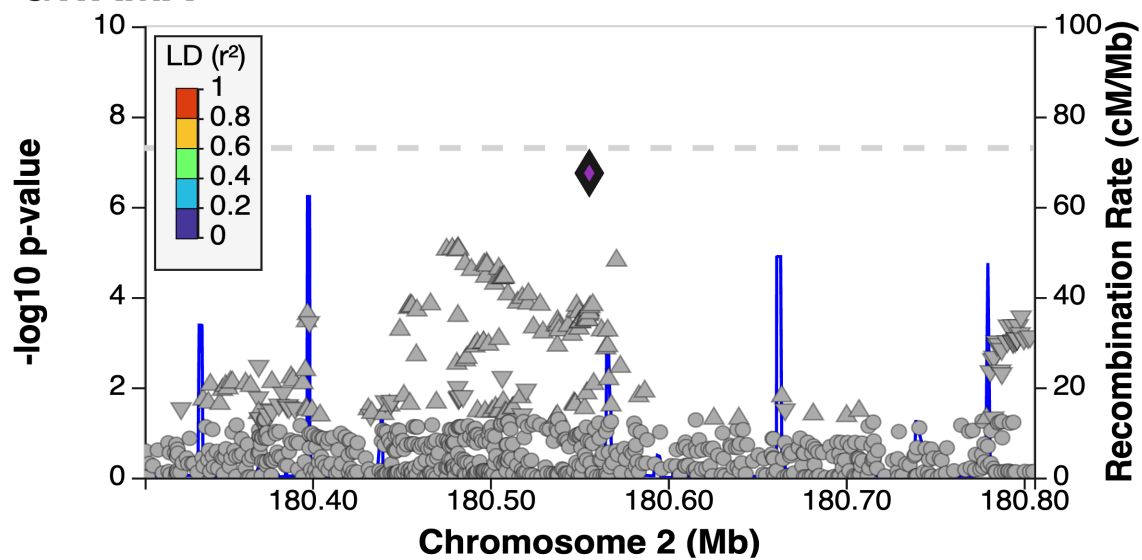


GWAS Catalog hits for GWAMA



Figure E3.12 Locus zoom plots of rs1022311 (2:180555884) in doctors-diagnosed FA phenotype children, baseline model.

GWAMA

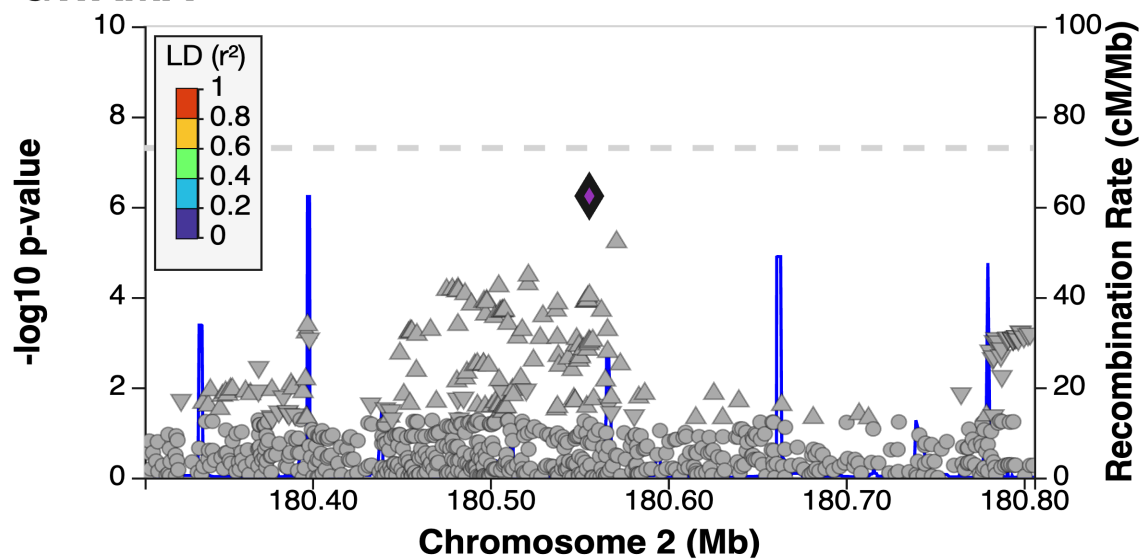


GWAS Catalog hits for GWAMA



Figure E3.13 Locus zoom plots of rs1022311 (2:180555884) in doctors-diagnosed FA phenotype children, hay fever adjusted model.

GWAMA



GWAS Catalog hits for GWAMA

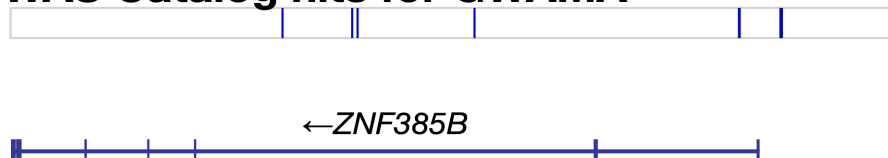
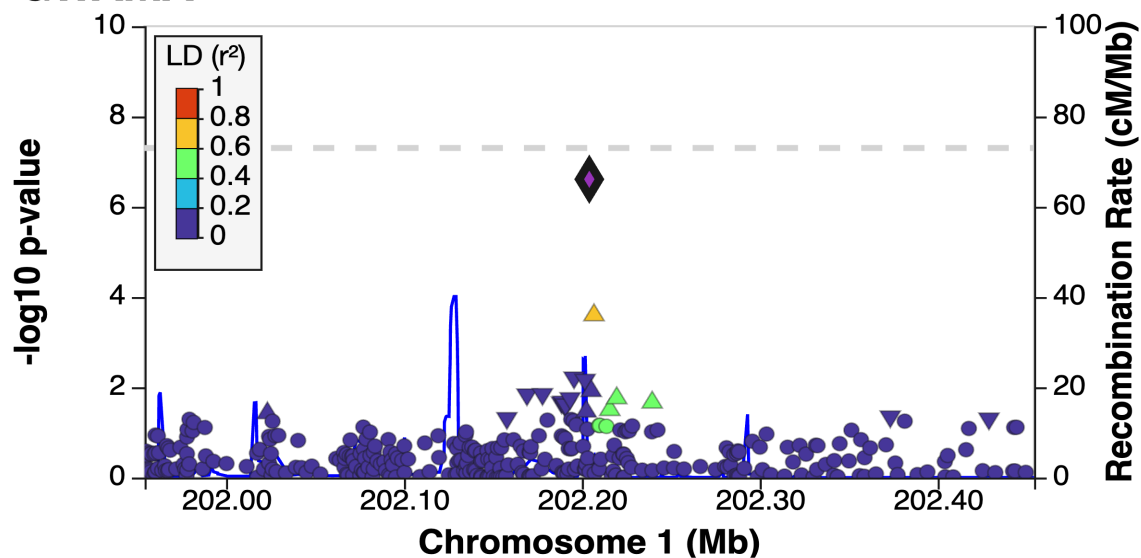


Figure E3.14 Locus zoom plots of rs16849773 (1:202204213) in sensitization phenotype adults, baseline model.

GWAMA



GWAS Catalog hits for GWAMA

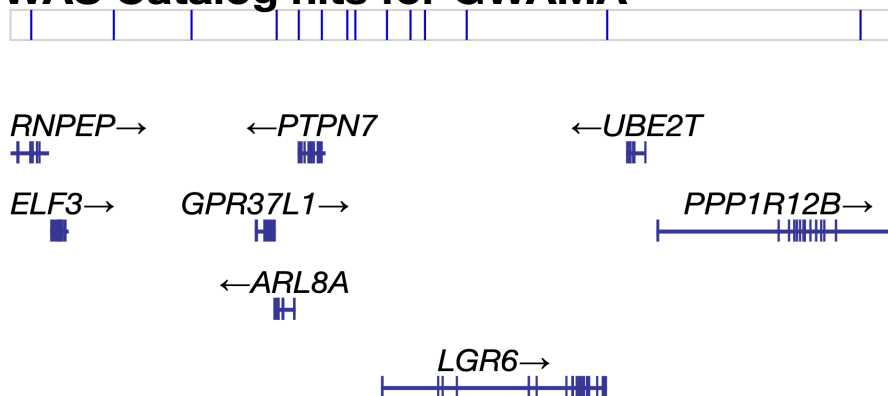
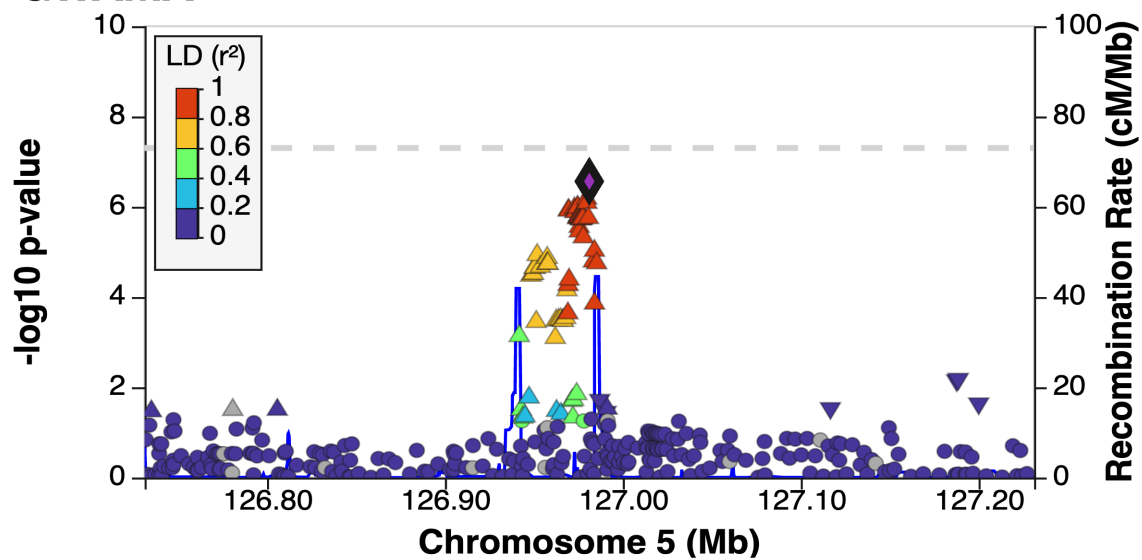


Figure E3.15 Locus zoom plots of rs55681581 (5:126981185) in self-reported FA phenotype children, baseline model.

GWAMA



GWAS Catalog hits for GWAMA

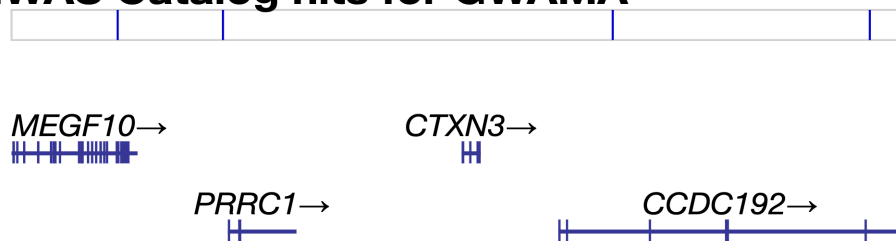
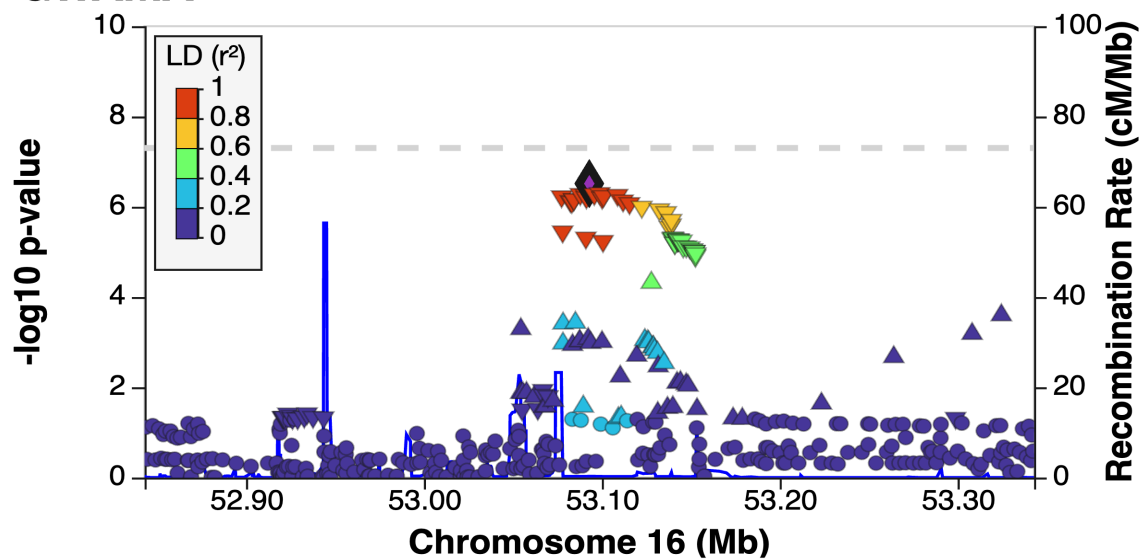


Figure E3.16 Locus zoom plots of rs11645276 (16:53092980) in doctors-diagnosed FA + sensitization phenotype children, baseline model.

GWAMA



GWAS Catalog hits for GWAMA

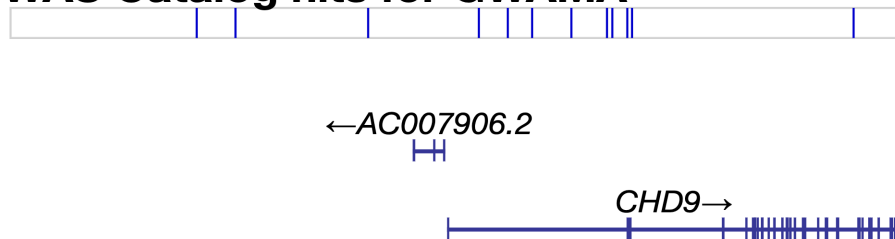
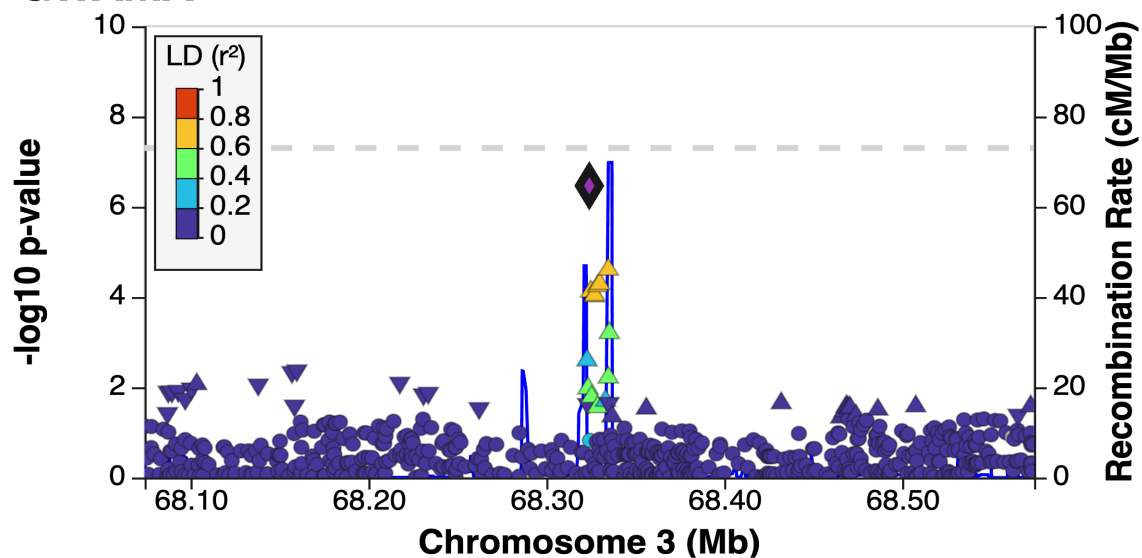


Figure E3.17 Locus zoom plots of rs62248296 (3:68324177) in self-reported FA phenotype children, hay fever adjusted model.

GWAMA

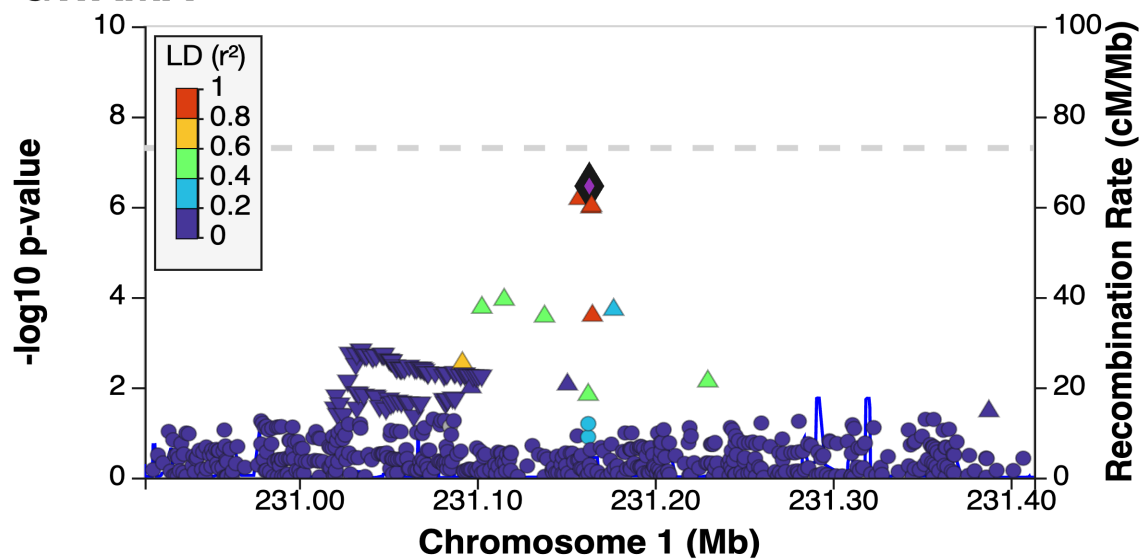


GWAS Catalog hits for GWAMA



Figure E3.18 Locus zoom plots of rs74991536 (1:231163221) in doctors-diagnosed FA phenotype children, baseline model.

GWAMA



GWAS Catalog hits for GWAMA

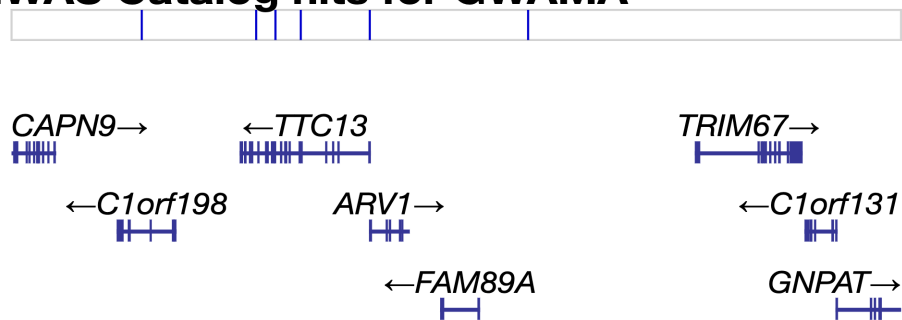
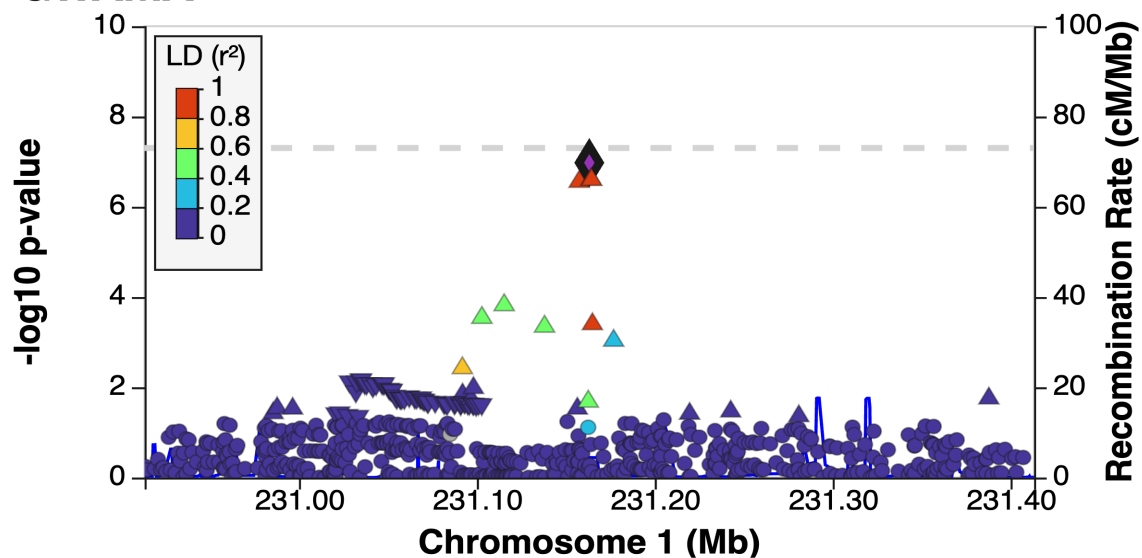


Figure E3.19 Locus zoom plots of rs74991536 (1:231163221) in doctors-diagnosed FA phenotype children, hay fever adjusted model.

GWAMA



GWAS Catalog hits for GWAMA

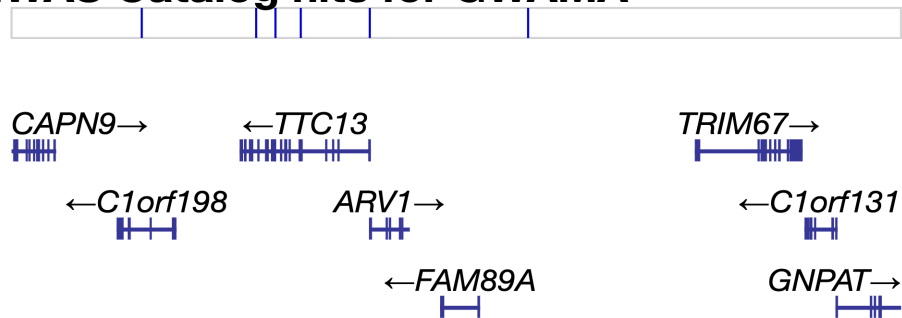
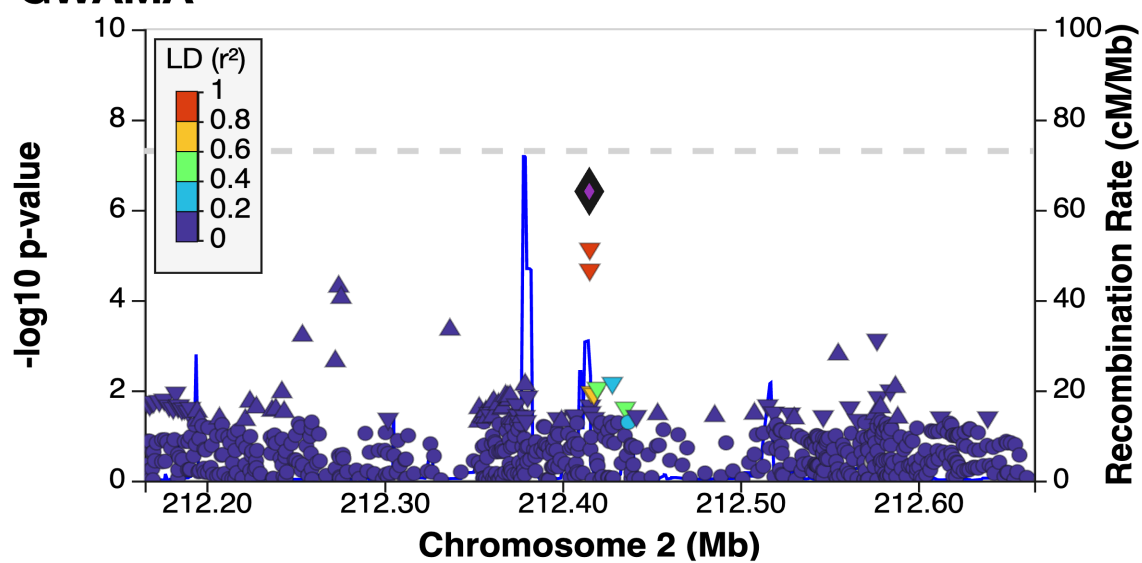


Figure E3.20 Locus zoom plots of rs76119799 (2:212415241) in self-reported FA phenotype children, baseline model.

GWAMA



GWAS Catalog hits for GWAMA

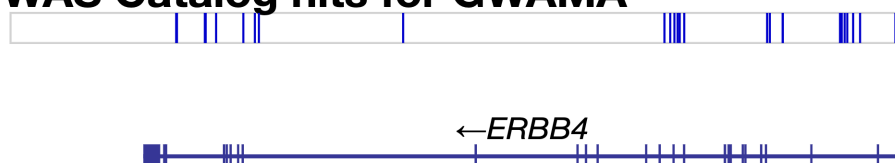
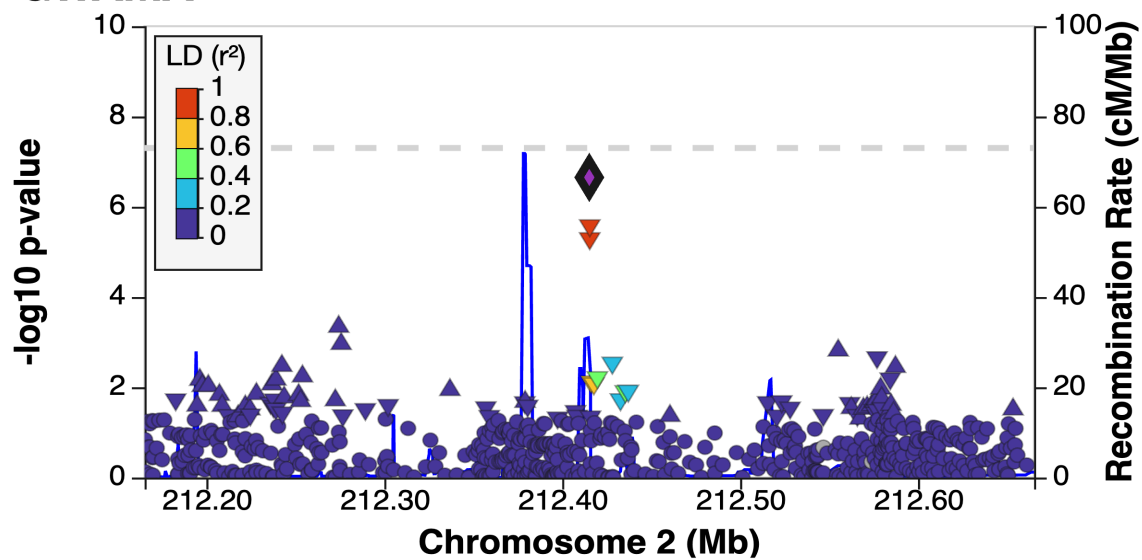


Figure E3.21 Locus zoom plots of rs76119799 (2:212415241) in self-reported FA phenotype children, hay fever adjusted model.

GWAMA



GWAS Catalog hits for GWAMA

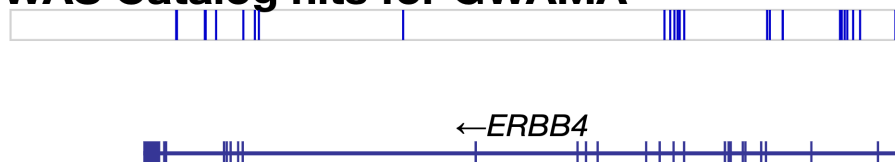
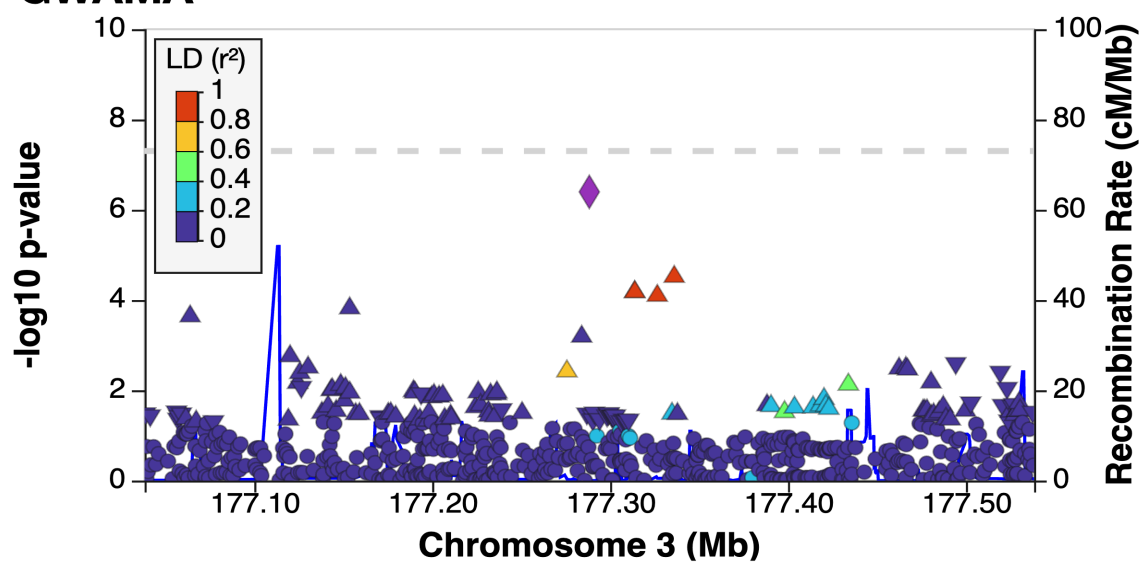


Figure E3.22 Locus zoom plots of rs73174808 (3:177288324) in self-reported FA phenotype children, baseline model.

GWAMA

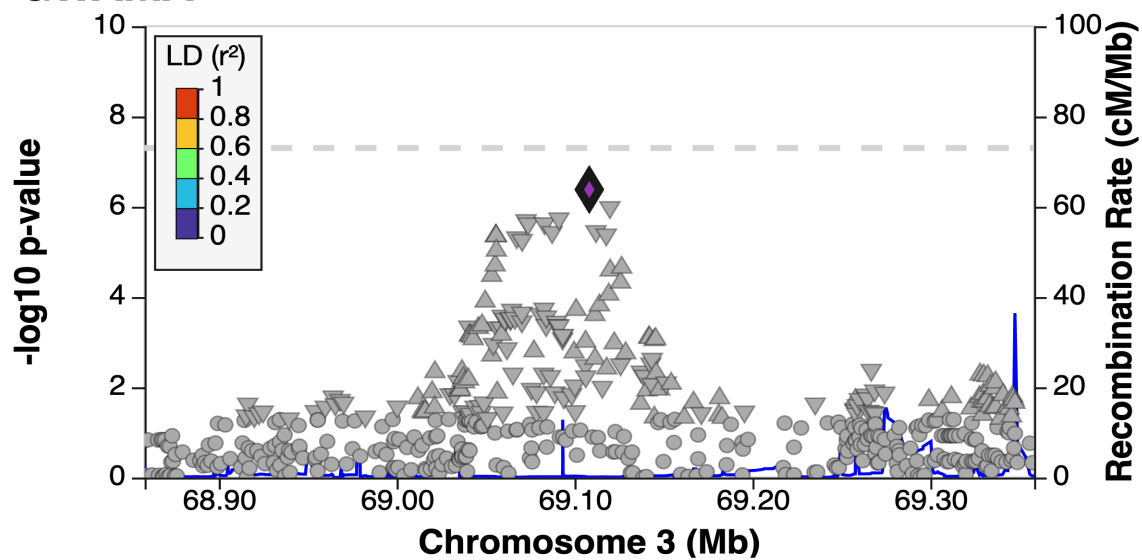


GWAS Catalog hits for GWAMA



Figure E3.23 Locus zoom plots of rs2055684 (3:69108316) in doctors-diagnosed FA + sensitization phenotype children, baseline model.

GWAMA



GWAS Catalog hits for GWAMA

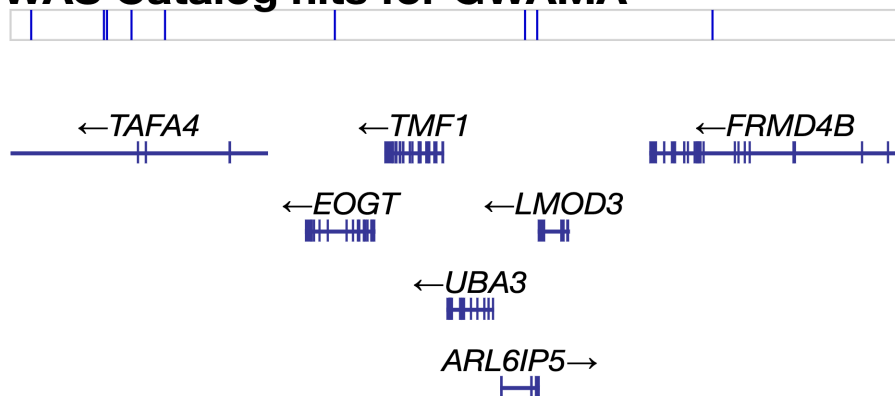
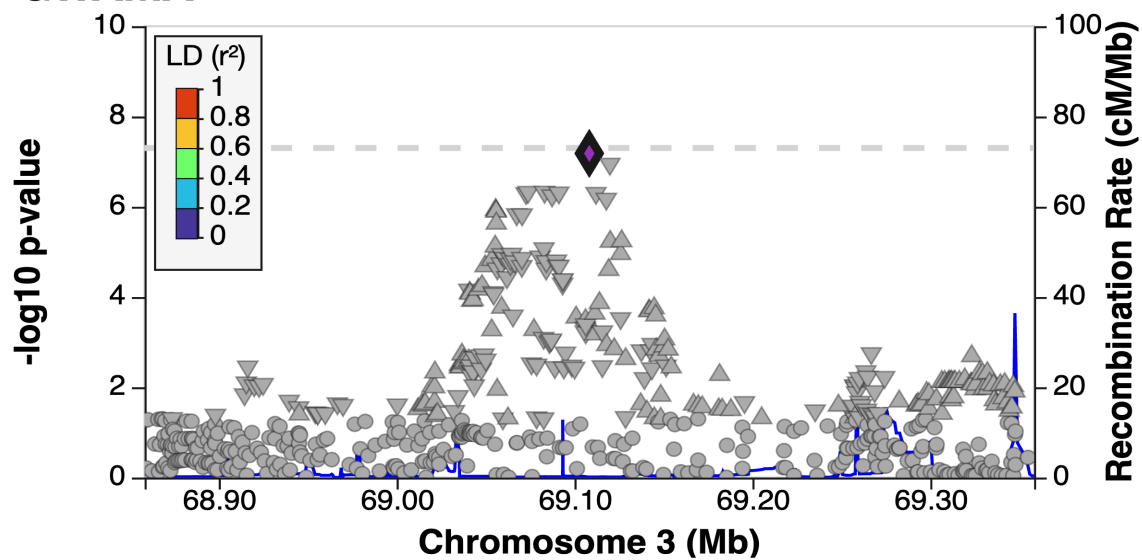


Figure E3.24 Locus zoom plots of rs2055684 (3:69108316) in doctors-diagnosed FA + sensitization phenotype children, hay fever adjusted model.

GWAMA



GWAS Catalog hits for GWAMA

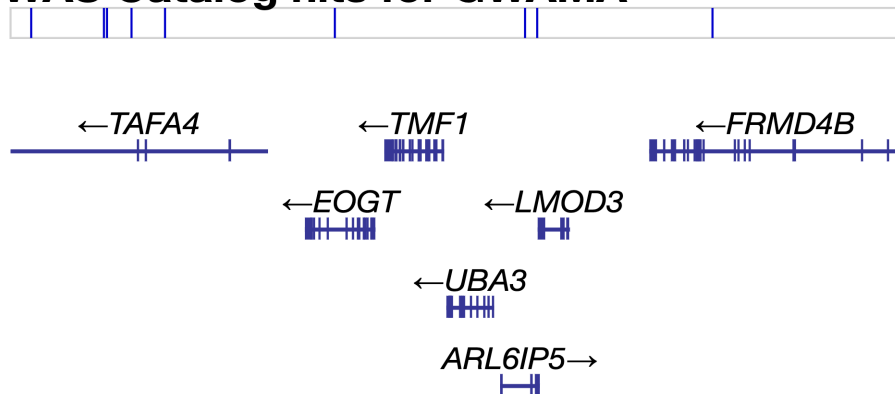
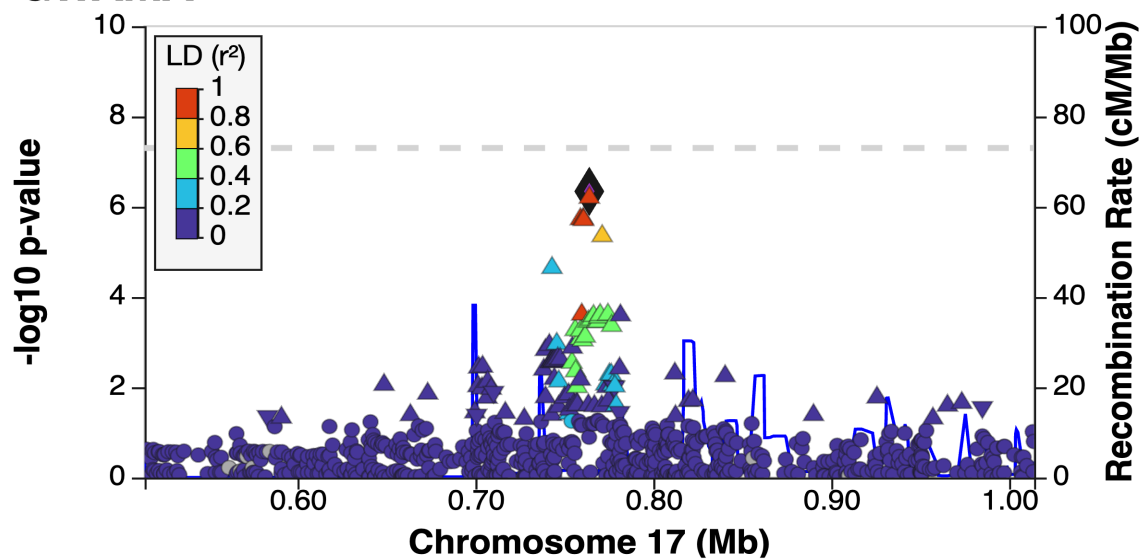


Figure E3.25 Locus zoom plots of rs4025780 (17:764038) in doctors-diagnosed FA phenotype children, baseline model.

GWAMA



GWAS Catalog hits for GWAMA

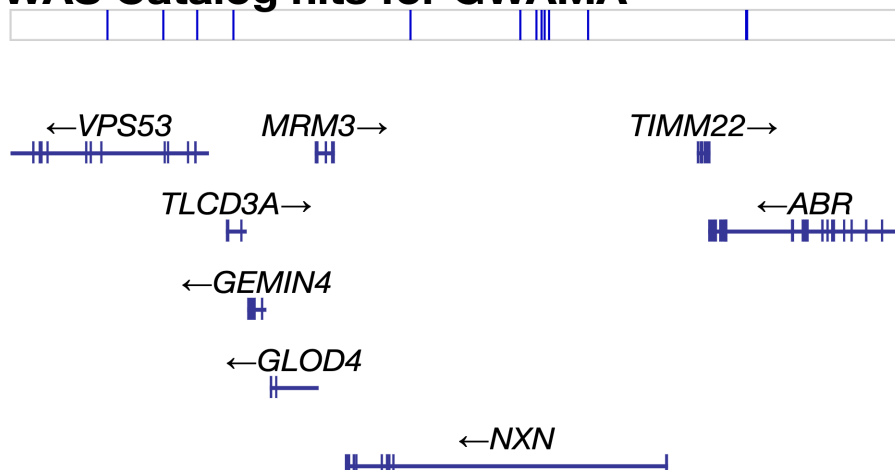
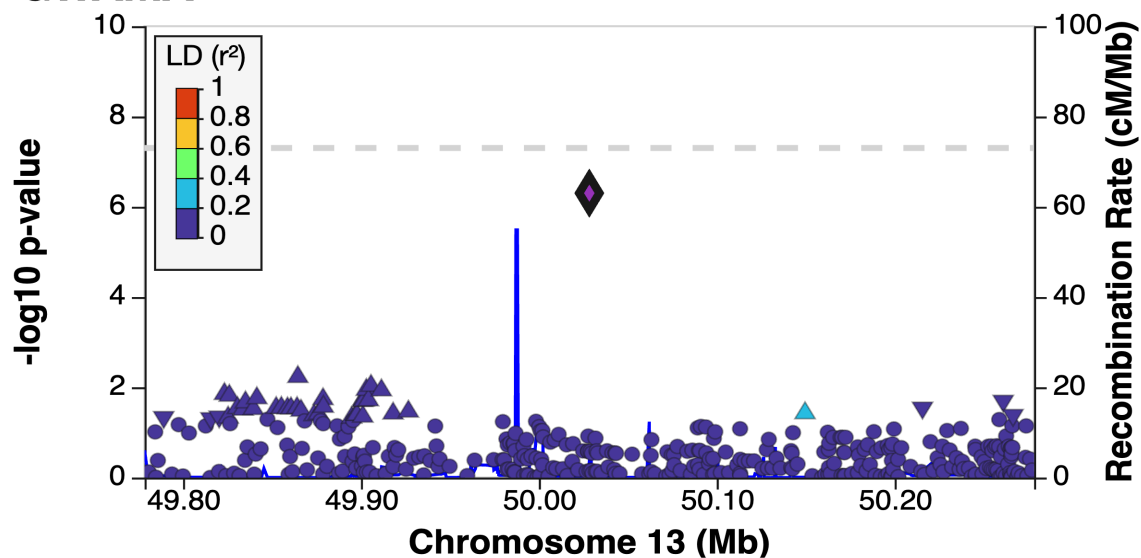


Figure E3.26 Locus zoom plots of rs138021736 (13:50028384) in doctors-diagnosed FA phenotype adults, baseline model.

GWAMA



GWAS Catalog hits for GWAMA

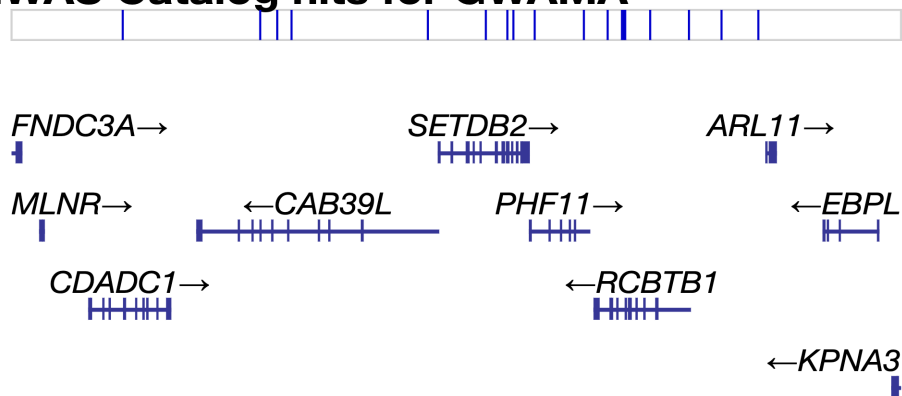
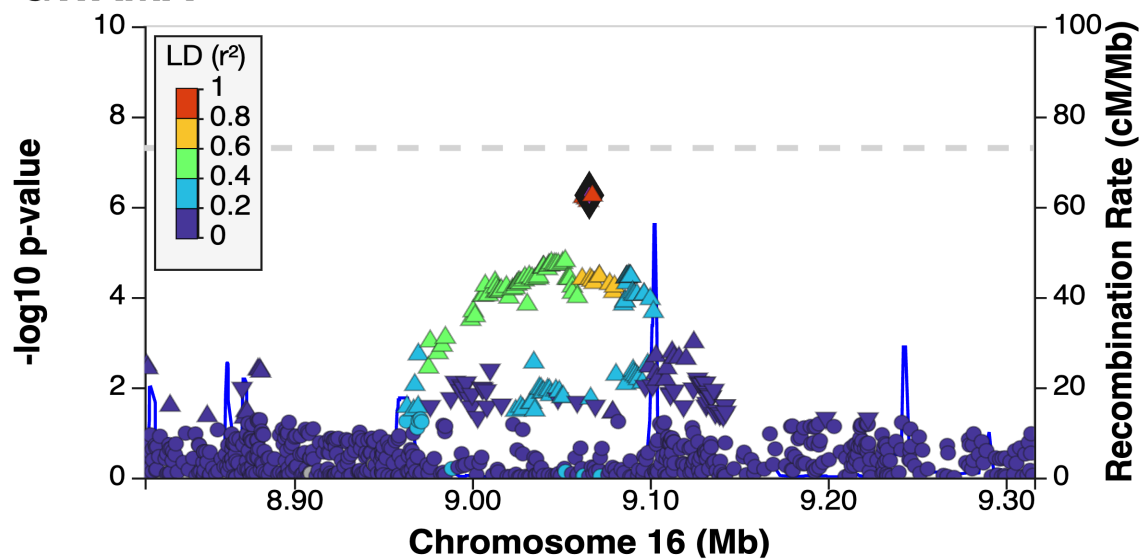


Figure E3.27 Locus zoom plots of rs11643761 (16:9065990) in sensitization phenotype children, baseline model.

GWAMA



GWAS Catalog hits for GWAMA

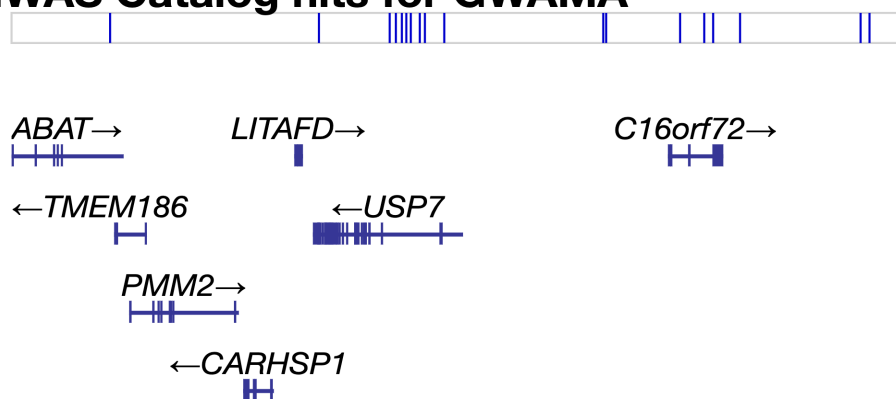
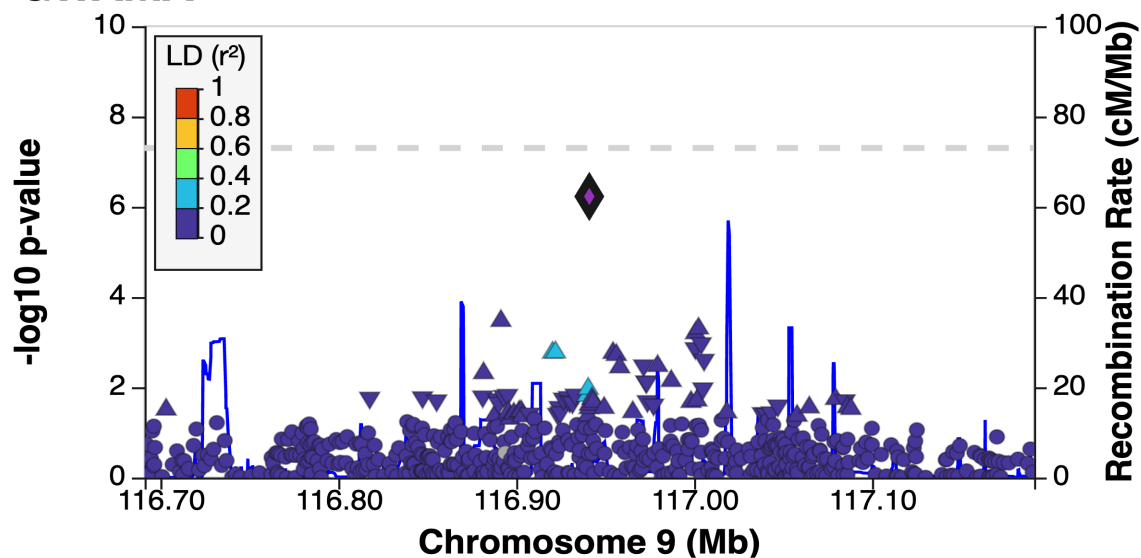


Figure E3.28 Locus zoom plots of rs117937277 (9:116941113) in doctors-diagnosed FA phenotype adults, baseline model.

GWAMA

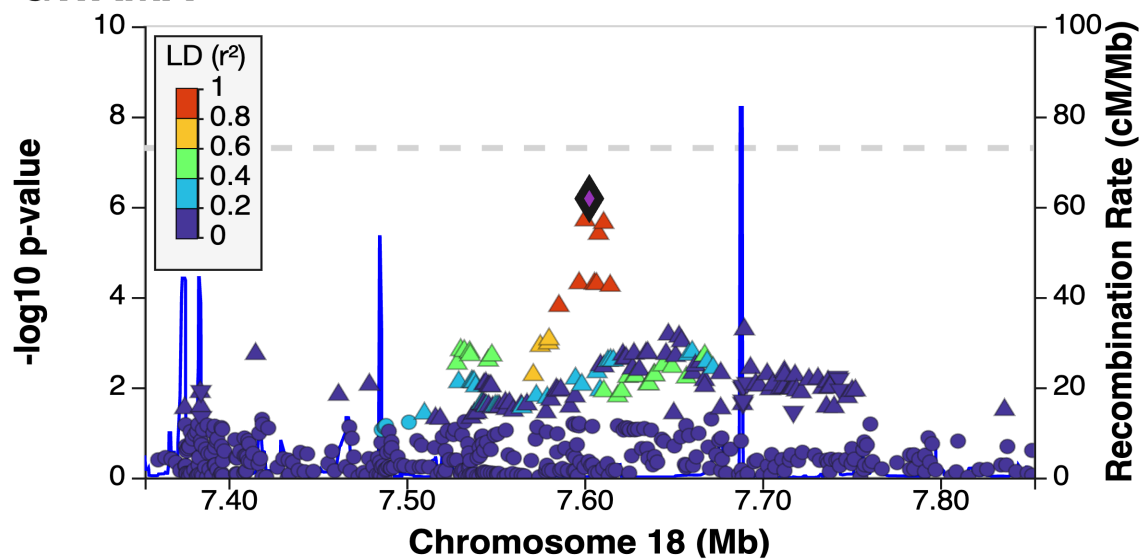


GWAS Catalog hits for GWAMA



Figure E3.29 Locus zoom plots of rs16952200 (18:7602849) in doctors-diagnosed FA phenotype children, hay fever adjusted model.

GWAMA

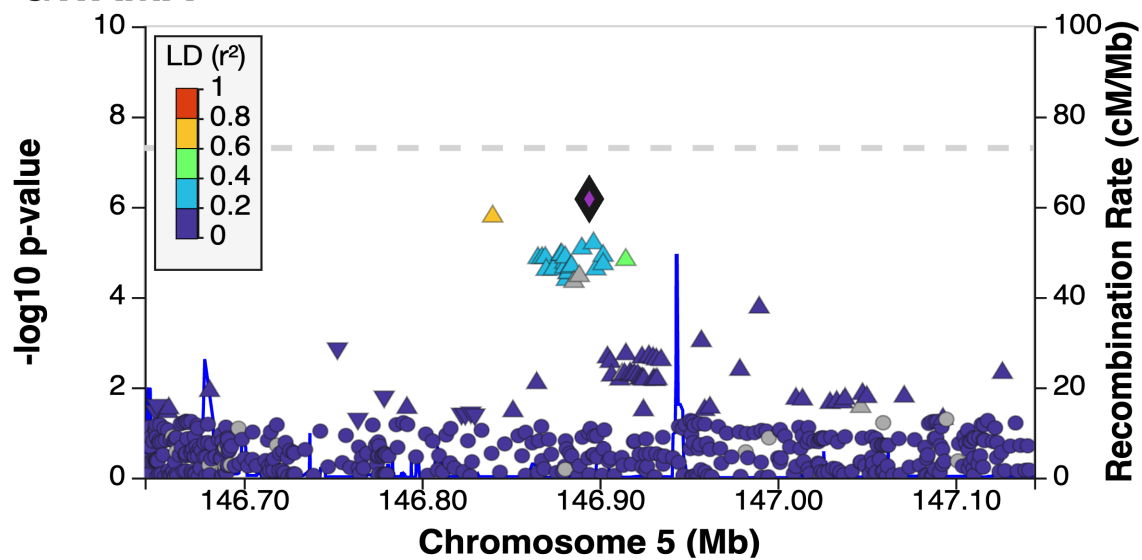


GWAS Catalog hits for GWAMA



Figure E3.30 Locus zoom plots of rs114560495 (5:146894281) in self-reported FA phenotype adults, baseline model.

GWAMA



GWAS Catalog hits for GWAMA

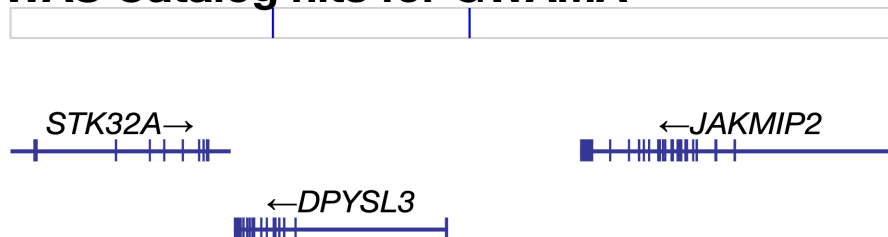
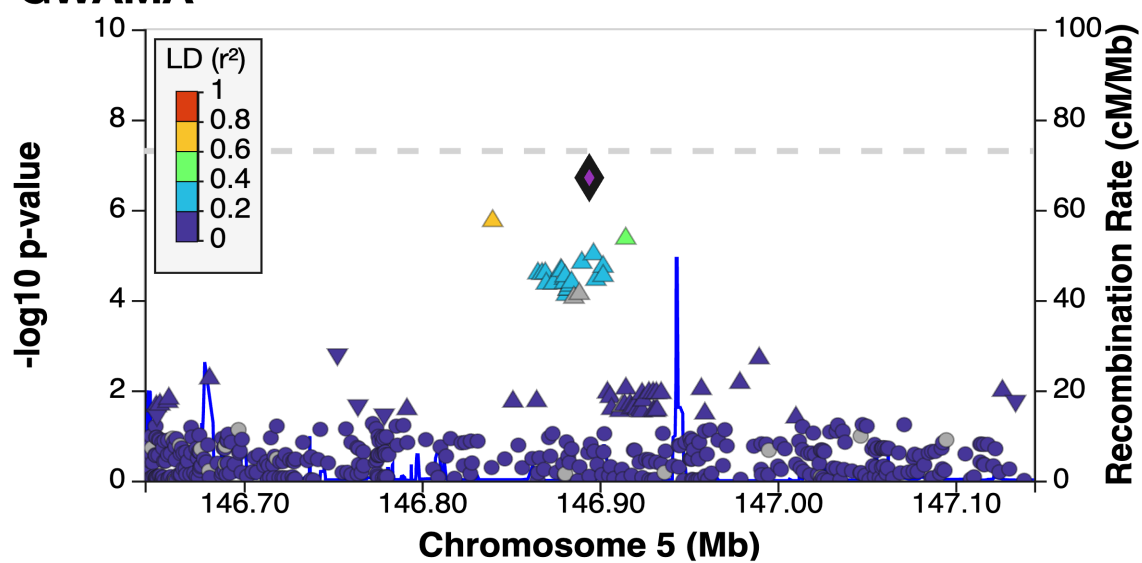


Figure E3.31 Locus zoom plots of rs114560495 (5:146894281) in self-reported FA phenotype adults, hay fever adjusted model.

GWAMA



GWAS Catalog hits for GWAMA

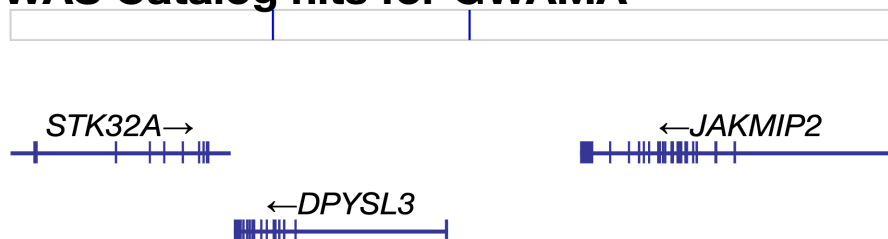
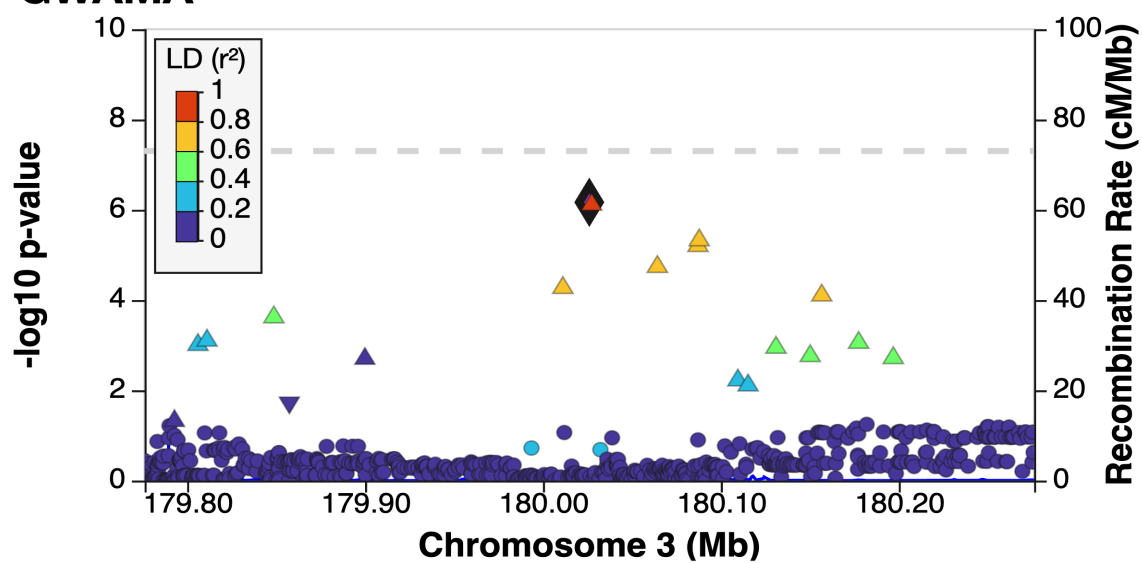


Figure E3.32 Locus zoom plots of rs2692192 (3:180026087) in doctors-diagnosed FA + sensitization phenotype adults, baseline model.

GWAMA



GWAS Catalog hits for GWAMA

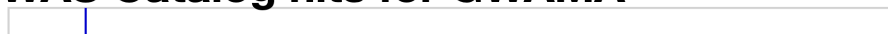
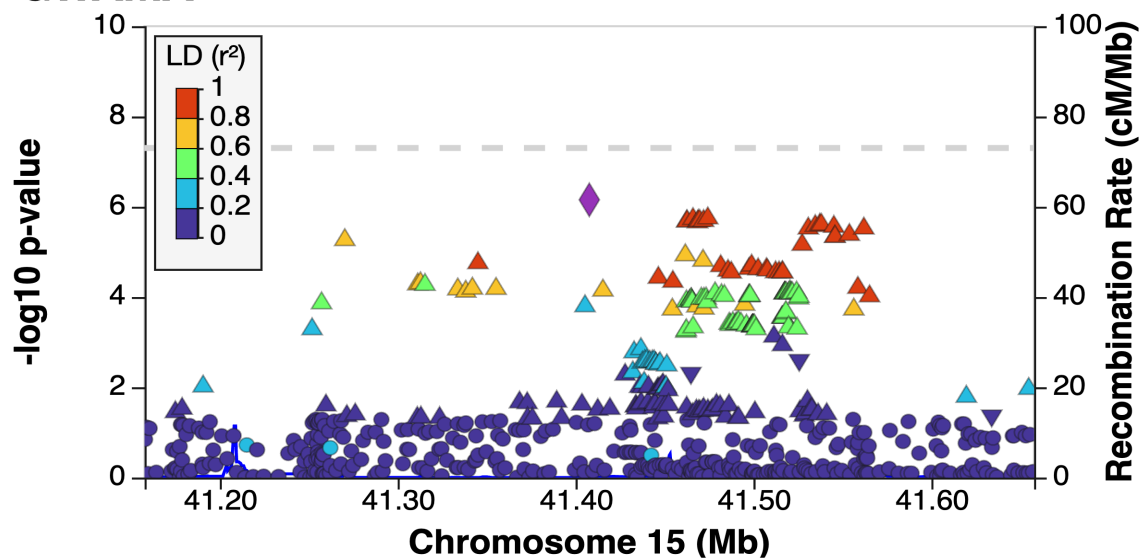


Figure E3.33 Locus zoom plots of rs61648937 (15:41407730) in self-reported FA phenotype adults, baseline model.

GWAMA

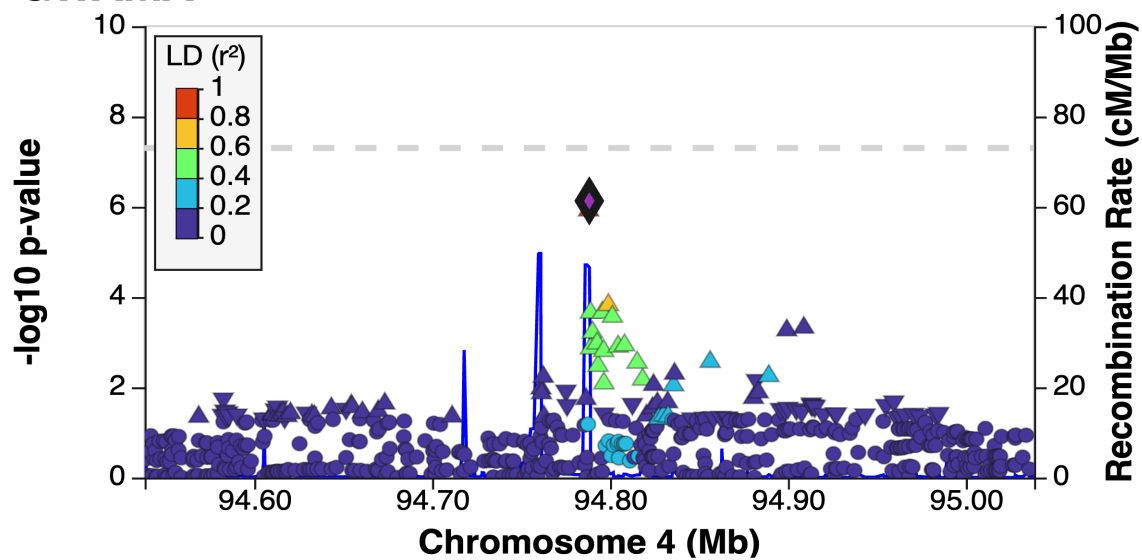


GWAS Catalog hits for GWAMA



Figure E3.34 Locus zoom plots of rs12650891 (4:94788391) in doctors-diagnosed FA + sensitization phenotype adults, hay fever adjusted model.

GWAMA



GWAS Catalog hits for GWAMA

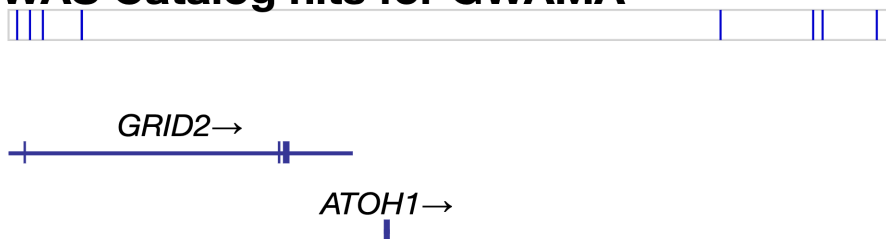
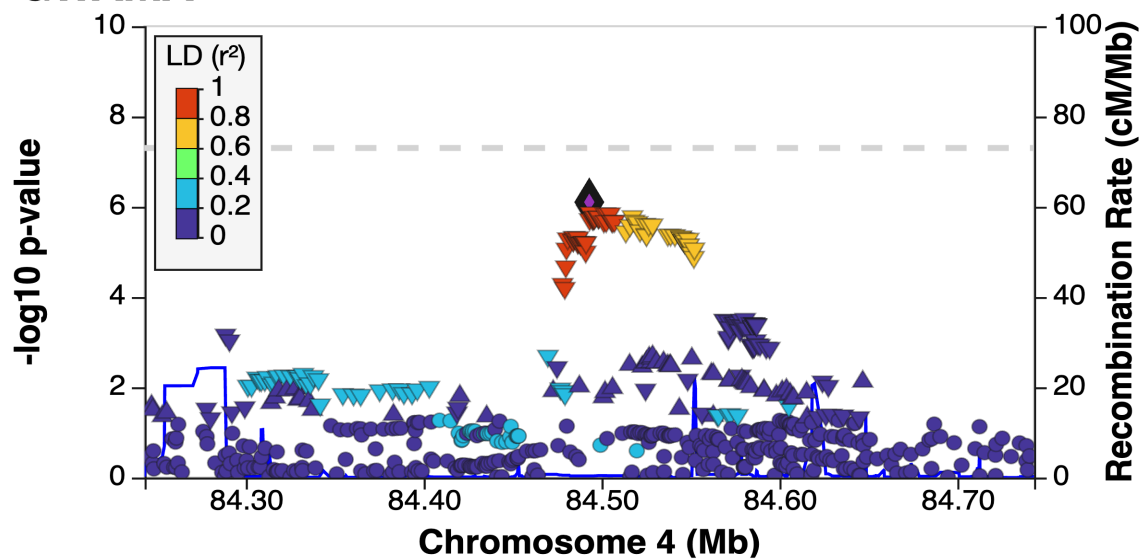


Figure E3.35 Locus zoom plots of rs62305340 (4:84493126) in doctors-diagnosed FA phenotype adults, baseline model.

GWAMA



GWAS Catalog hits for GWAMA

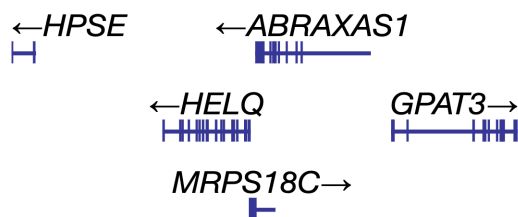
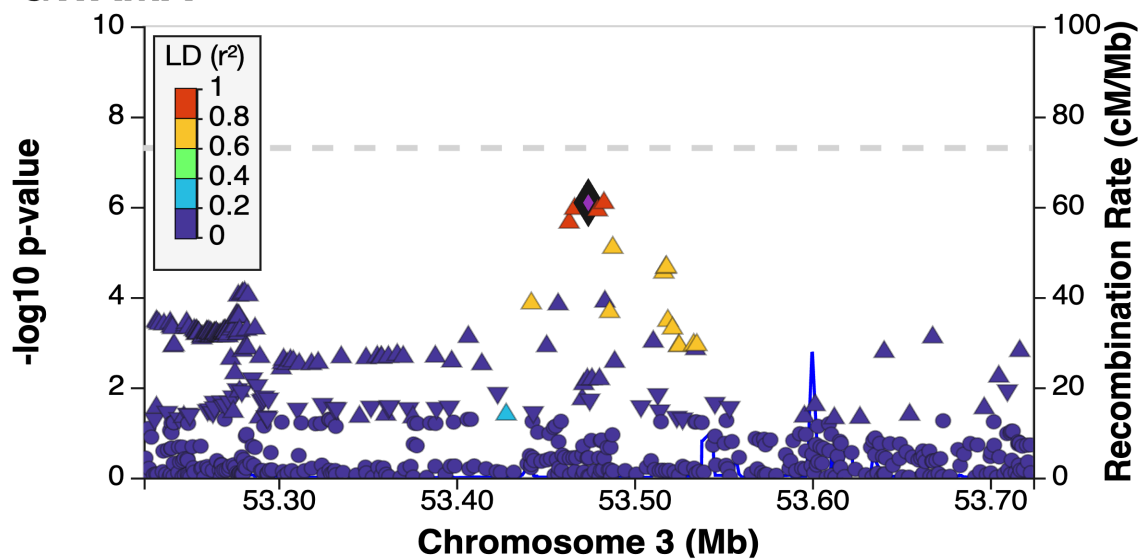


Figure E3.36 Locus zoom plots of rs79989571 (3:53474278) in self-reported FA phenotype children, hay fever adjusted model.

GWAMA



GWAS Catalog hits for GWAMA

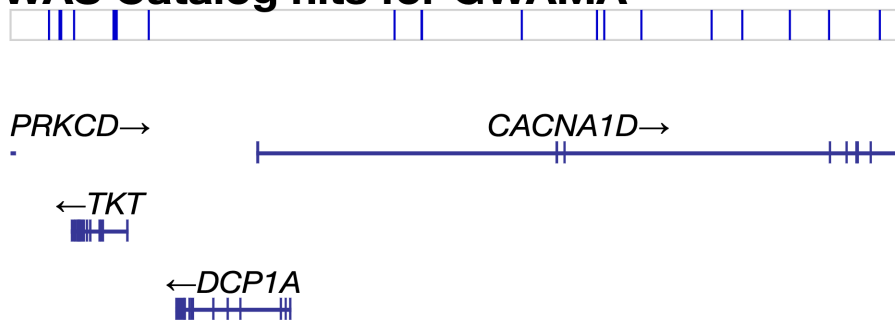
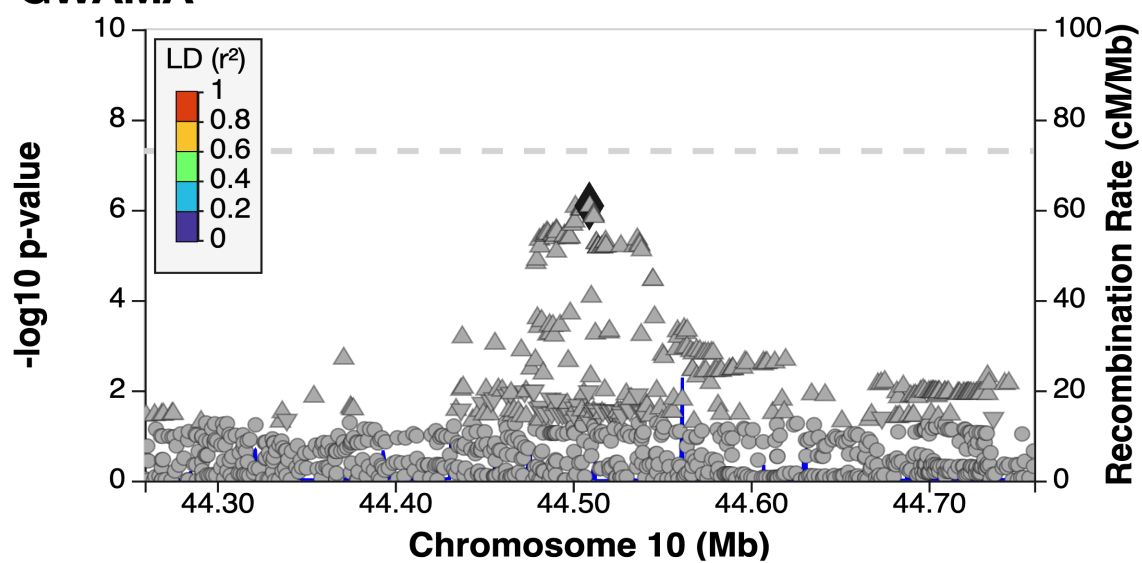


Figure E3.37 Locus zoom plots of rs10899967 (10:44509338) in doctors-diagnosed FA phenotype children, baseline model.

GWAMA

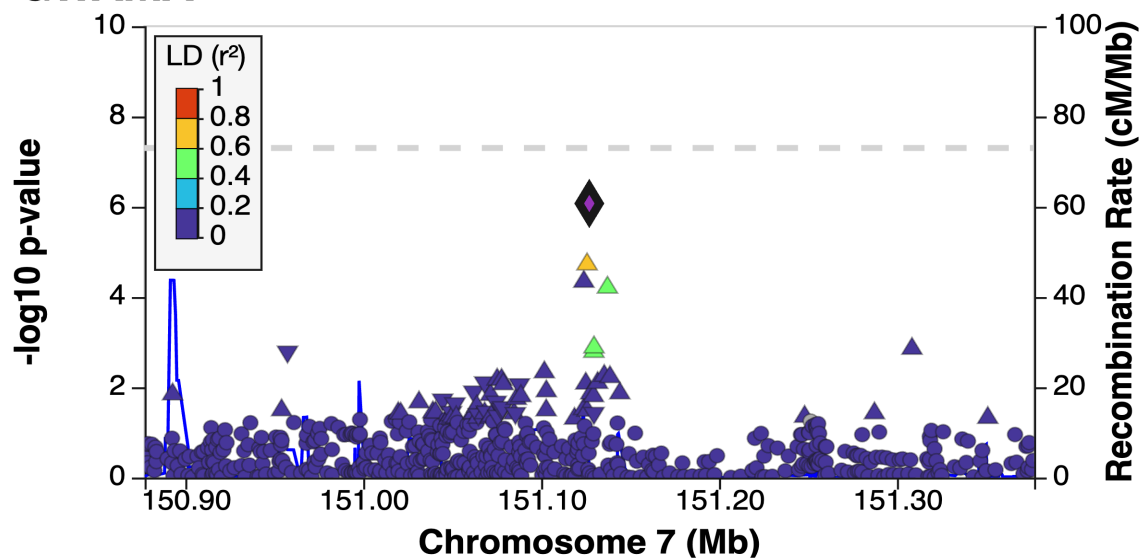


GWAS Catalog hits for GWAMA



Figure E3.38 Locus zoom plots of rs10265041 (7:151127104) in self-reported FA phenotype adults, baseline model.

GWAMA



GWAS Catalog hits for GWAMA

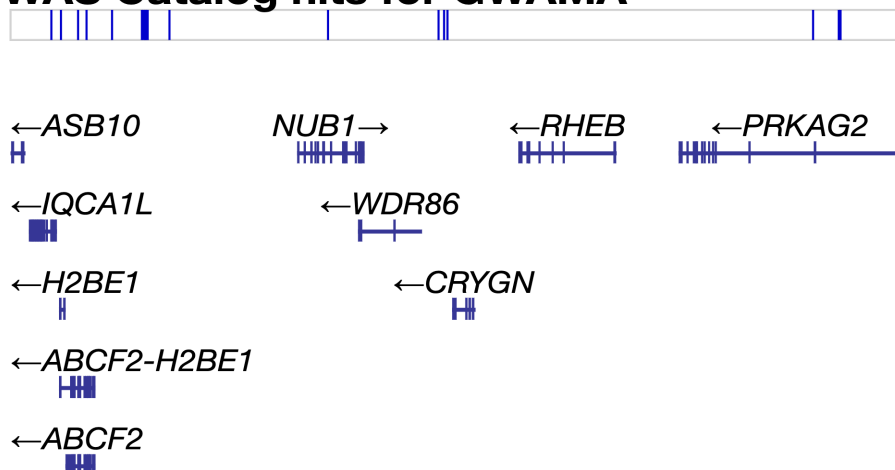
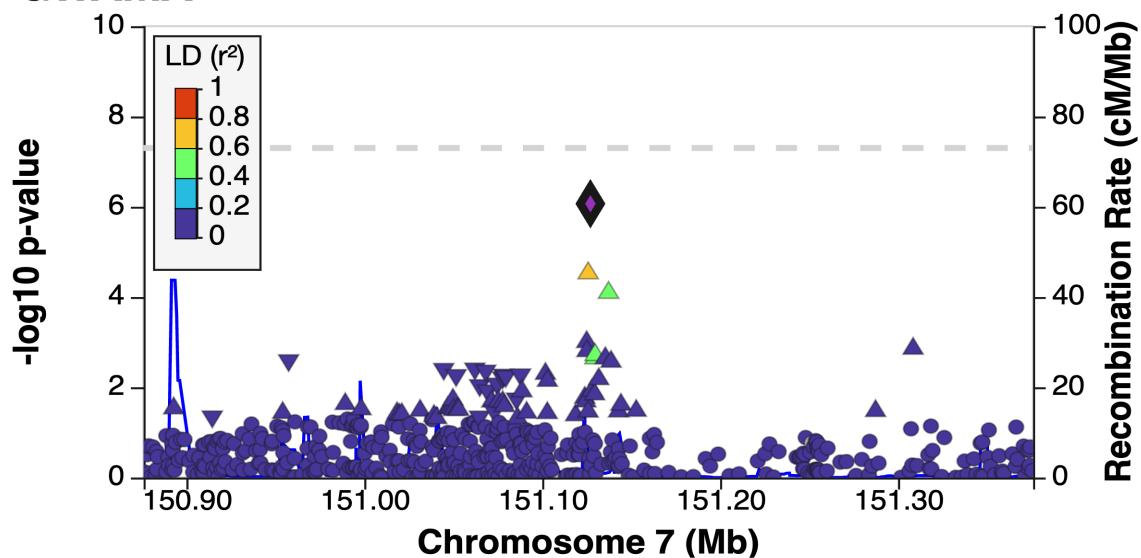


Figure E3.39 Locus zoom plots of rs10265041 (7:151127104) in self-reported FA phenotype adults, hay fever adjusted model.

GWAMA



GWAS Catalog hits for GWAMA

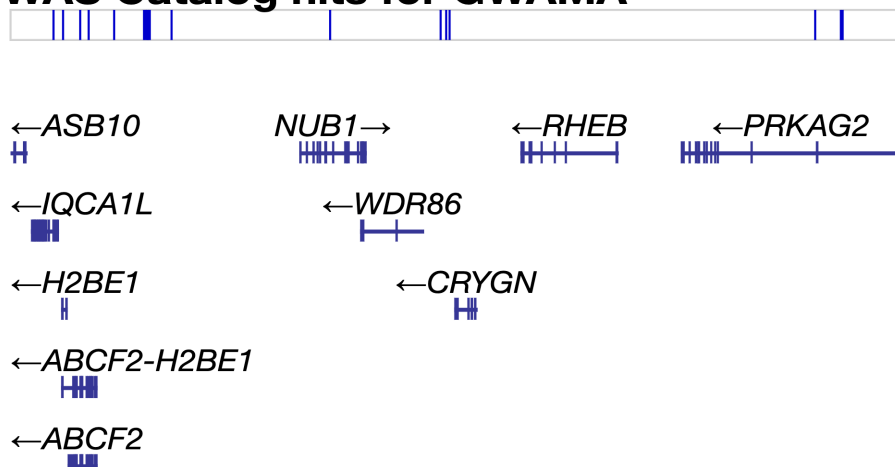
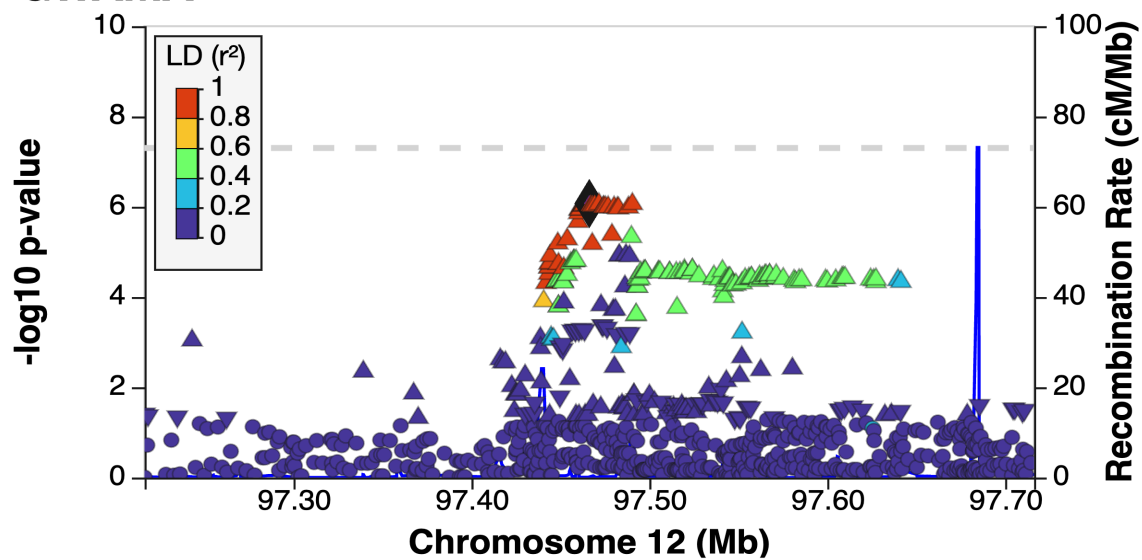


Figure E3.40 Locus zoom plots of rs73228469 (12:97466262) in doctors-diagnosed FA phenotype adults, baseline model.

GWAMA



GWAS Catalog hits for GWAMA

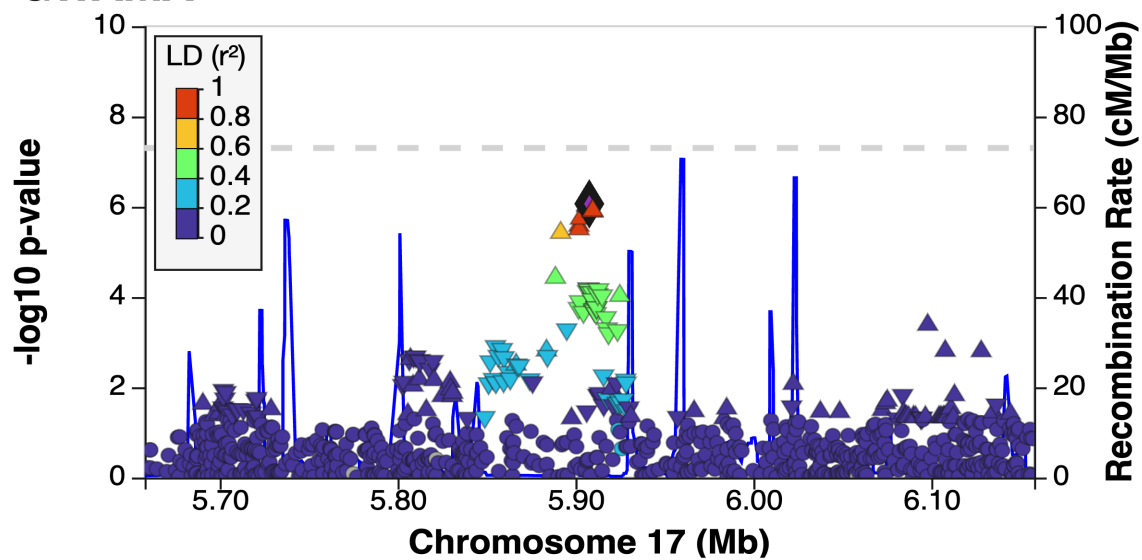


CFAP54 →

NEDD1 →

Figure E3.41 Locus zoom plots of rs12450646 (17:5907793) in self-reported FA phenotype adults, baseline model.

GWAMA



GWAS Catalog hits for GWAMA

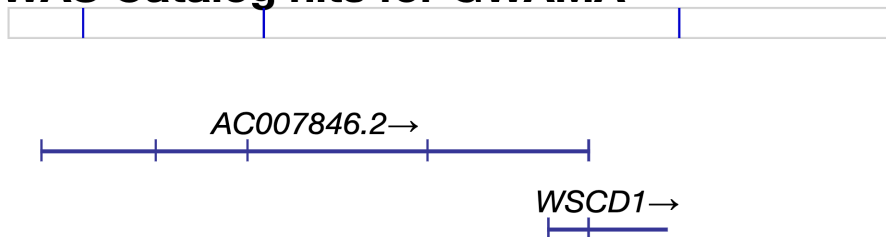
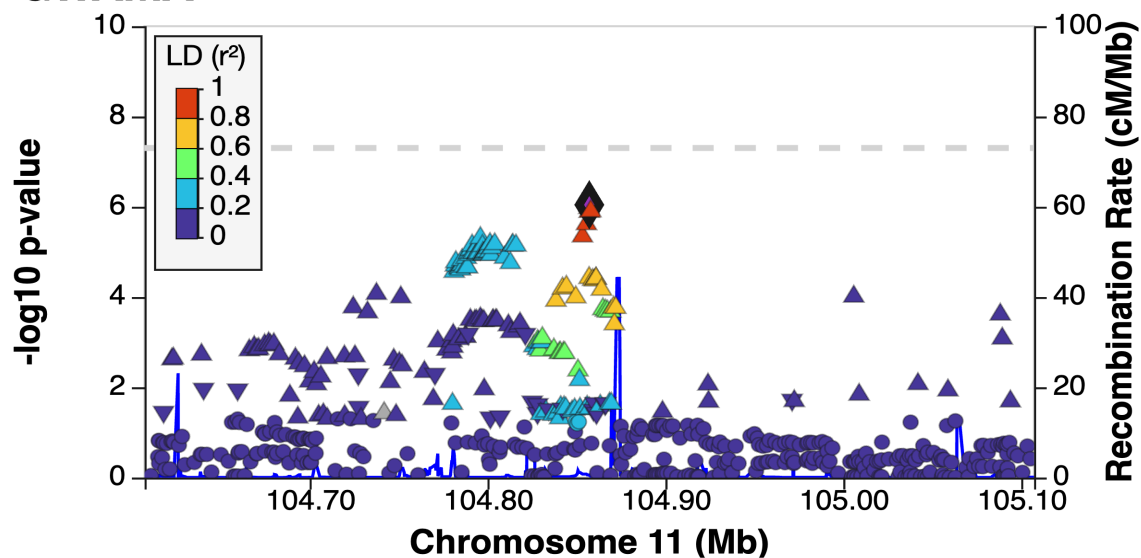


Figure E3.42 Locus zoom plots of rs7108444 (11:104857234) in doctors-diagnosed FA + sensitization phenotype children, baseline model.

GWAMA



GWAS Catalog hits for GWAMA

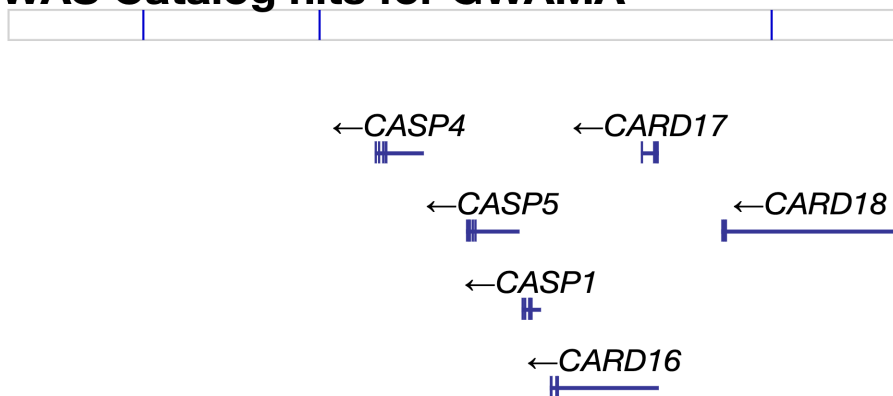
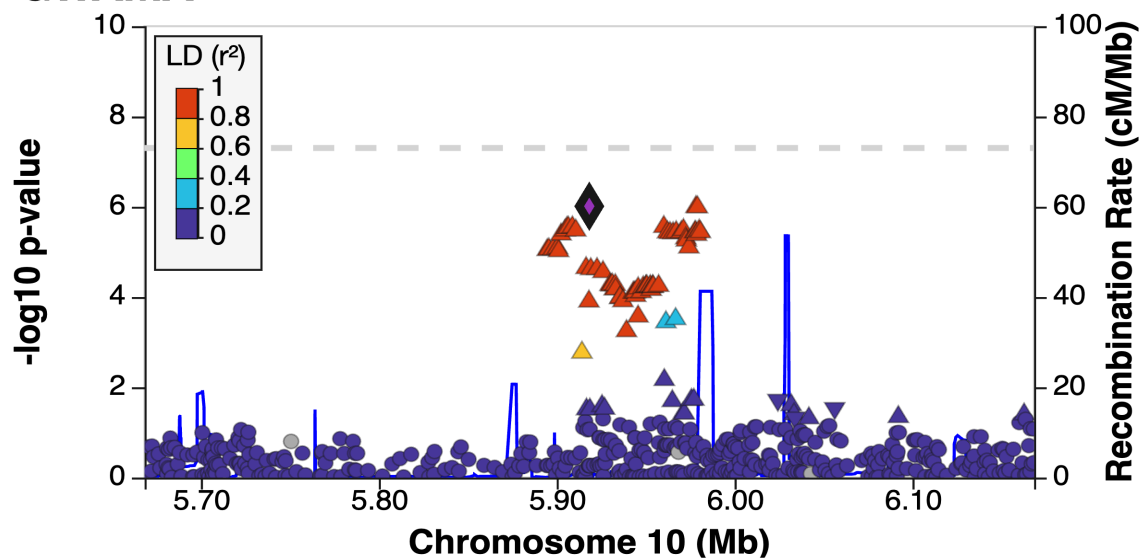


Figure E3.43 Locus zoom plots of rs56296494 (10:5918344) in sensitization phenotype adults, baseline model.

GWAMA



GWAS Catalog hits for GWAMA

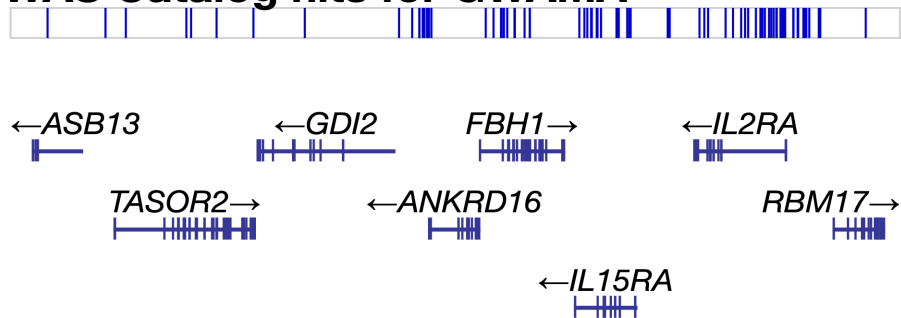
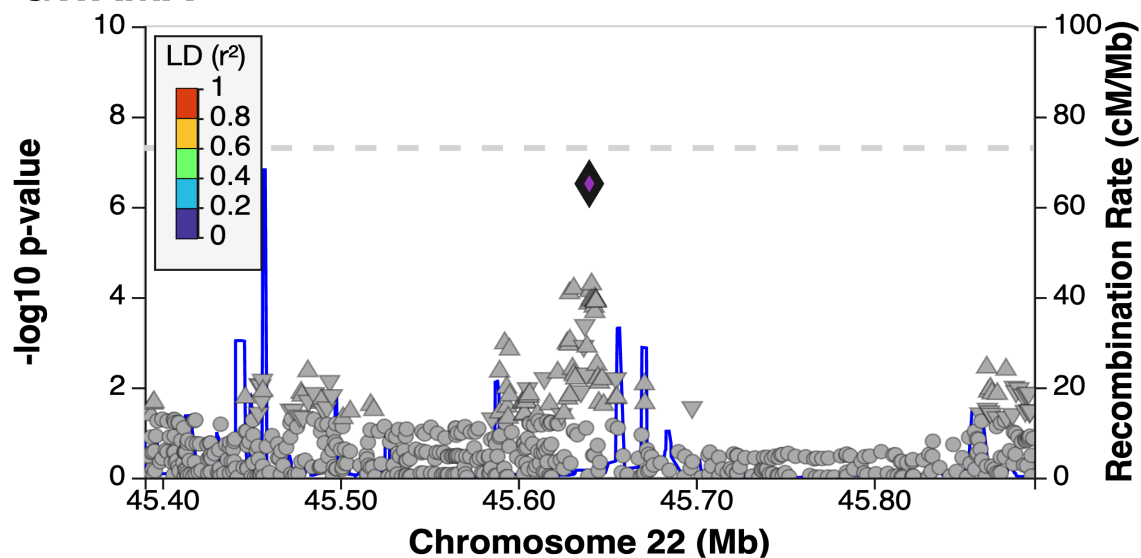


Figure E3.44 Locus zoom plots of rs6007514 (22:45640136) in sensitization phenotype adults, baseline model.

GWAMA



GWAS Catalog hits for GWAMA

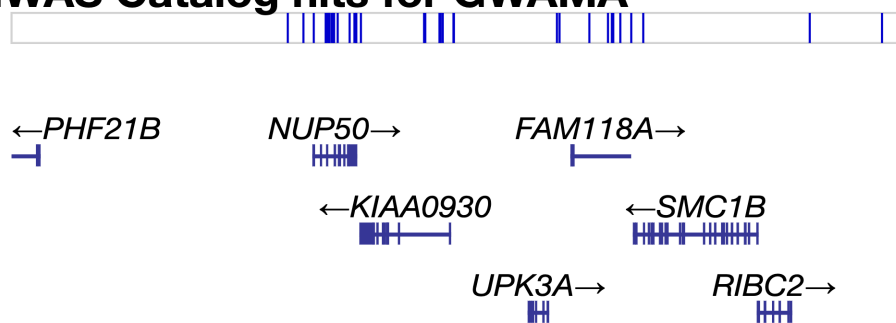
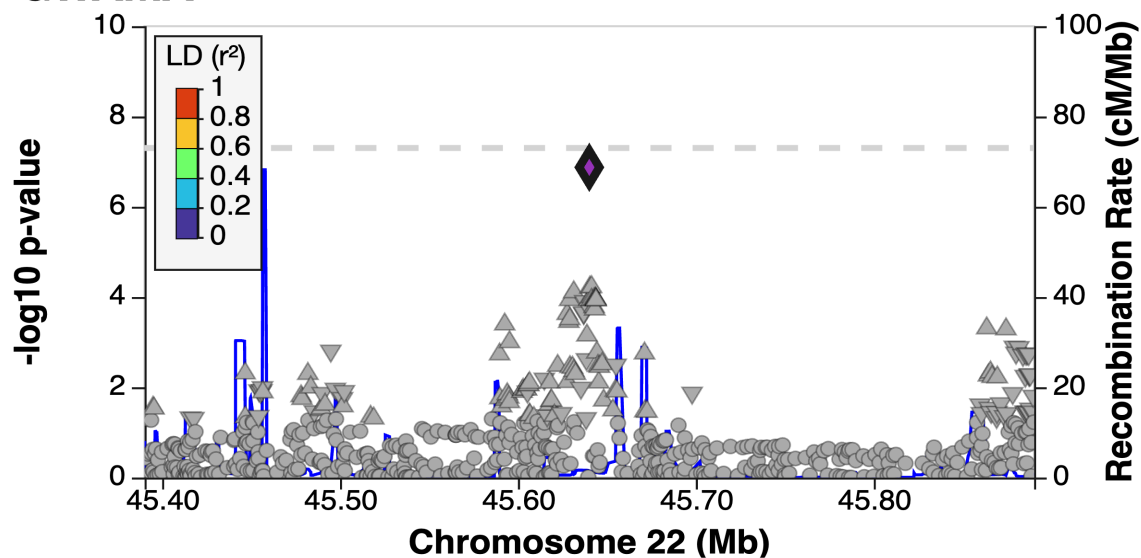


Figure E3.45 Locus zoom plots of rs6007514 (22:45640136) in sensitization phenotype adults, hay fever adjusted model.

GWAMA



GWAS Catalog hits for GWAMA

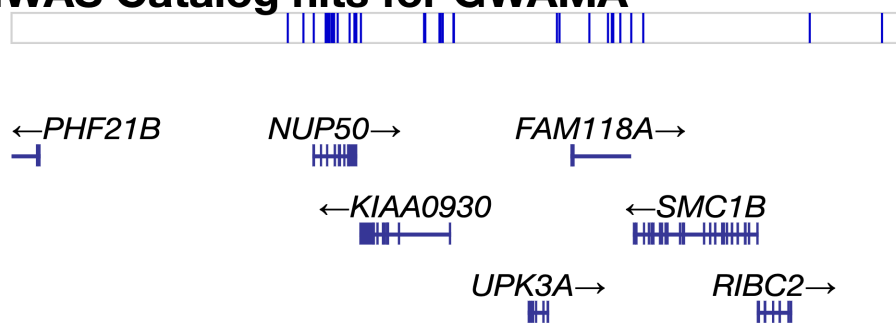


Figure E3.46 Locus zoom plots of rs2033784 (15:67449660) in doctors-diagnosed FA phenotype adults, baseline model.

GWAMA

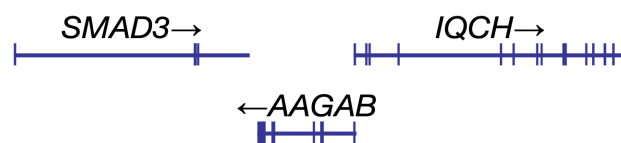
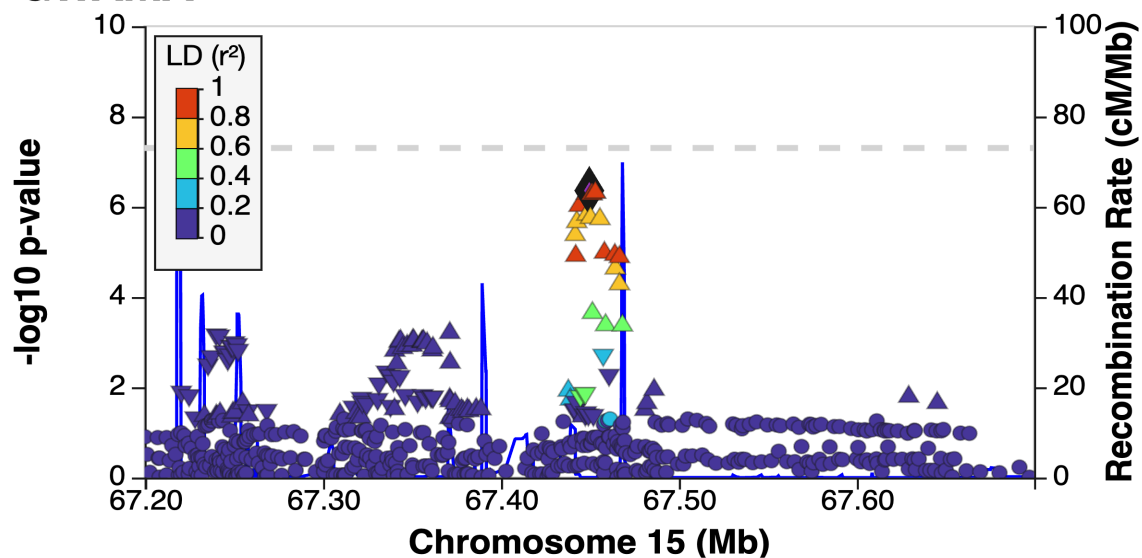
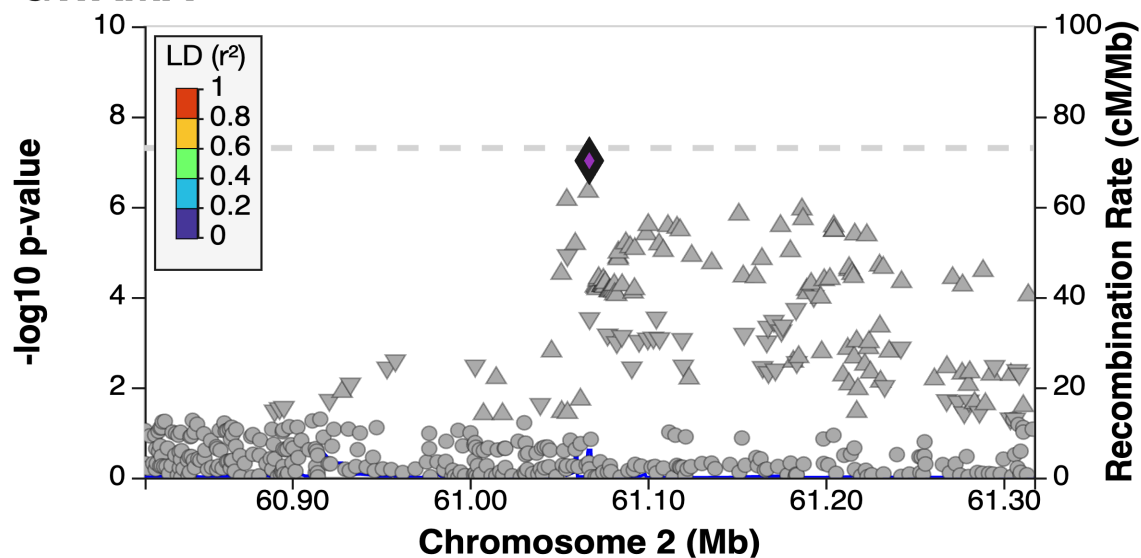


Figure E3.47 Locus zoom plots of rs66609926 (2:61067286) in sensitization phenotype children, baseline model.

GWAMA

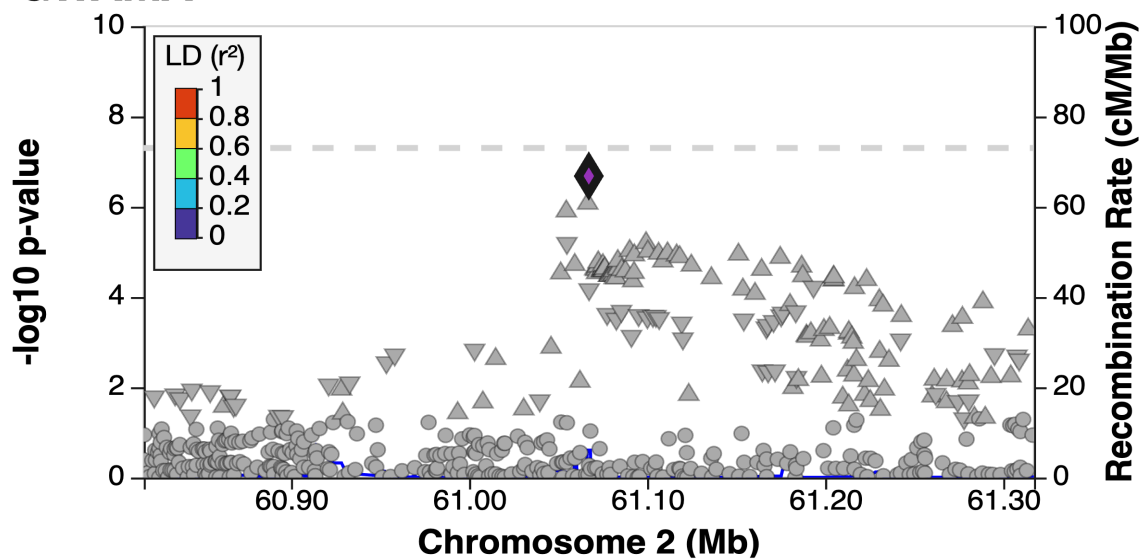


GWAS Catalog hits for GWAMA



Figure E3.48 Locus zoom plots of rs66609926 (2:61067286) in sensitization phenotype children, hay fever adjusted model.

GWAMA



GWAS Catalog hits for GWAMA

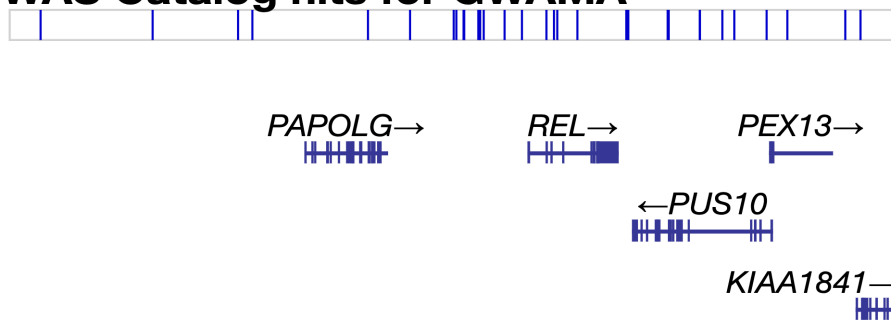
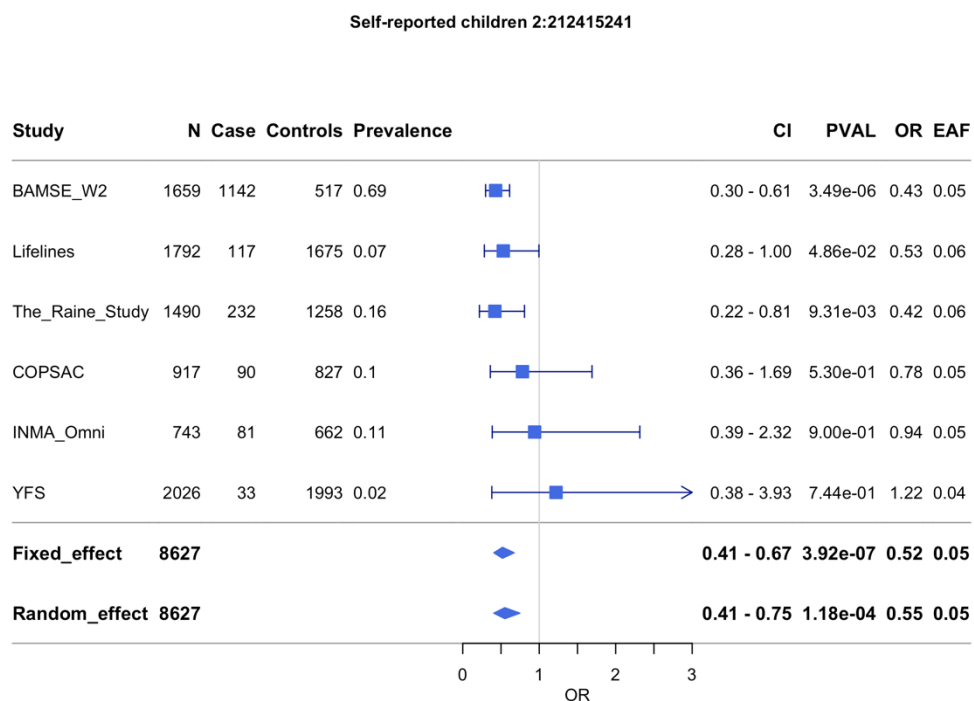
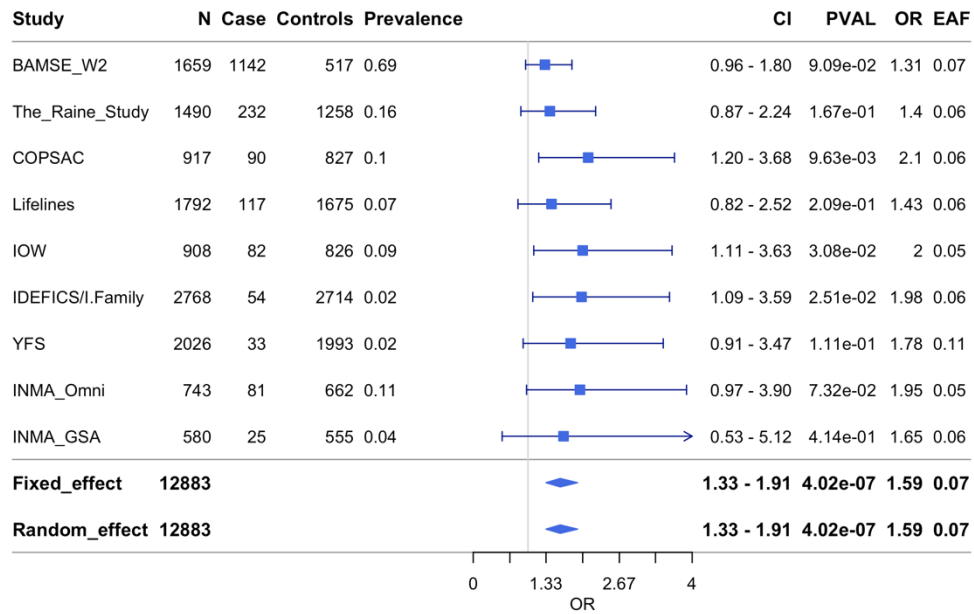


Figure E4: Forest plots of all SNPs meeting suggestive significance ($p < 1 \times 10^{-6}$) in any phenotype and model. Summary statistic (OR $\pm$ 95% confidence interval) across all cohorts for the respective lead SNP are presented. Meta-analysis results are shown on the bottom line.

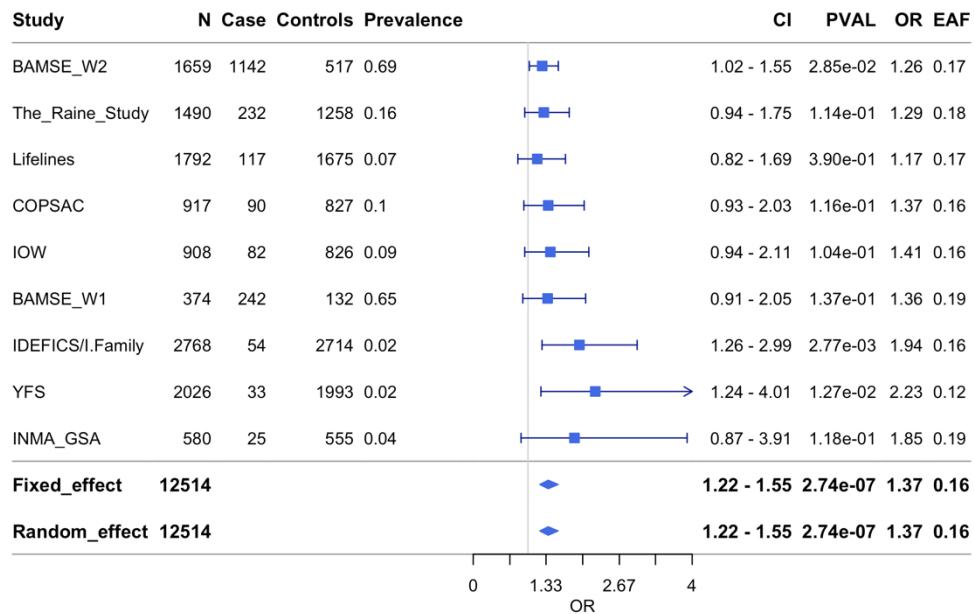
Discovered in self-reported food allergy phenotype (baseline model) – children



Self-reported_children 3:177288324

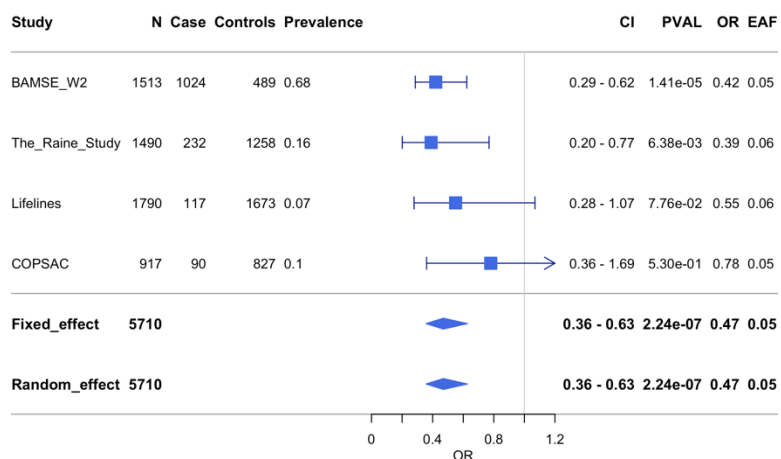


Self-reported_children 5:126981185

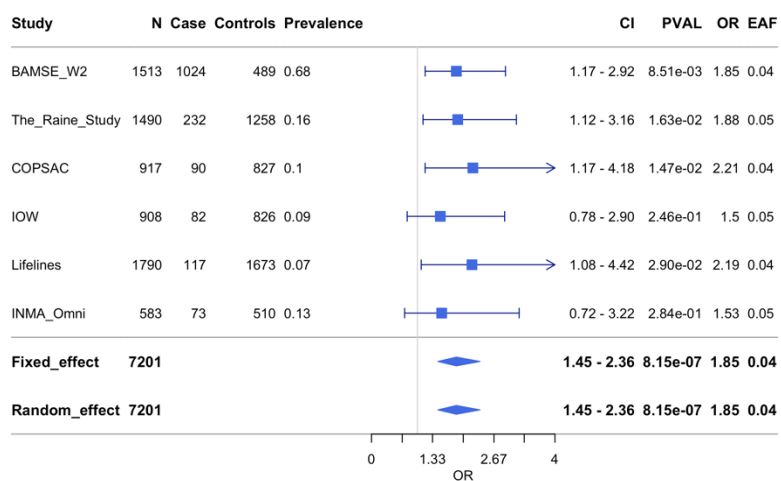


Discovered in self-reported food allergy phenotype (hay fever adjusted model) – children

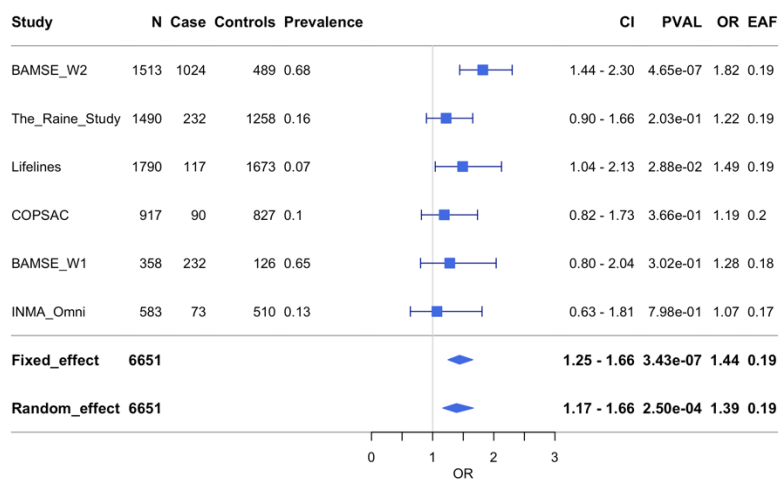
Self-reported (hay fever adj.) children 2:212415241



Self-reported (hay fever adj.) children 3:53474278

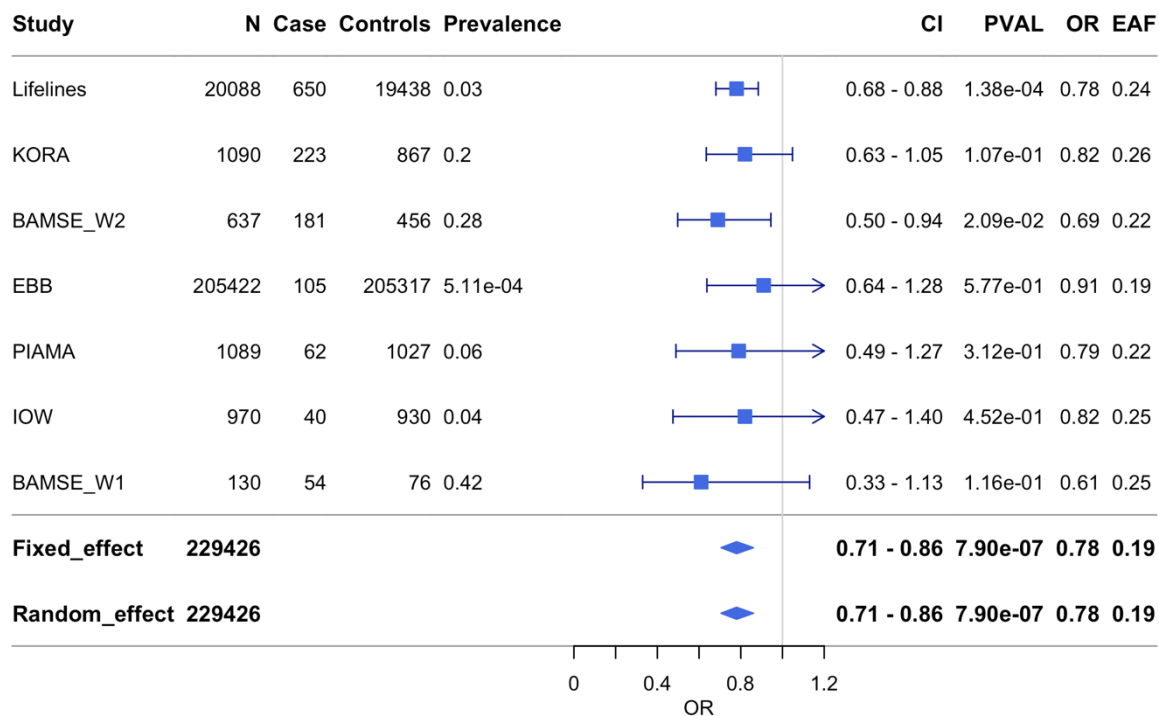


Self-reported (hay fever adj.) children 3:68324177

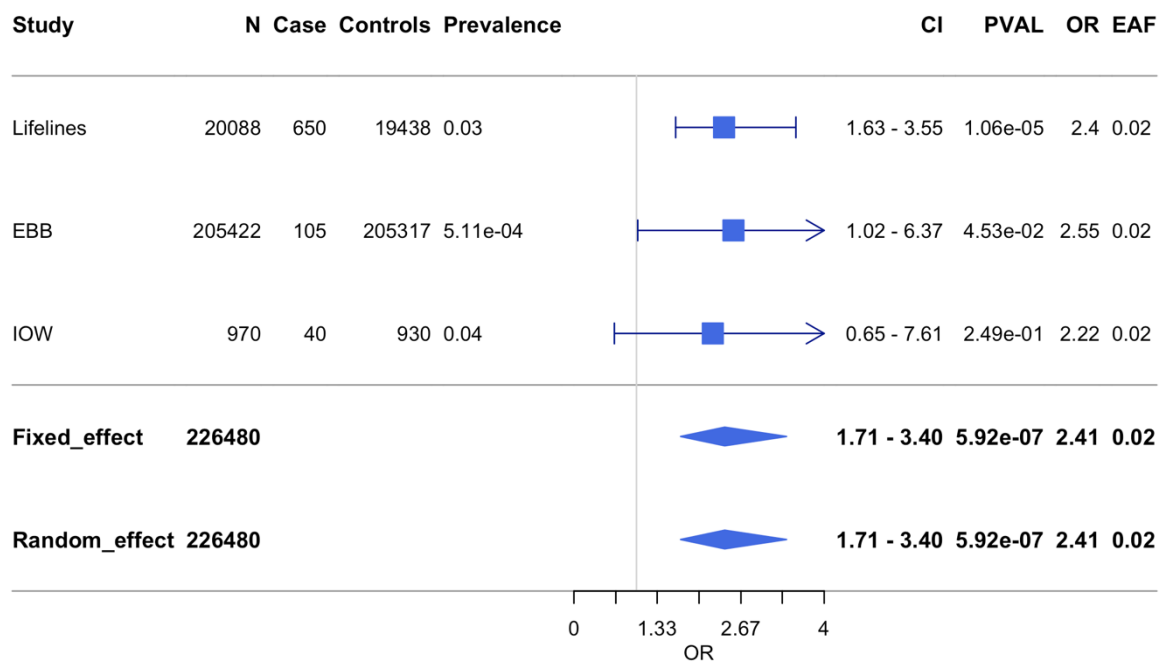


Discovered in doctors-diagnosed food allergy phenotype (baseline model) – children

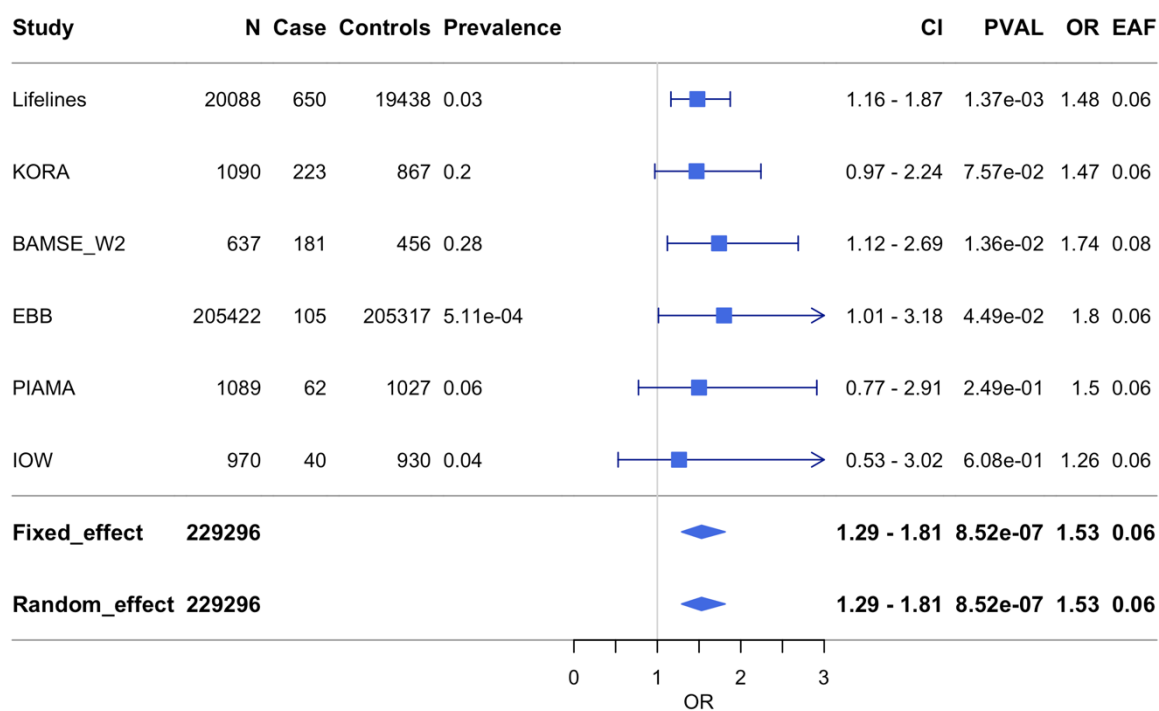
Doctors-diagnosed adults 4:84493126



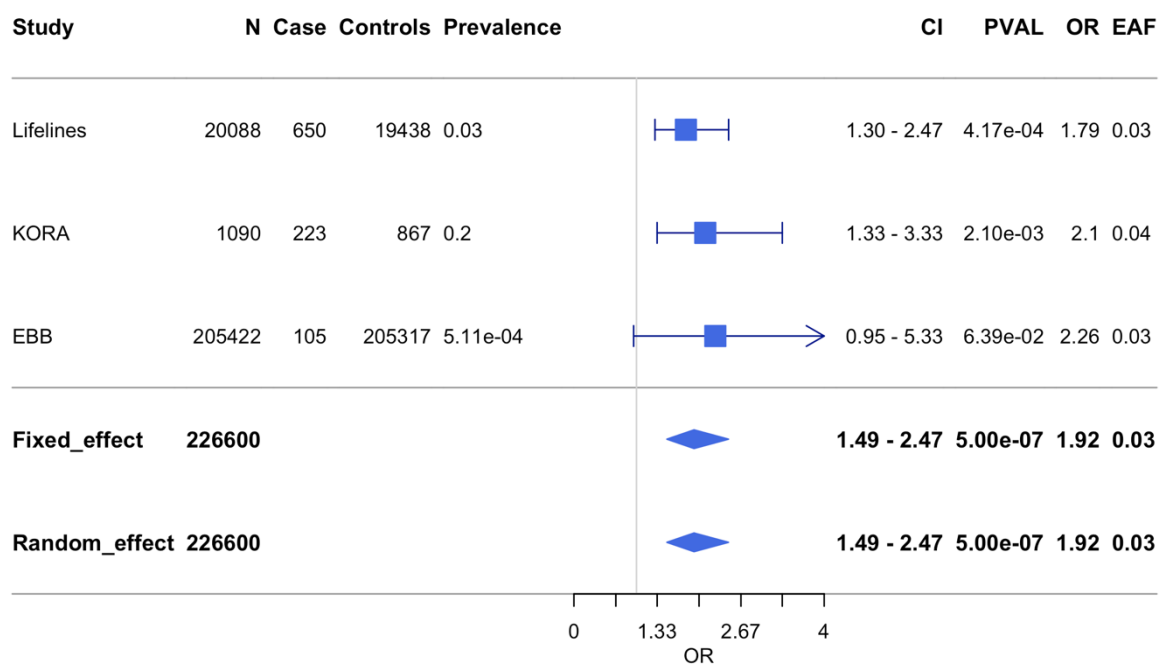
Doctors-diagnosed adults 9:116941113



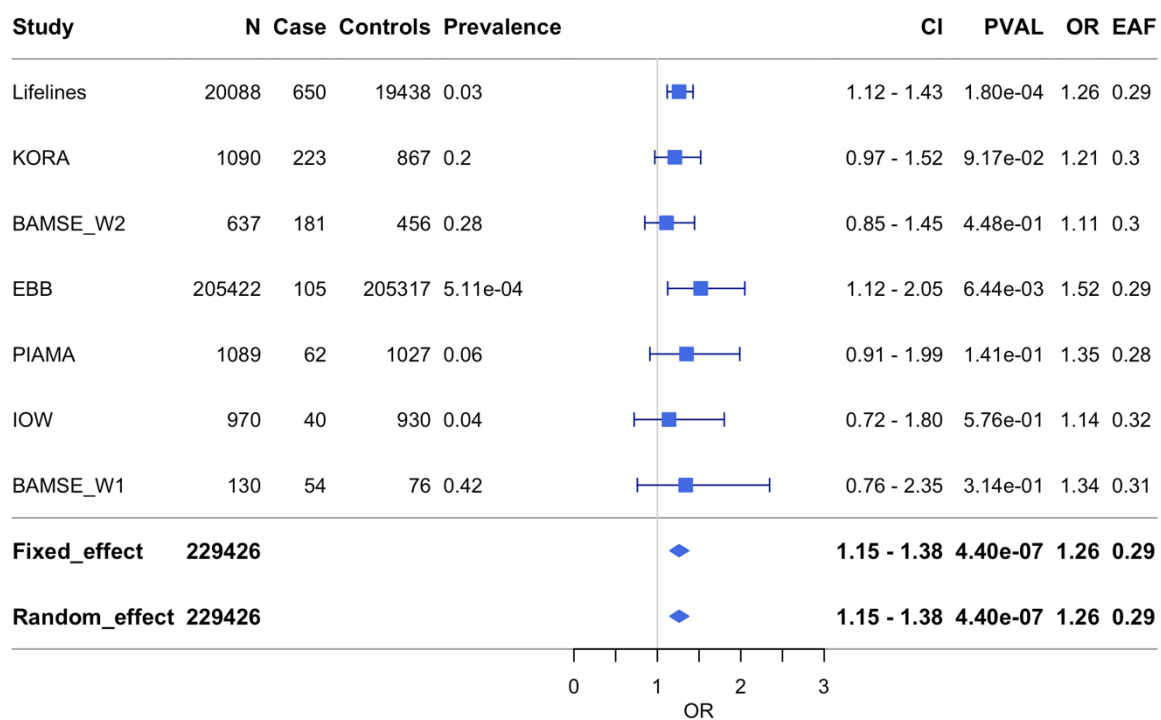
Doctors-diagnosed adults 12:97466262



Doctors-diagnosed adults 13:50028384

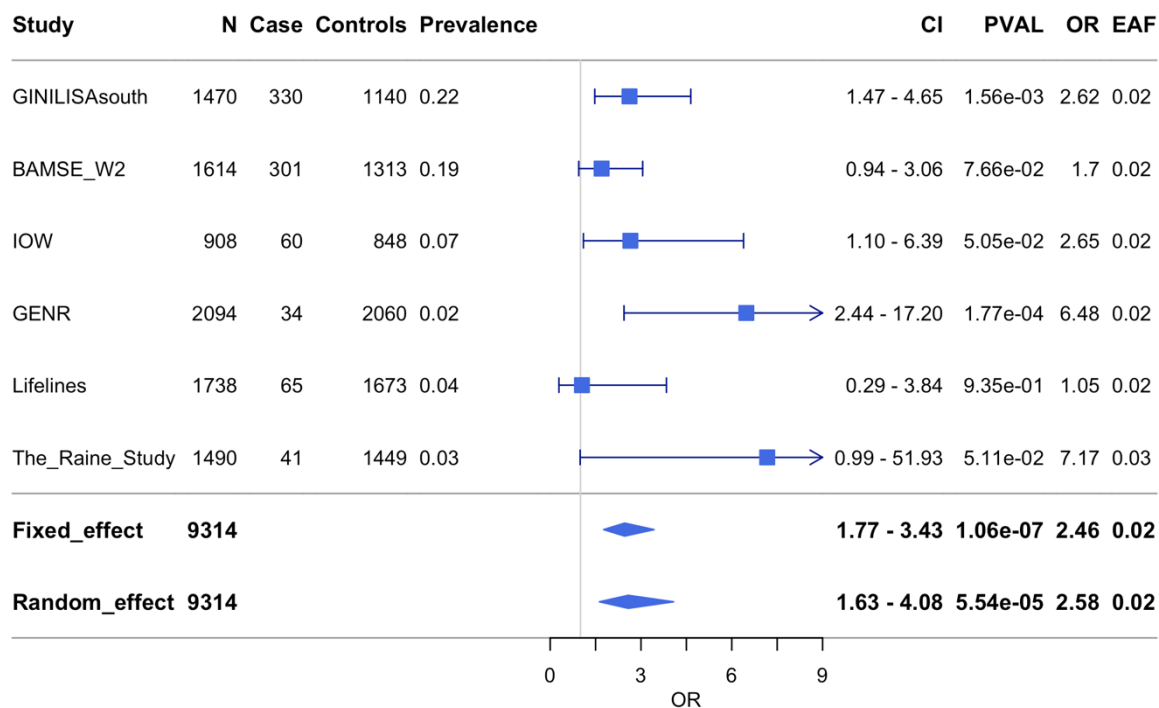


Doctors-diagnosed adults 15:67449660

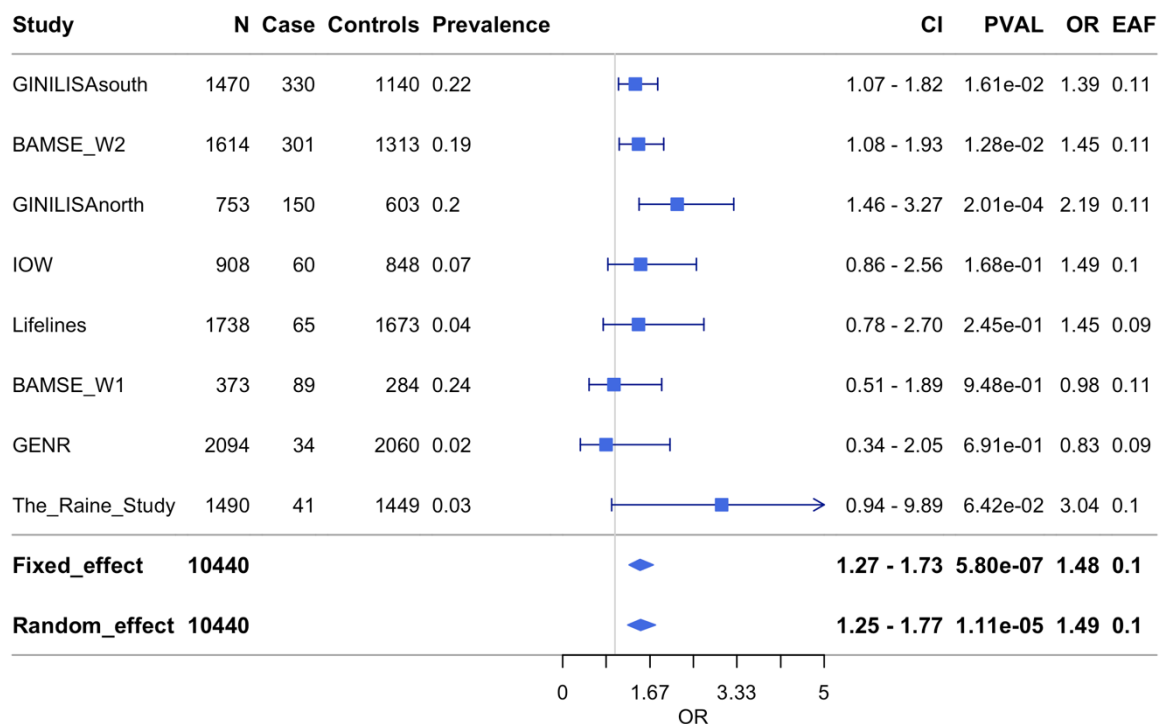


Discovered in doctors-diagnosed food allergy phenotype (hay fever adjusted model) – children

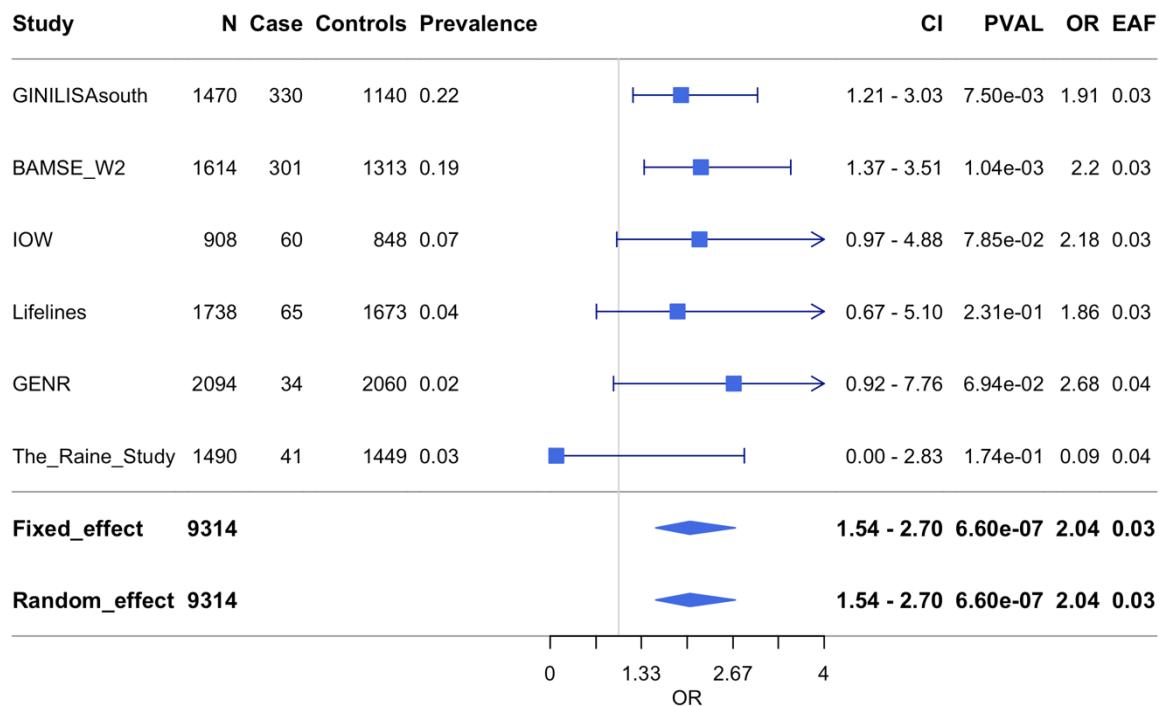
Doctors-diagnosed (hay fever adj.) children 1:231163221



Doctors-diagnosed (hay fever adj.) children 2:180555884

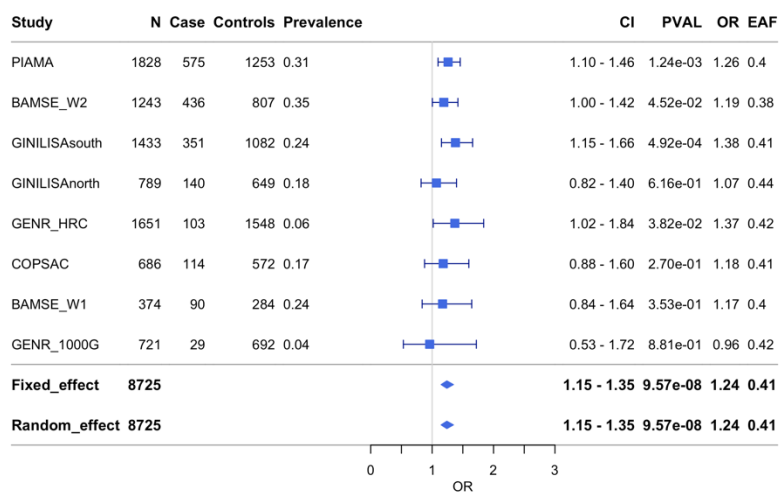


Doctors-diagnosed (hay fever adj.) children 18:7602849

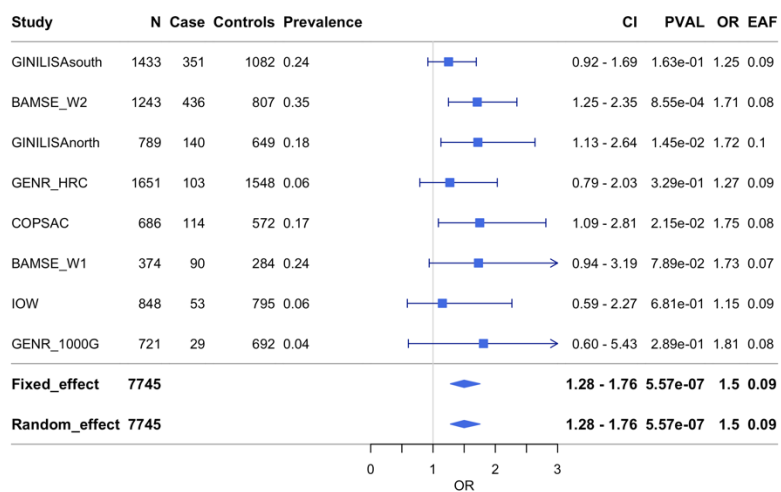


Discovered in sensitization phenotype (baseline model) – children

Sensitization children 2:61067286

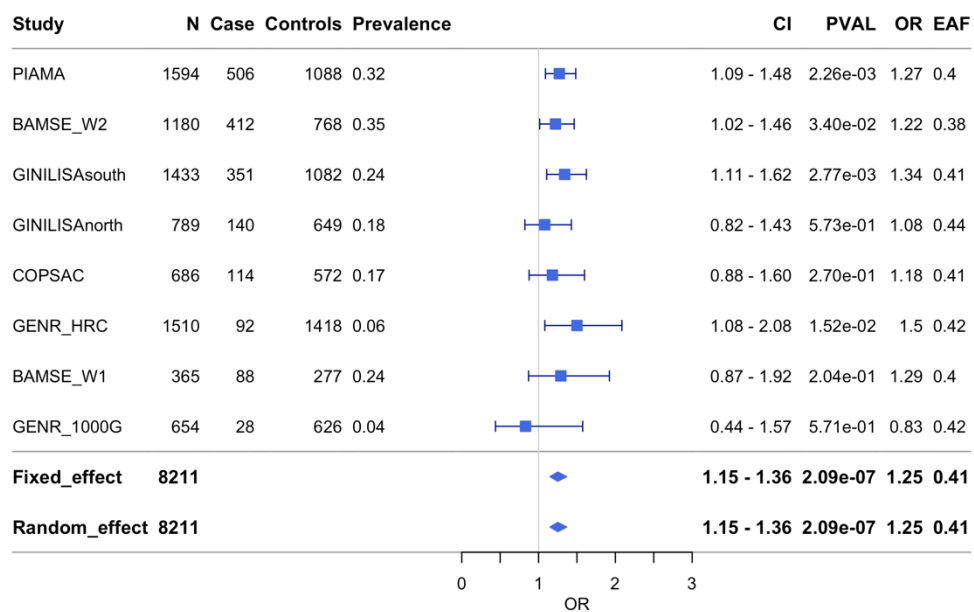


Sensitization childreenn 16:9065990



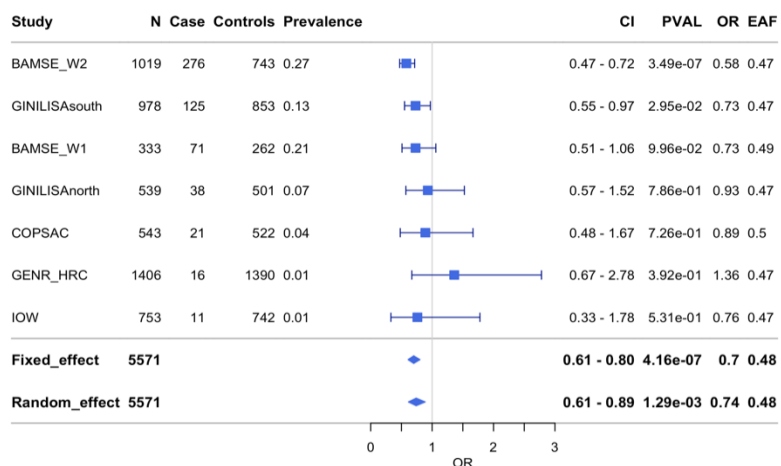
Discovered in sensitization phenotype (hay fever adjusted model) – children

Sensitization (hay fever adj.) children 2:61067286

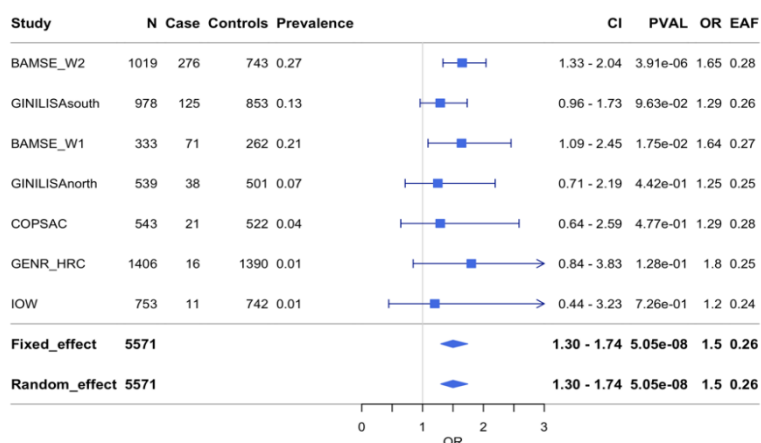


Discovered in doctors-diagnosed plus sensitization phenotype (baseline model) – children

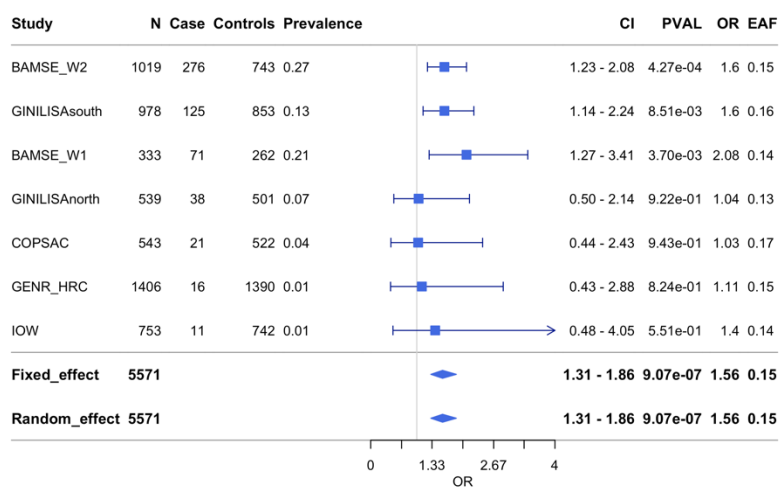
Doctors-diagnosed + sensitization children 3:69108316



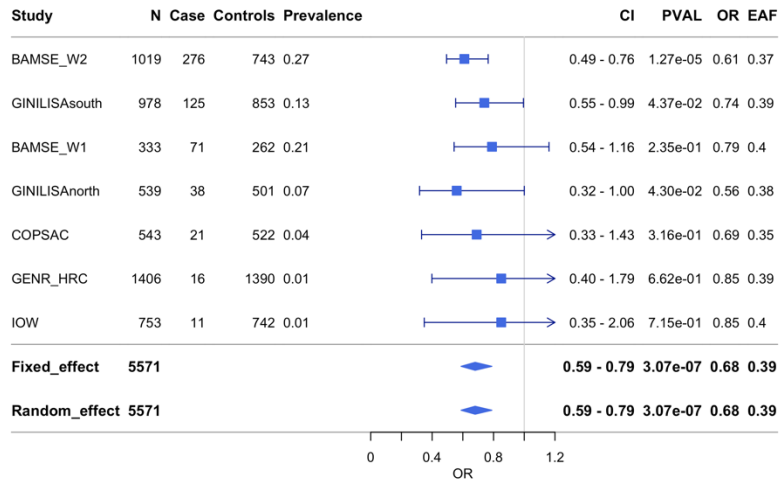
Doctors-diagnosed + sensitization children 4:21244175



Doctors-diagnosed + sensitization children 11:104857234

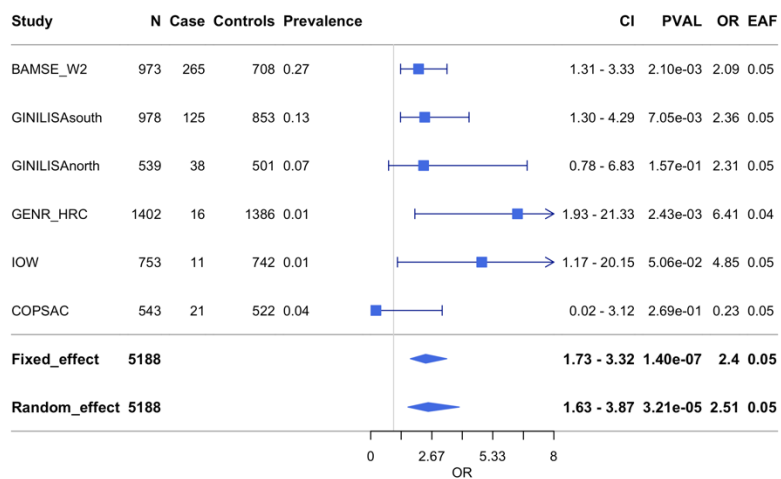


Doctors-diagnosed + sensitization children 16:53092980

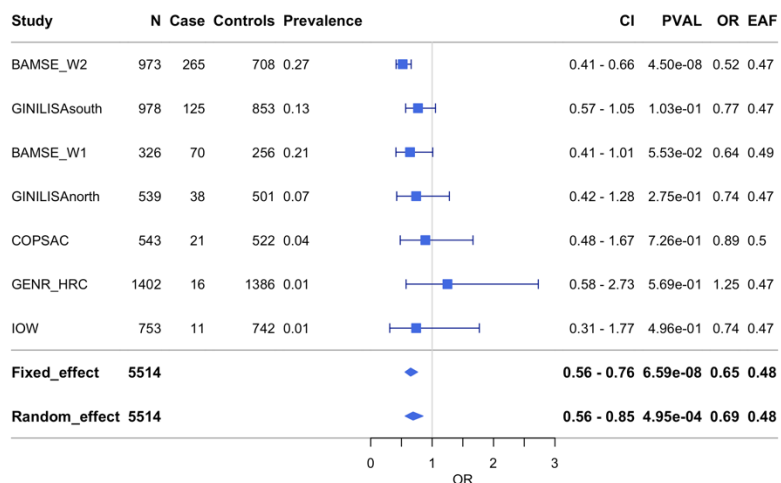


Discovered in doctors-diagnosed plus sensitization phenotype (hay fever adjusted model) – children

Doctors-diagnosed + sensitization (hay fever adj.) children 2:53770433

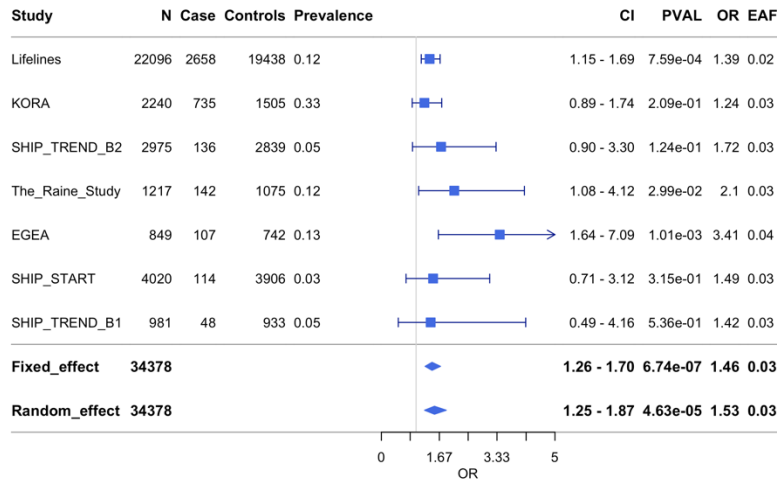


Doctors-diagnosed + sensitization (hay fever adj.) children 3:69108316

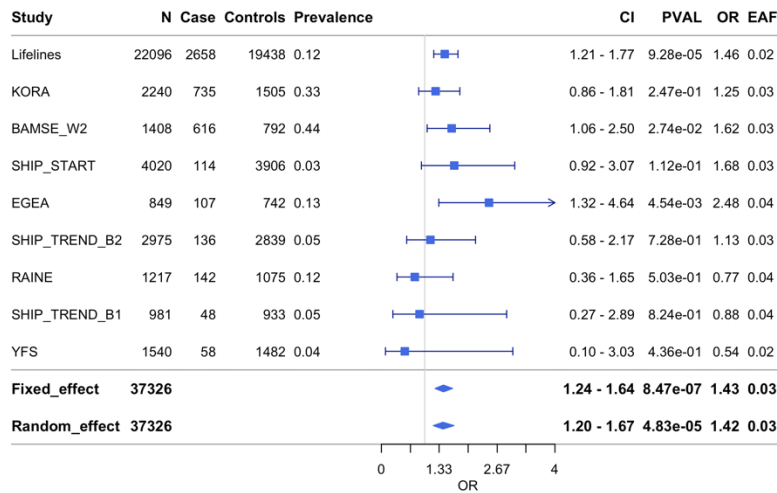


Discovered in self-reported food allergy phenotype (baseline model) – adults

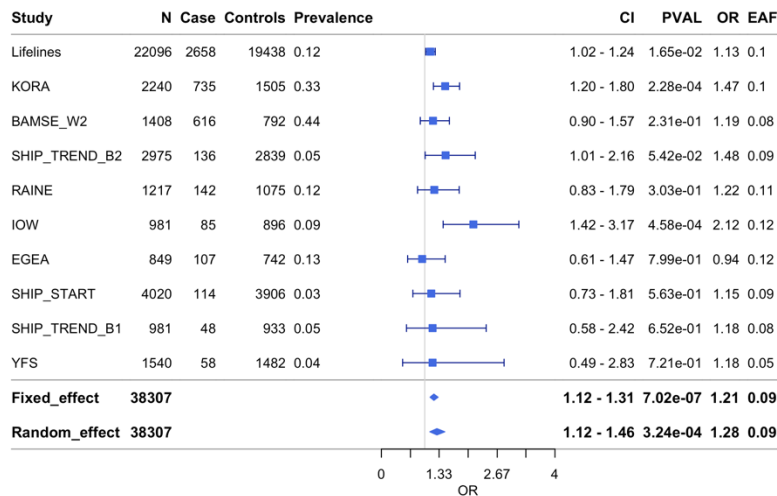
Self-reported adults 5:146894281



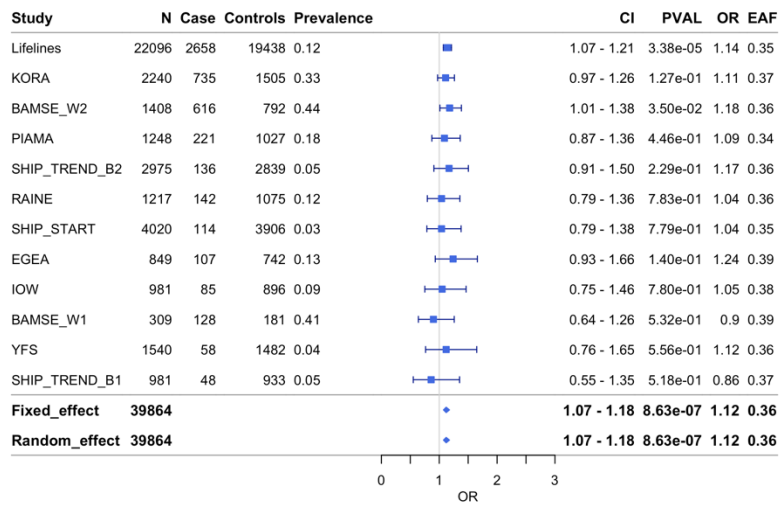
pheno1_adults_7:151127104



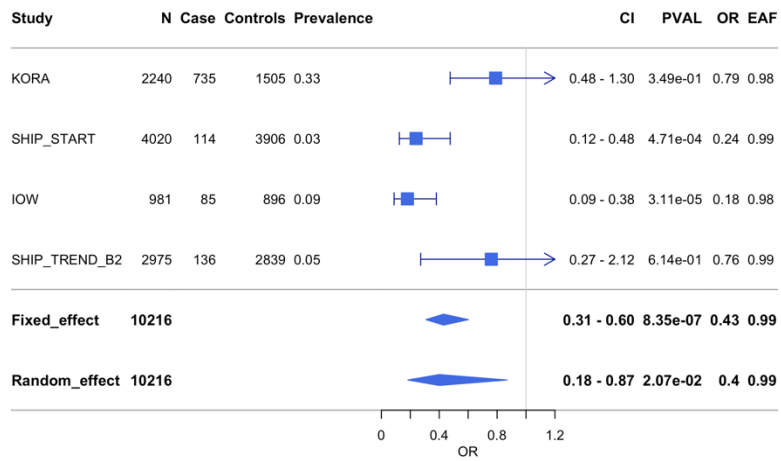
pheno1_adults_15:41407730



pheno1_adults_17:5907793

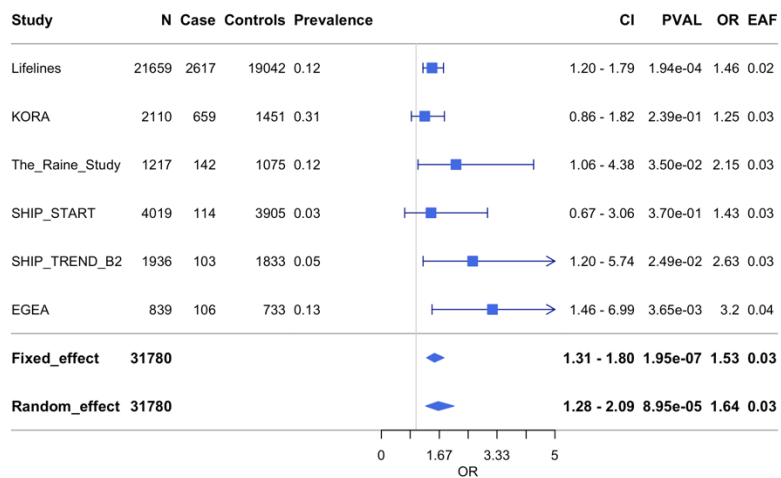


pheno1_adults_22:22556934

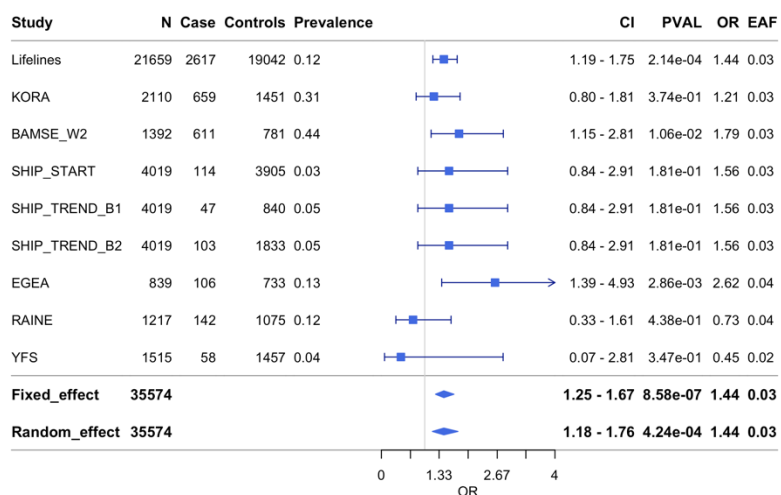


Discovered in self-reported food allergy phenotype (hay fever adjusted model) – adults

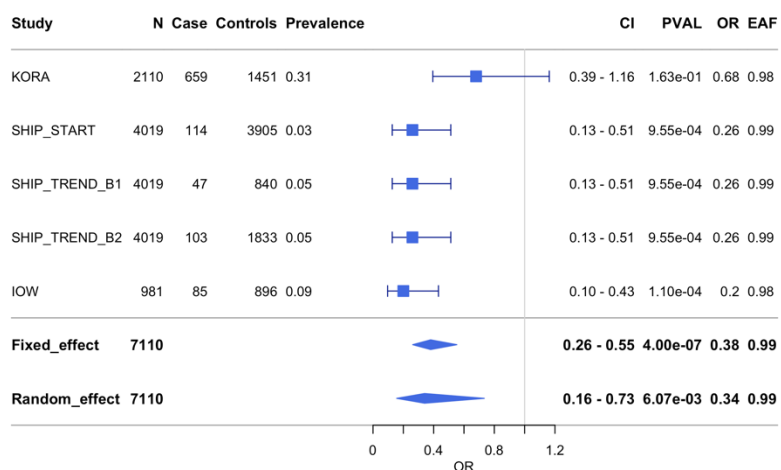
Self-reported (hay fever adj.) adults 5:146894281



pheno1_allrhin_adults_7:151127104



pheno1_allrhin_adults_22:22556934



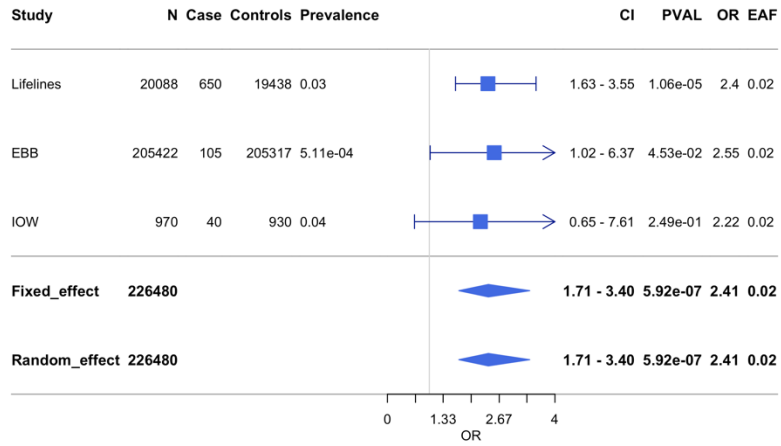
Discovered in doctors-diagnosed food allergy phenotype (baseline model) – adults

Doctors-diagnosed adults 4:84493126

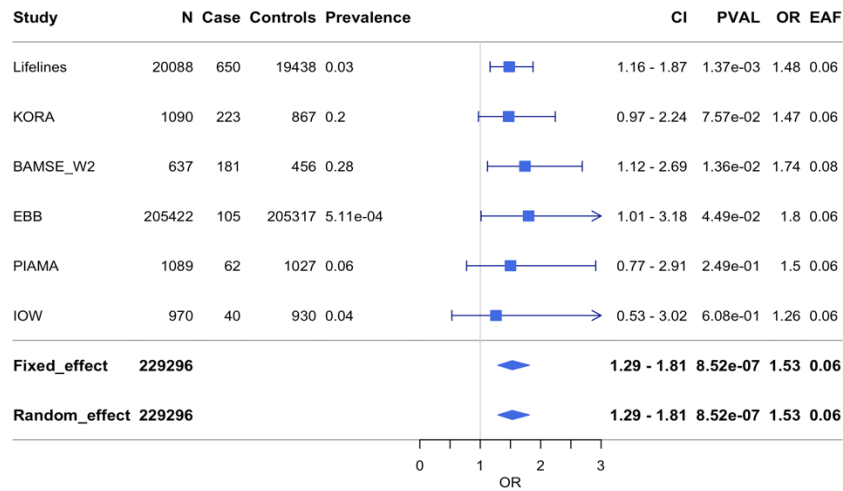
Study	N	Case	Controls	Prevalence		CI	PVAL	OR	EAF
Lifelines	20088	650	19438	0.03		0.68 - 0.88	1.38e-04	0.78	0.24
KORA	1090	223	867	0.2		0.63 - 1.05	1.07e-01	0.82	0.26
BAMSE_W2	637	181	456	0.28		0.50 - 0.94	2.09e-02	0.69	0.22
EBB	205422	105	205317	5.11e-04		0.64 - 1.28	5.77e-01	0.91	0.19
PIAMA	1089	62	1027	0.06		0.49 - 1.27	3.12e-01	0.79	0.22
IOW	970	40	930	0.04		0.47 - 1.40	4.52e-01	0.82	0.25
BAMSE_W1	130	54	76	0.42		0.33 - 1.13	1.16e-01	0.61	0.25
Fixed_effect	229426					0.71 - 0.86	7.90e-07	0.78	0.19
Random_effect	229426					0.71 - 0.86	7.90e-07	0.78	0.19

0 0.4 0.8 1.2
OR

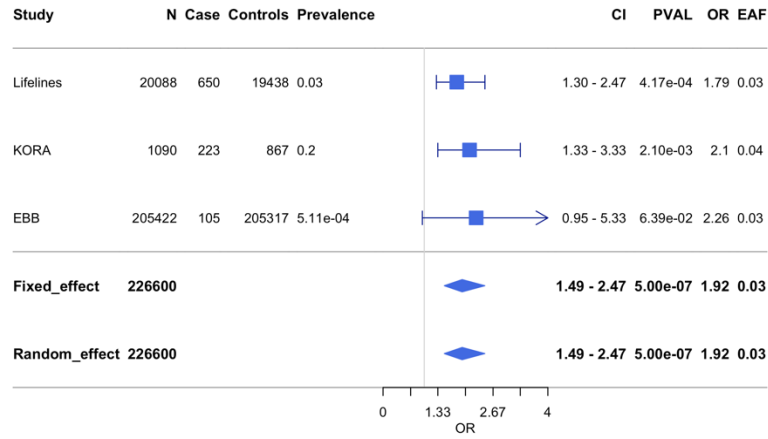
Doctors-diagnosed adults 9:116941113



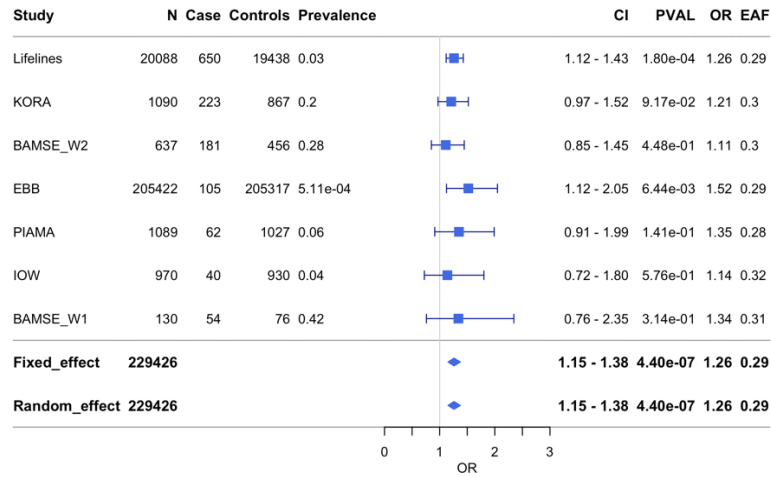
Doctors-diagnosed adults 12:97466262



Doctors-diagnosed adults 13:50028384

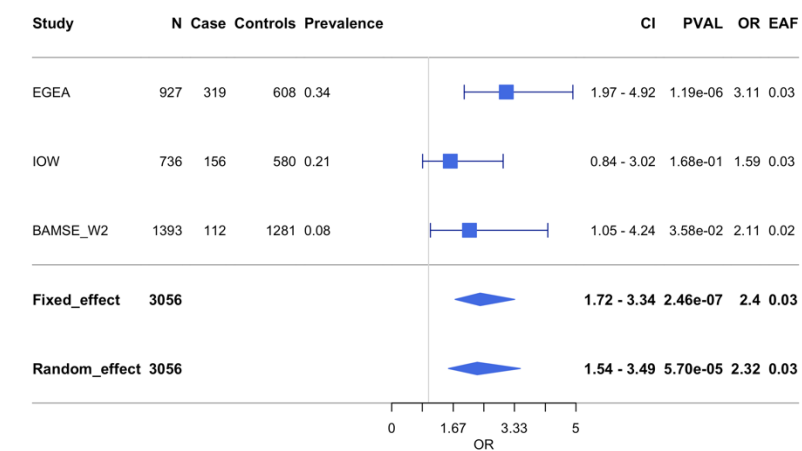


Doctors-diagnosed adults 15:67449660

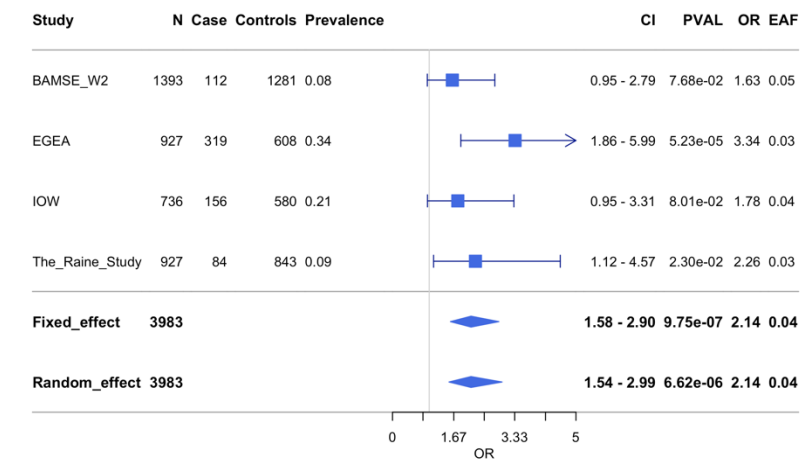


Discovered in sensitization phenotype (baseline model) – adults

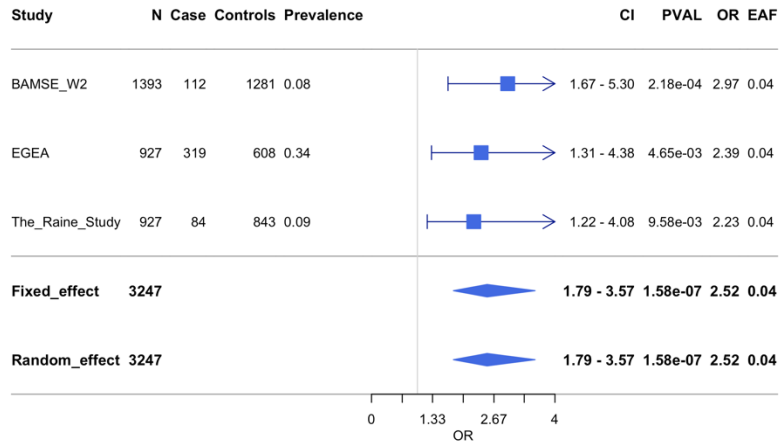
Sensitization adults 1:202204213



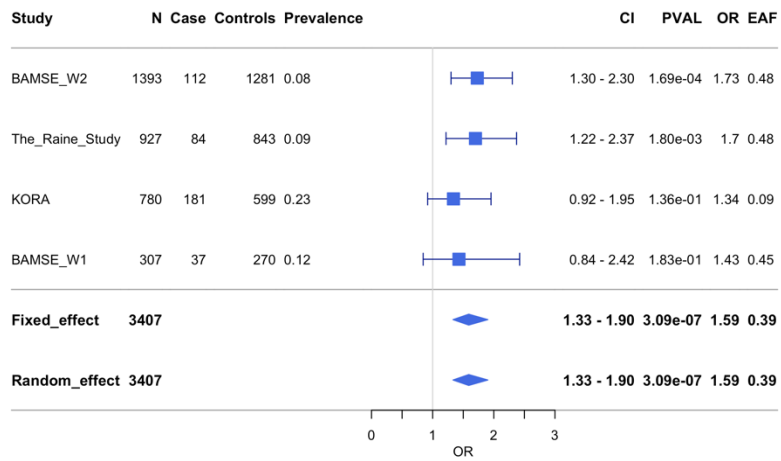
Sensitization adults 10:5918344



Sensitization adults 10:47668777

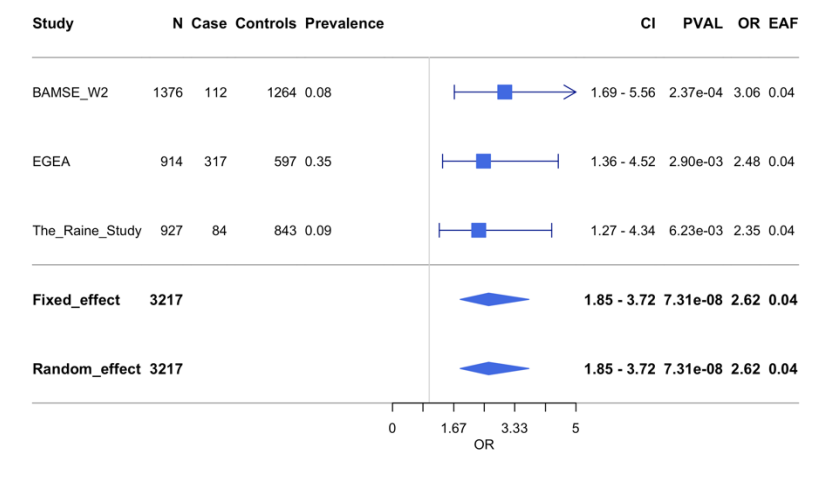


Sensitization adults 22:45640136

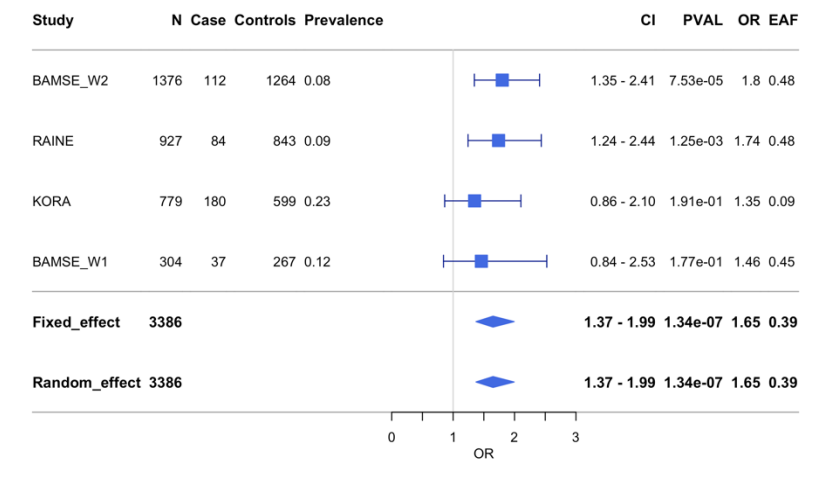


Discovered in sensitization phenotype (hay fever adjusted model) – adults

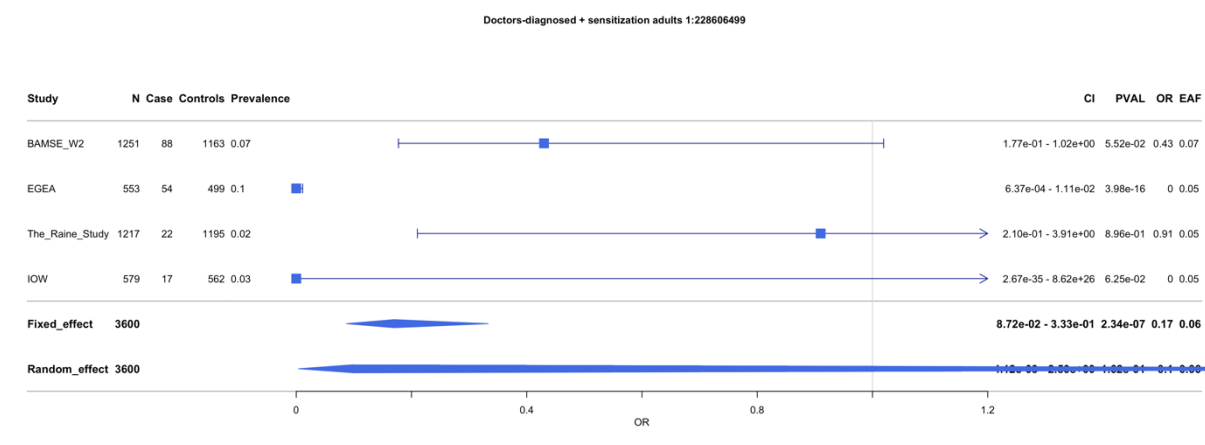
Sensitization (hay fever adj.) adults 10:47668777



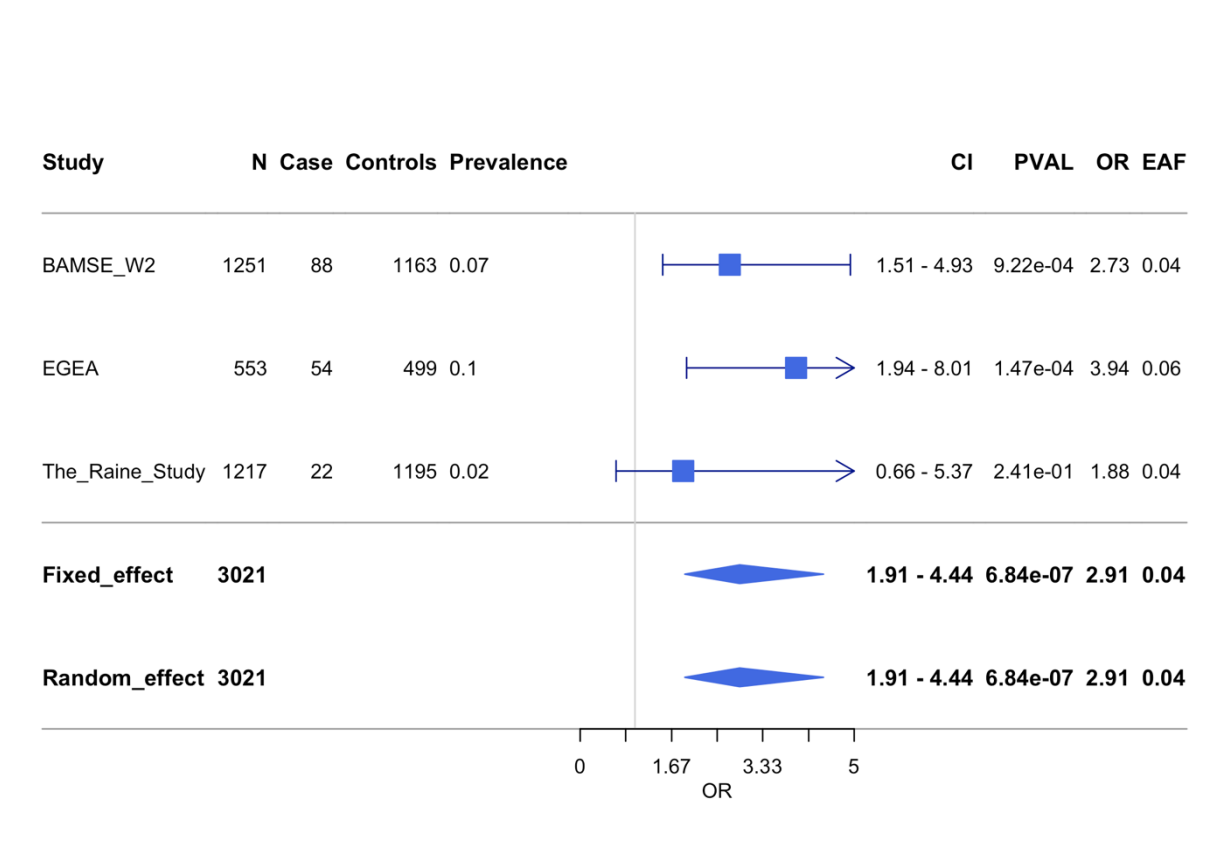
pheno3_allrhin_adults_22:45640136



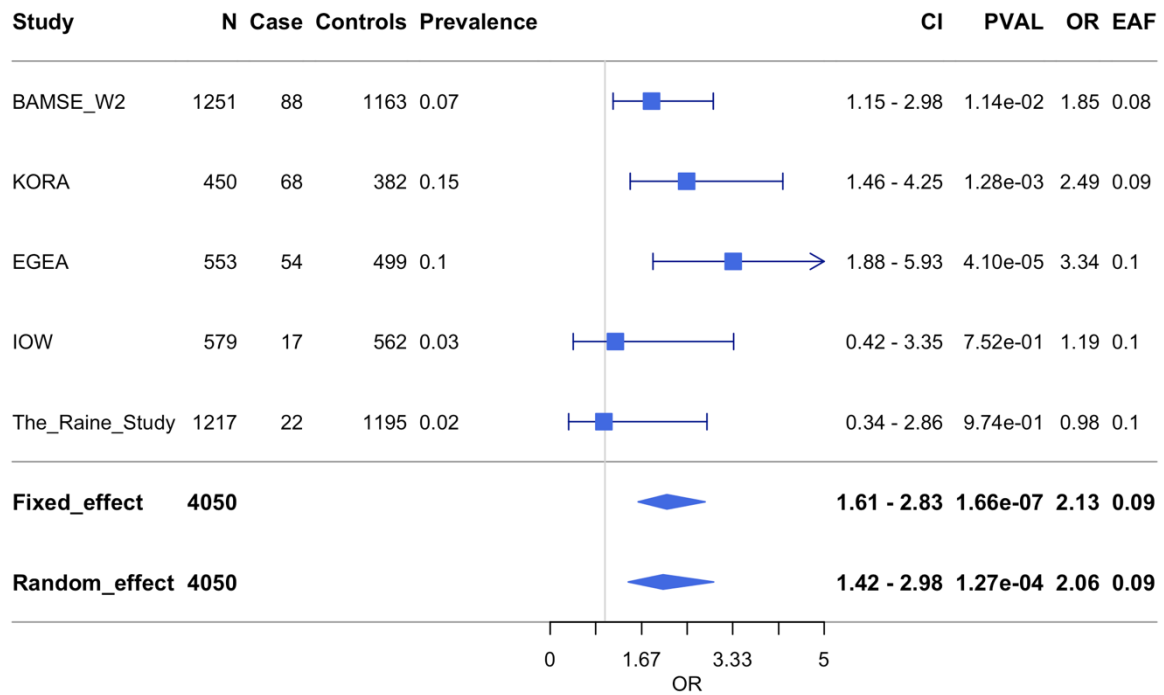
Discovered in doctors-diagnosed food allergy plus sensitization phenotype (baseline model) – adults



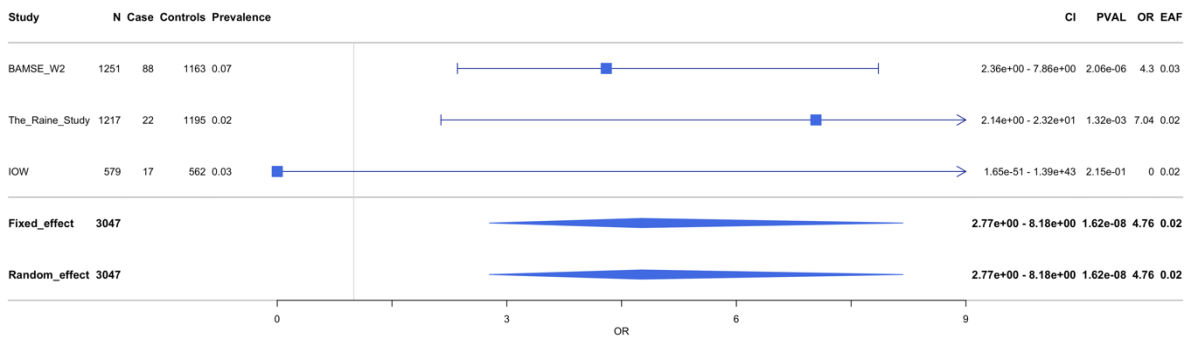
Doctors-diagnosed + sensitization adults 3:180026087



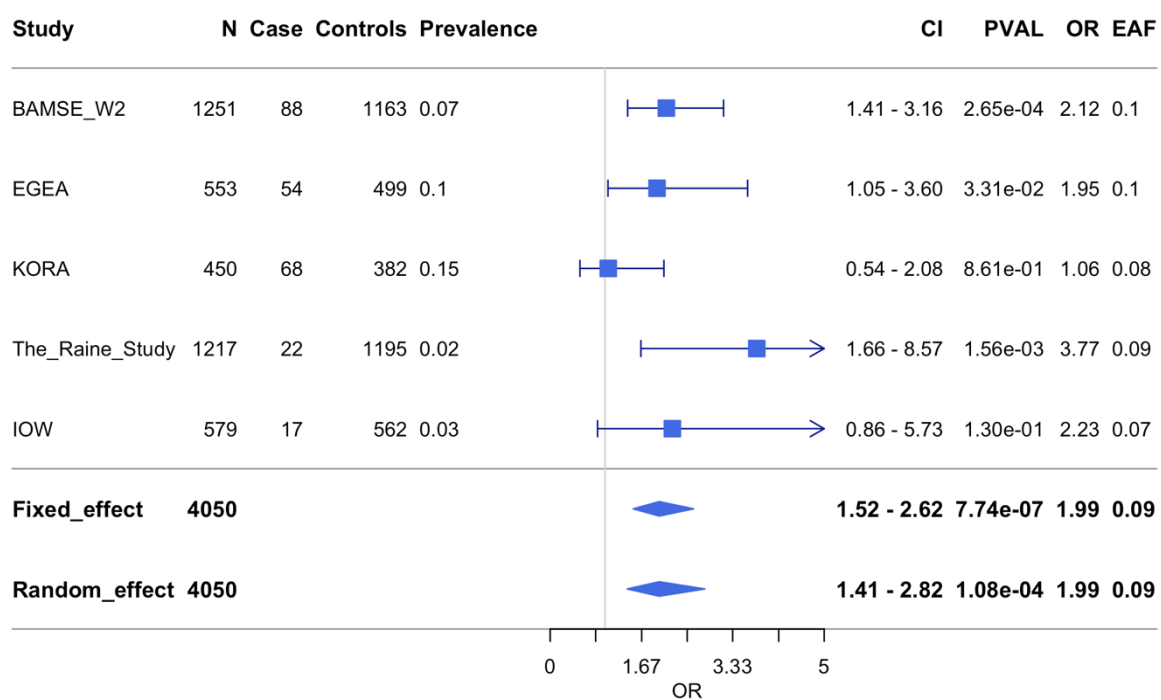
Doctors-diagnosed + sensitization adults 4:180911393



Doctors-diagnosed + sensitization adults 8:17753408

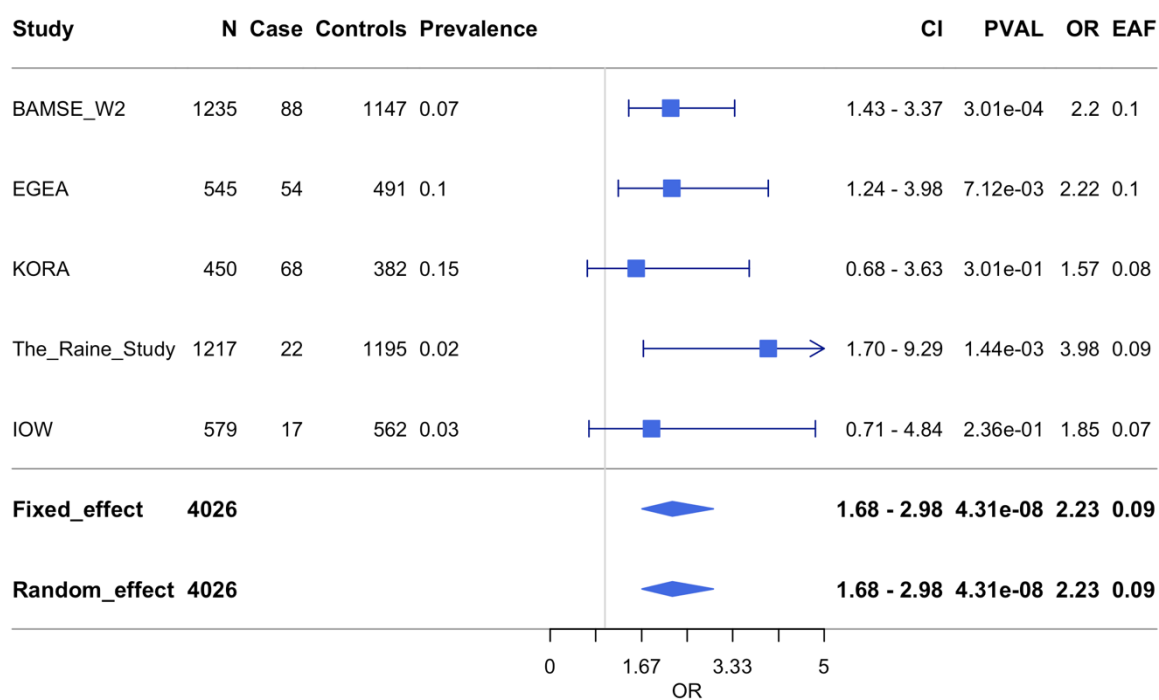


Doctors-diagnosed + sensitization adults 14:33397346

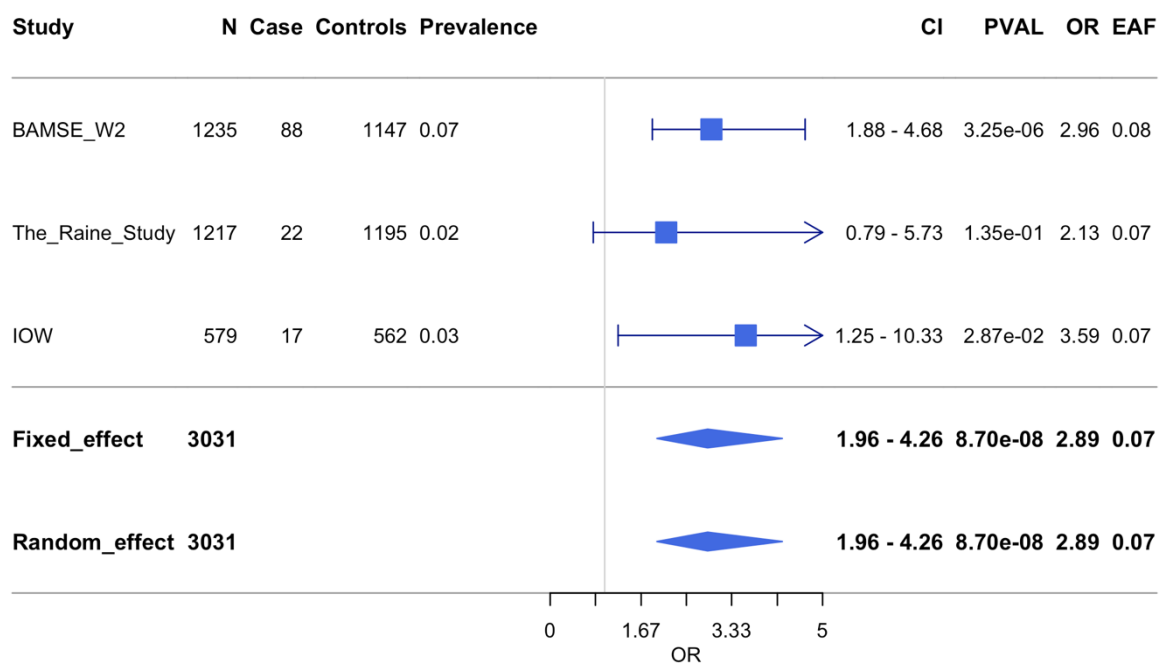


Discovered in doctors-diagnosed food allergy plus sensitization phenotype (hay fever adjusted model) – adults

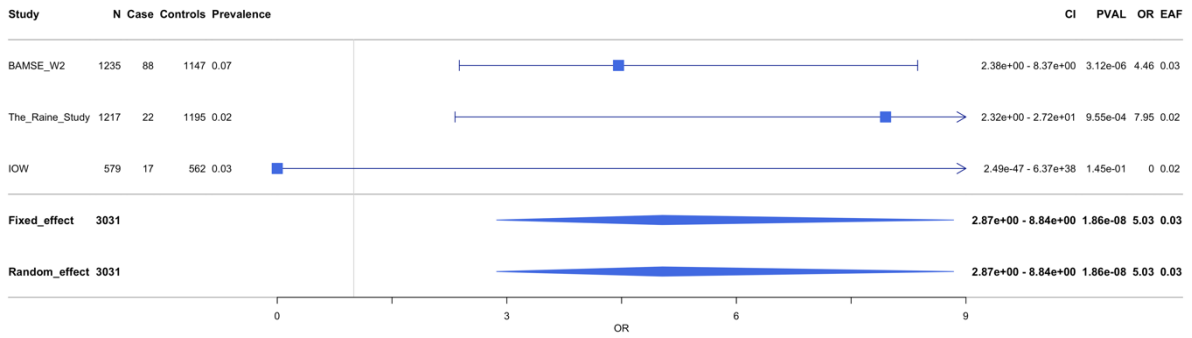
Doctors-diagnosed + sensitization (hay fever adj.) adults 14:33397346



Doctors-diagnosed + sensitization (hay fever adj.) adults 7:24587280



Doctors-diagnosed + sensitization (hay fever adj.) adults 8:17753408



Doctors-diagnosed + sensitization (hay fever adj.) adults 14:33397346

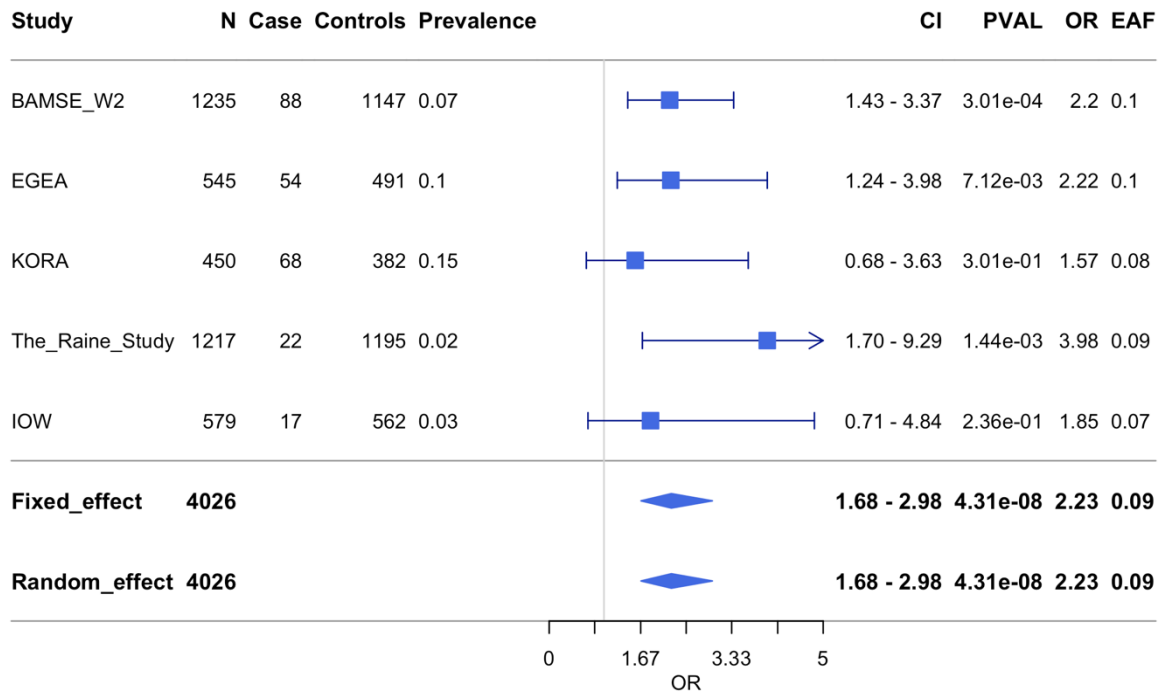


Figure E5: Plots from conditional analyses. Conditional analysis could not be performed for variant rs28713513 which related to self-reported FA in adults as it was not found in the LD reference panel.

Figure E5.1 Locus plot of the result of conditional analysis on rs116936231 (8:17753408) in doctors-diagnosed FA + sensitization phenotype adults, baseline model.

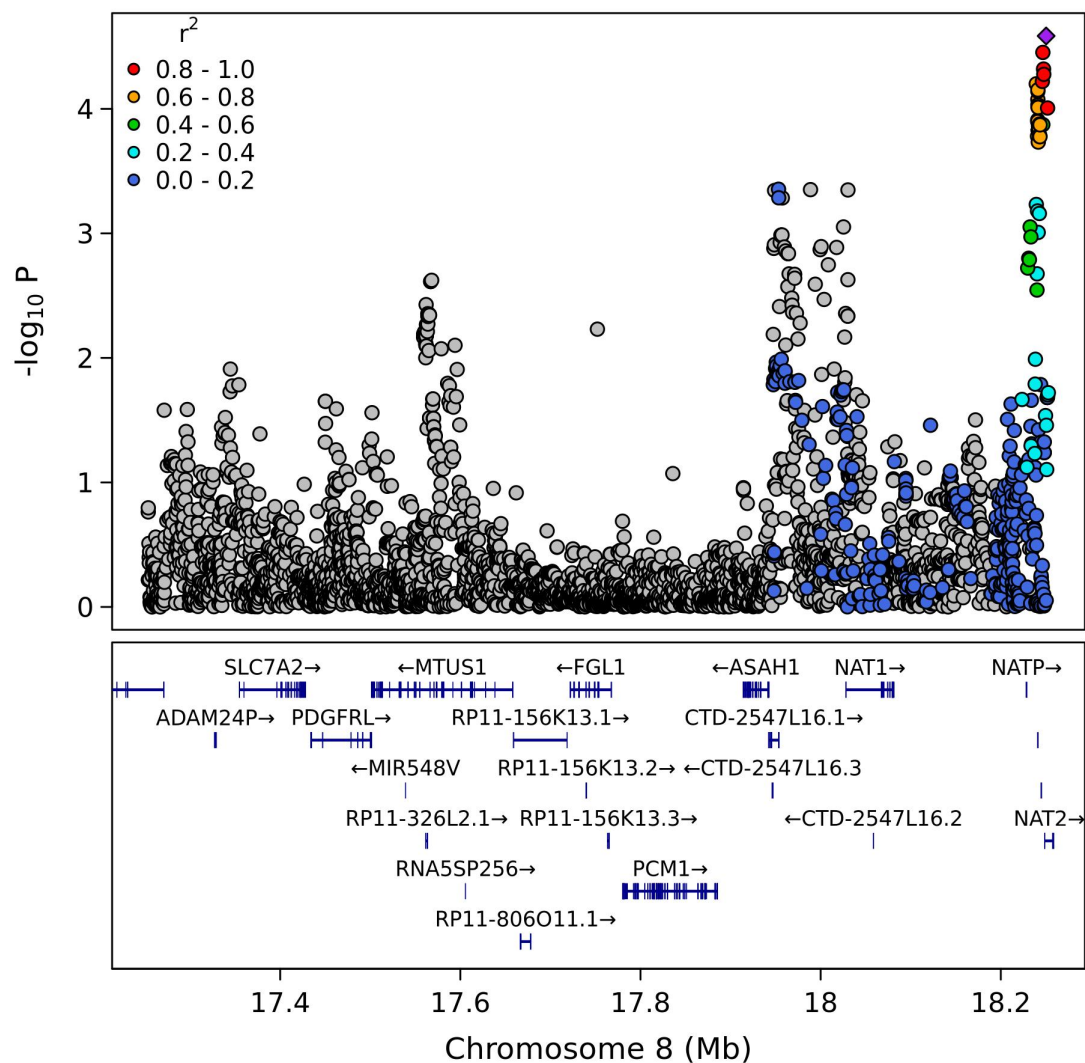


Figure E5.2 Locus plot of the result of conditional analysis on rs116936231 (8:17753408) in doctors-diagnosed FA + sensitization phenotype adults, hay fever adjusted model.

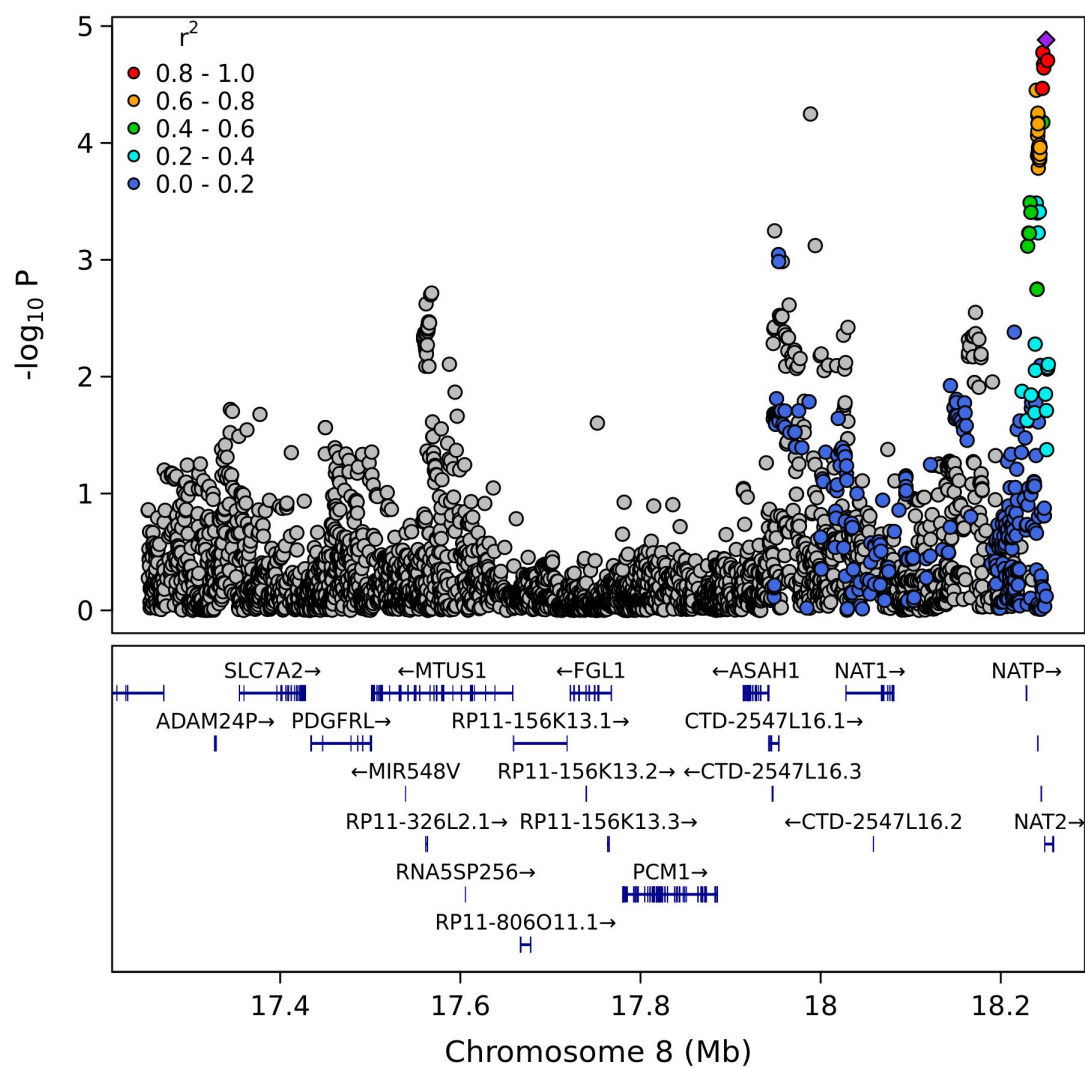


Figure E5.3 Locus plot of the result of conditional analysis on rs8022829 (14:33397346) in doctors-diagnosed FA + sensitization phenotype adults, baseline model.

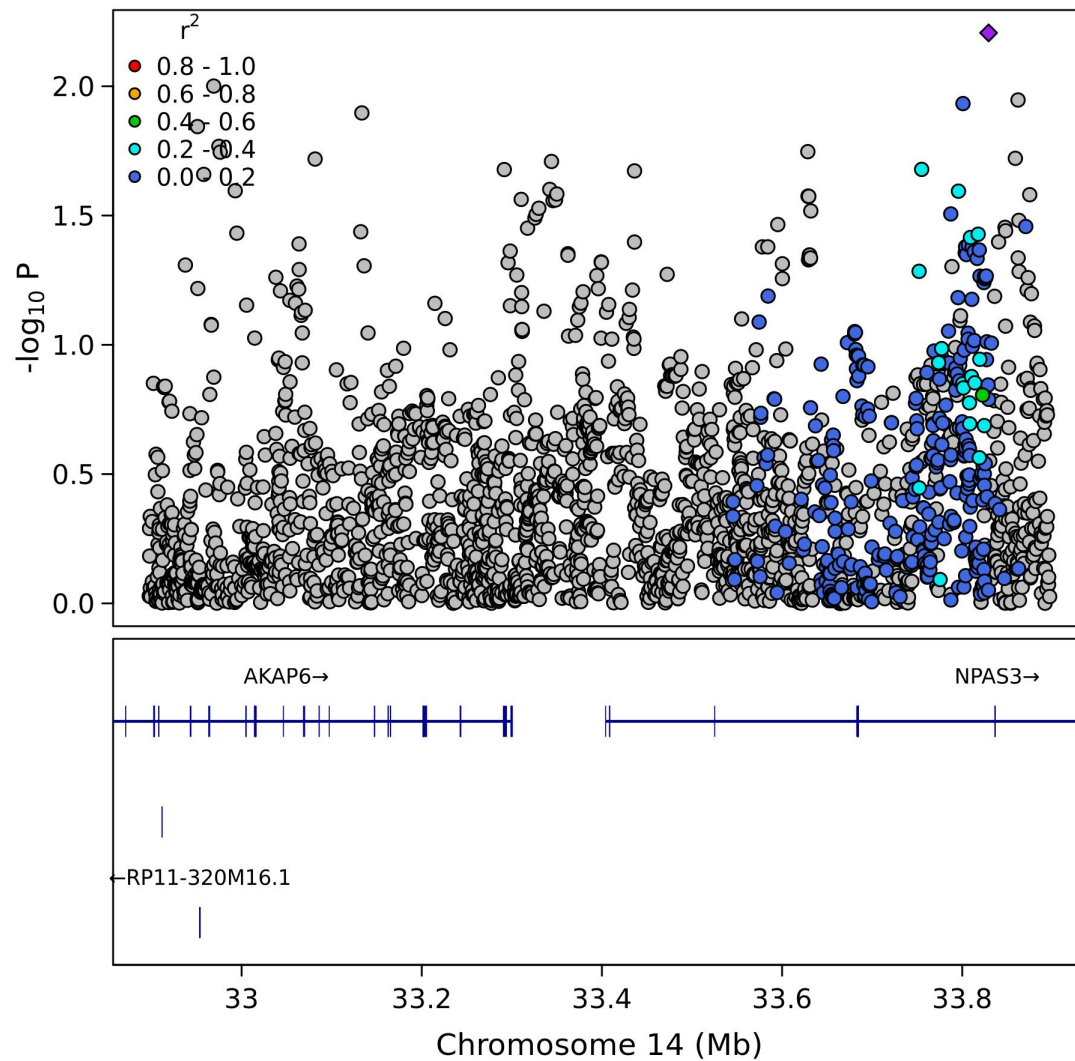


Figure E5.4 Locus plot of the result of conditional analysis on rs8022829 (14:33397346) in doctors-diagnosed FA + sensitization phenotype adults, hay fever adjusted model.

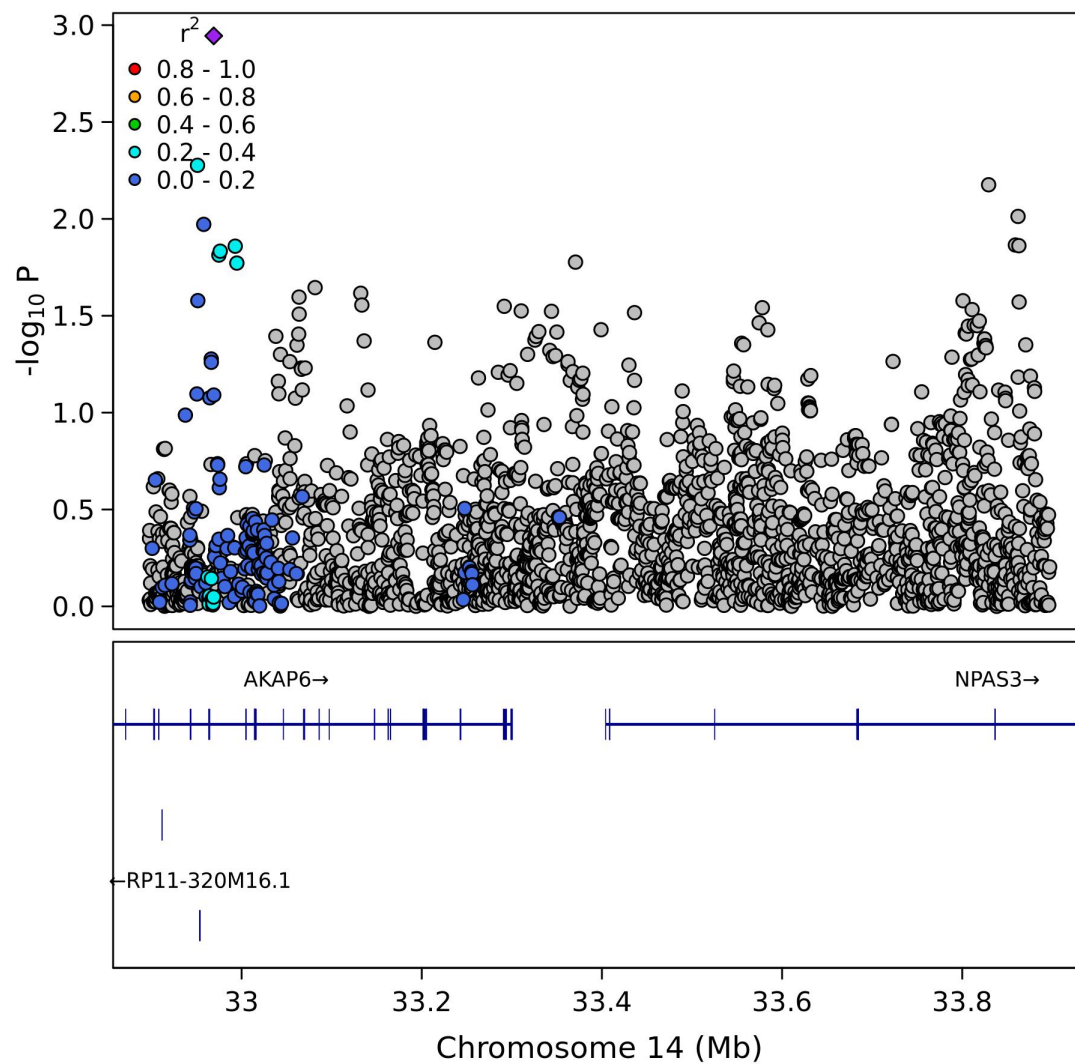


Figure E5.5 Locus plot of the result of conditional analysis on rs6833463 (4:21244175) in doctors-diagnosed FA + sensitization phenotype children, baseline model.

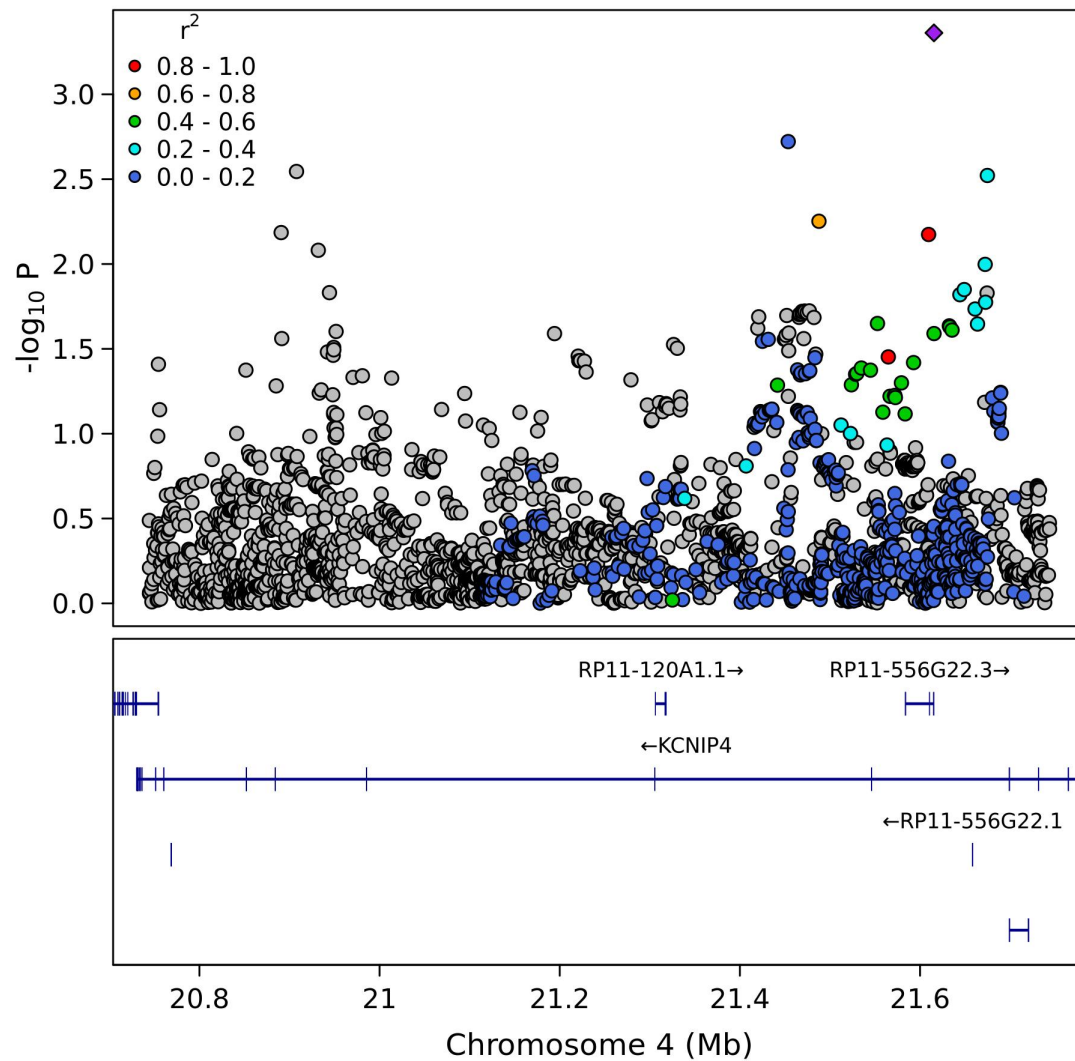


Figure E5.6 Locus plot of the result of conditional analysis on rs11761070 (7:24587280) in doctors-diagnosed FA + sensitization phenotype adults, hay fever adjusted model.

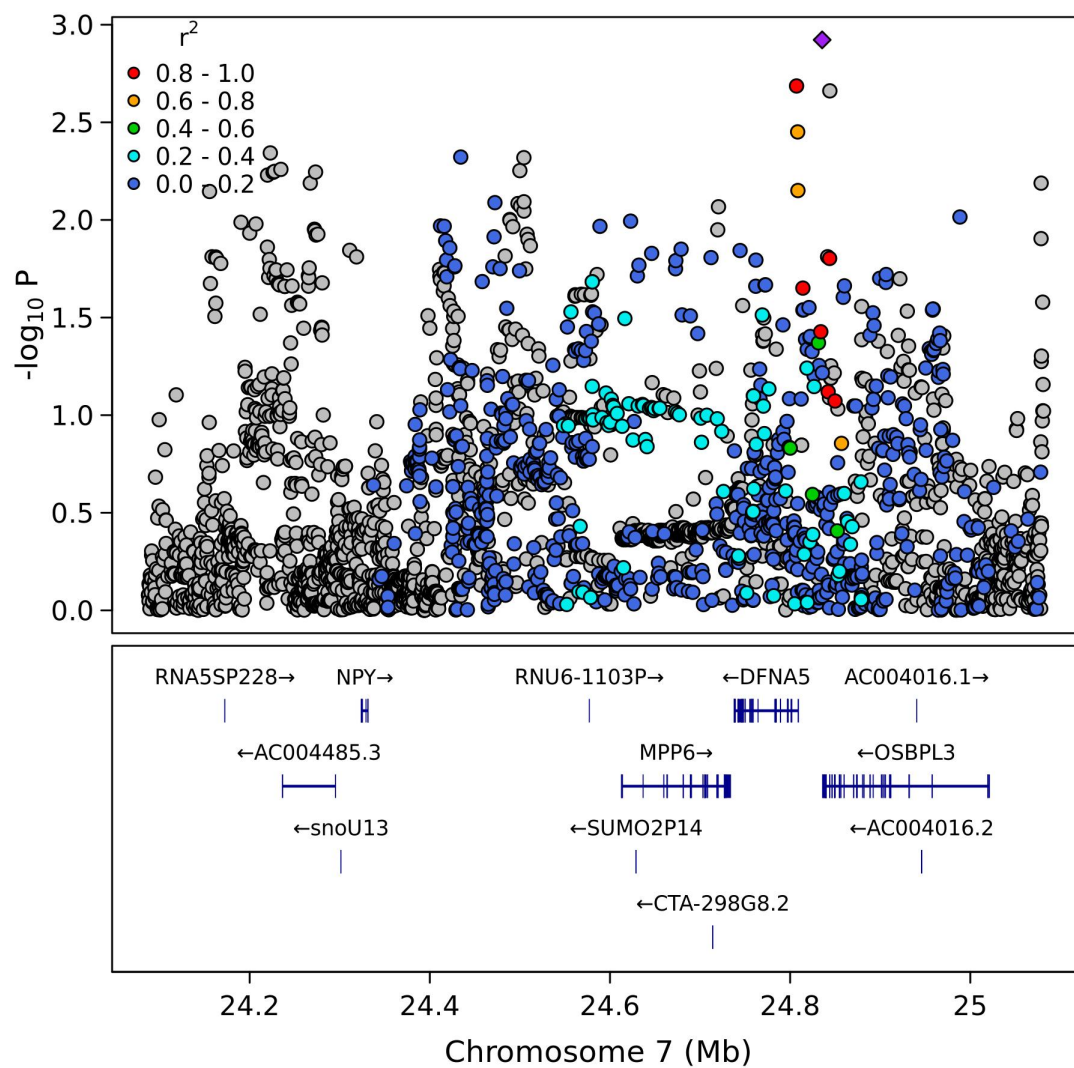


Figure E5.7 Locus plot of the result of conditional analysis on rs74531285 (2:197132359) in doctors-diagnosed FA phenotype children, baseline model.

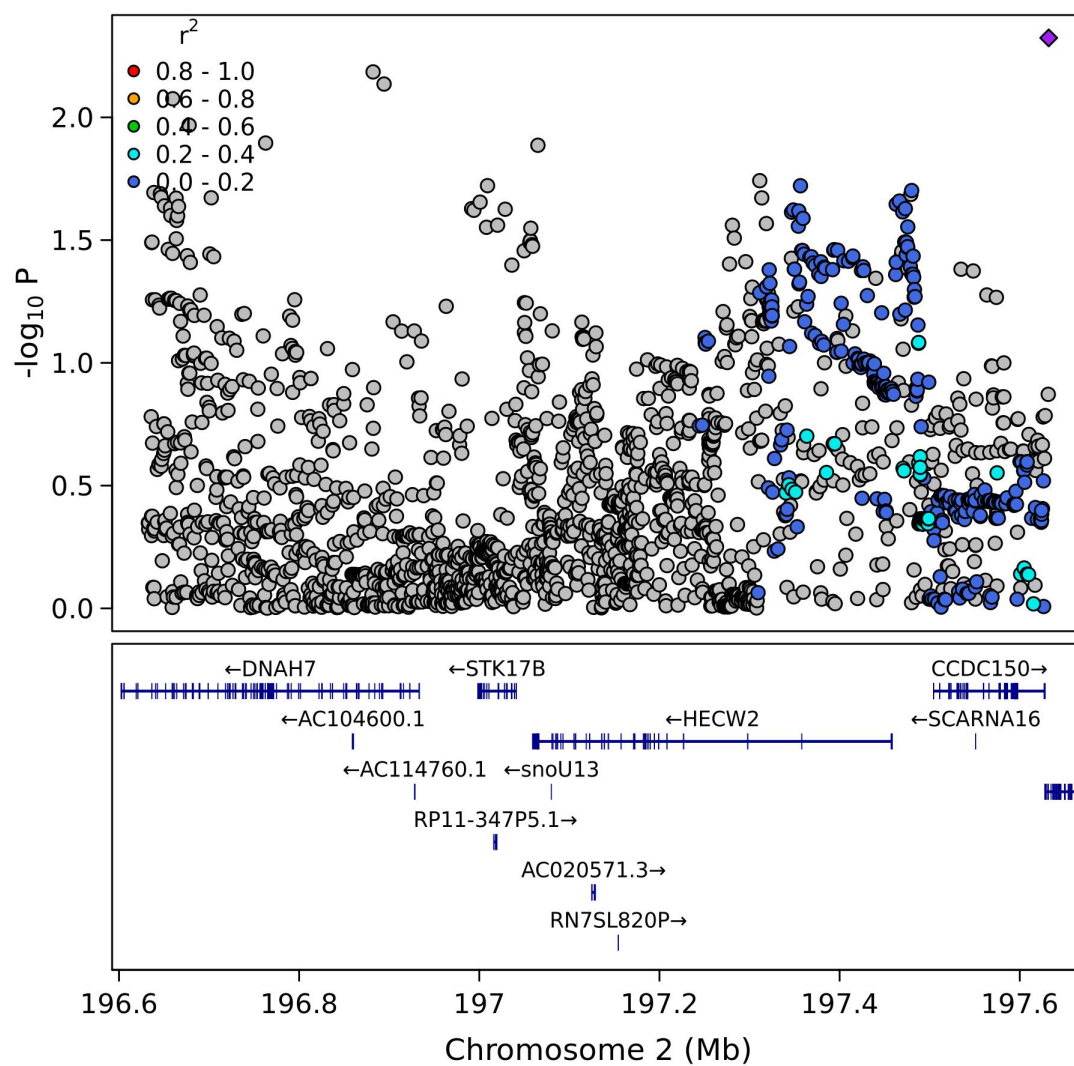


Figure E5.8 Locus plot of the result of conditional analysis on rs78609709 (2:53770433) in doctors-diagnosed FA + sensitization phenotype children, hay fever adjusted model.

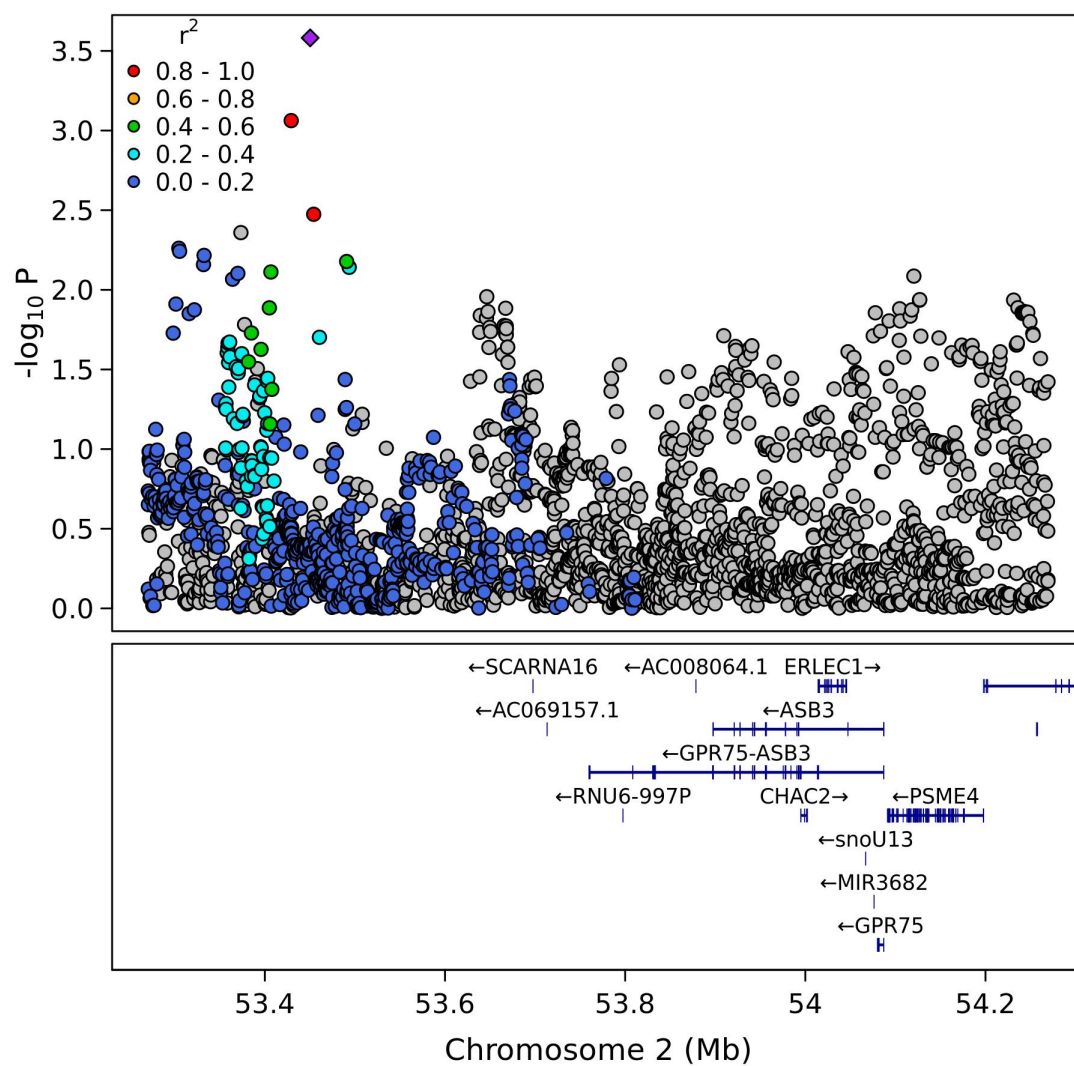


Figure E5.9 Locus plot of the result of conditional analysis on rs117319649 (10:47668777) in sensitization phenotype adults, baseline model.

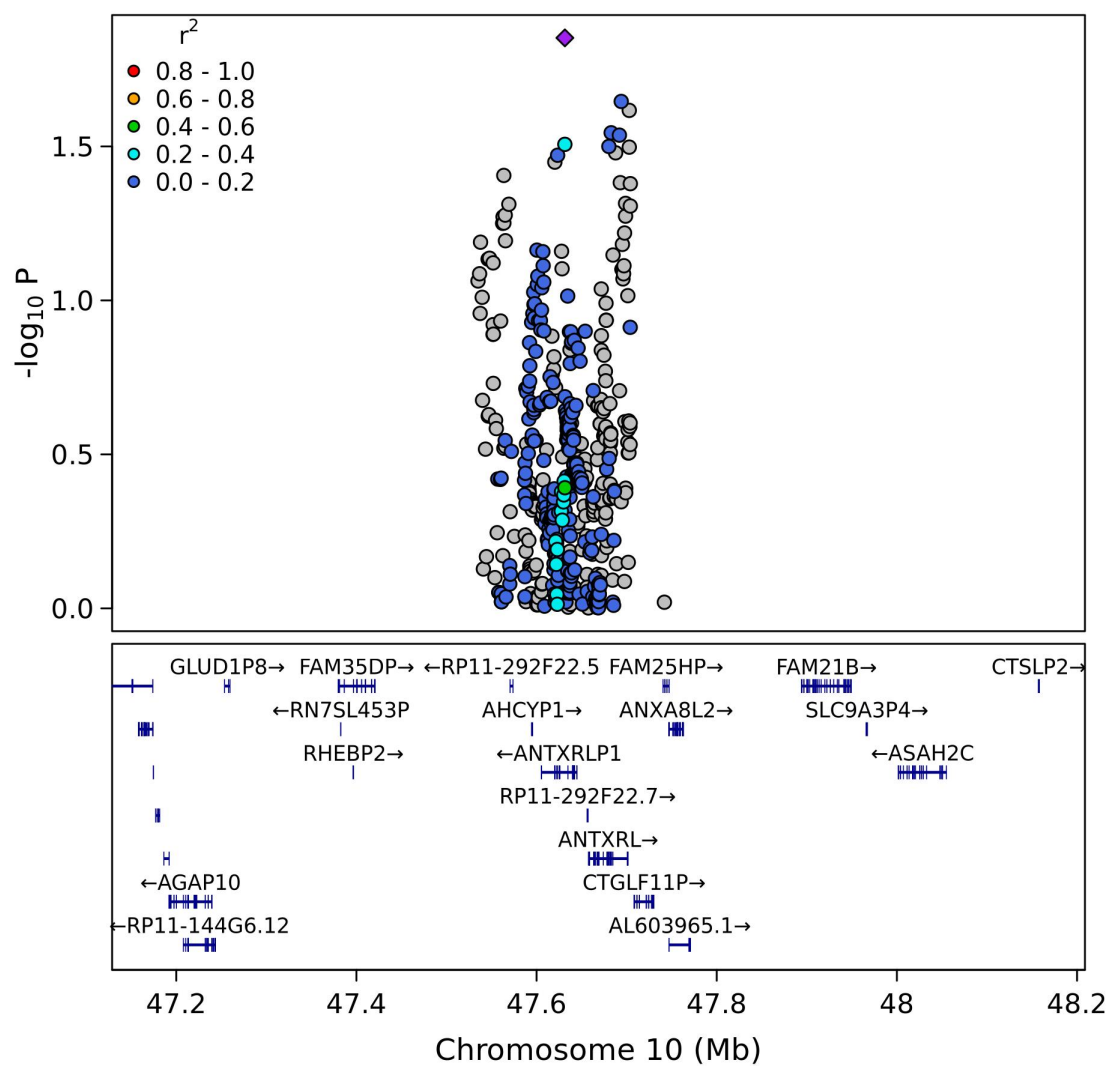


Figure E5.10 Locus plot of the result of conditional analysis on rs117319649 (10:47668777) in sensitization phenotype adults, hay fever adjusted model.

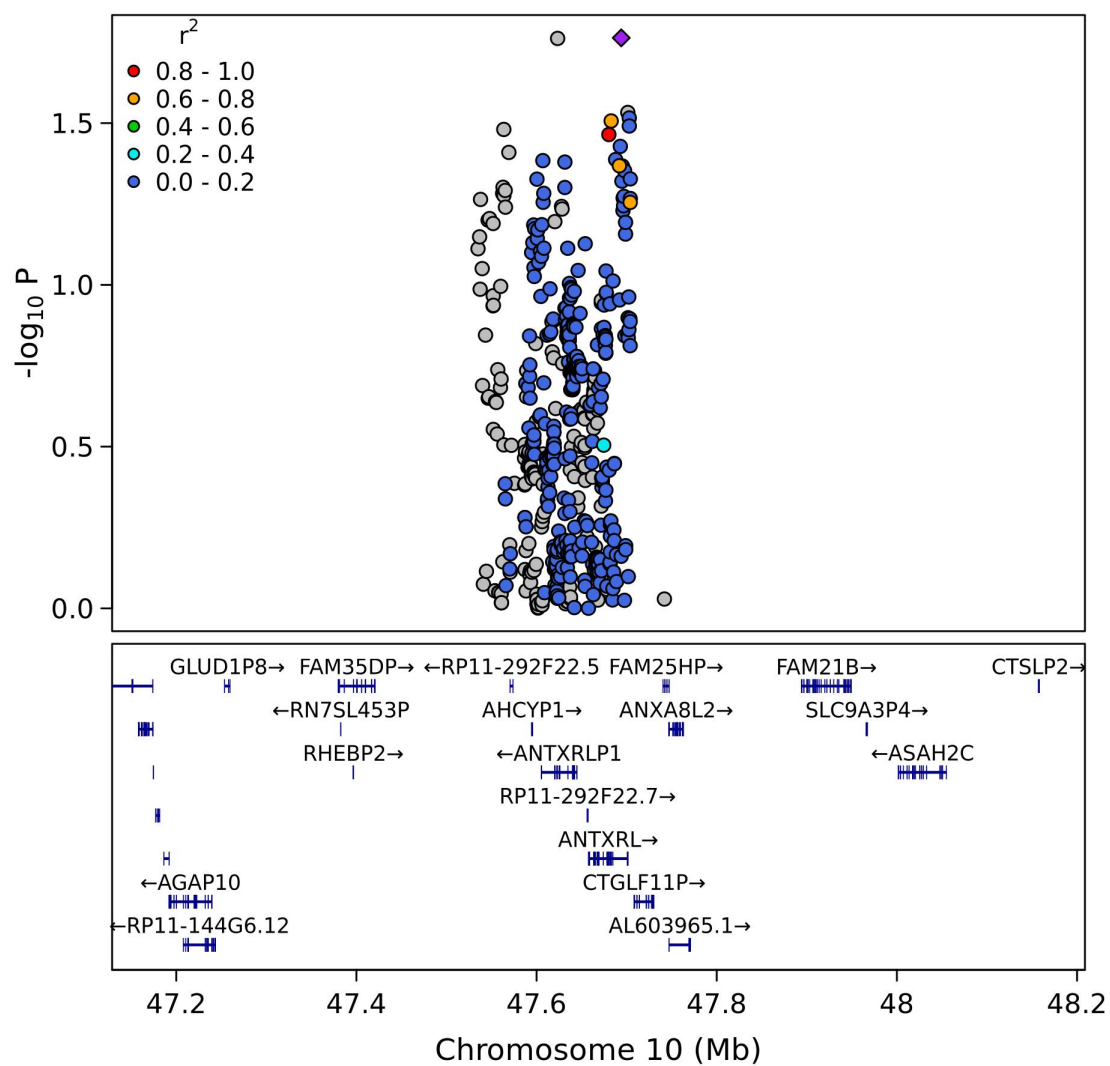


Figure E5.11 Locus plot of the result of conditional analysis on rs72705776 (4:180911393) in doctors-diagnosed FA + sensitization phenotype adults, baseline model.

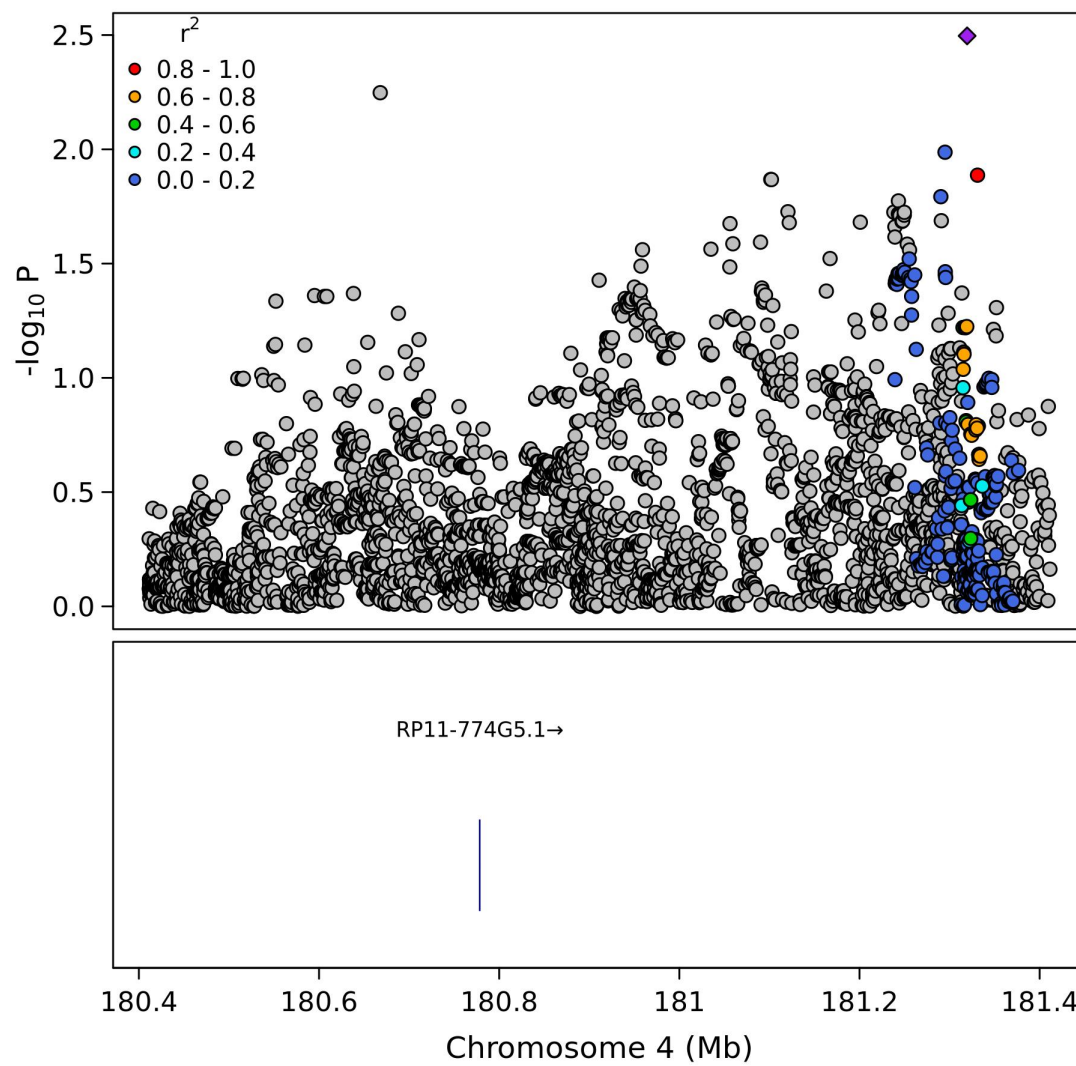


Figure E5.12 Locus plot of the result of conditional analysis on rs1022311 (2:180555884) in doctors-diagnosed FA phenotype children, baseline model.

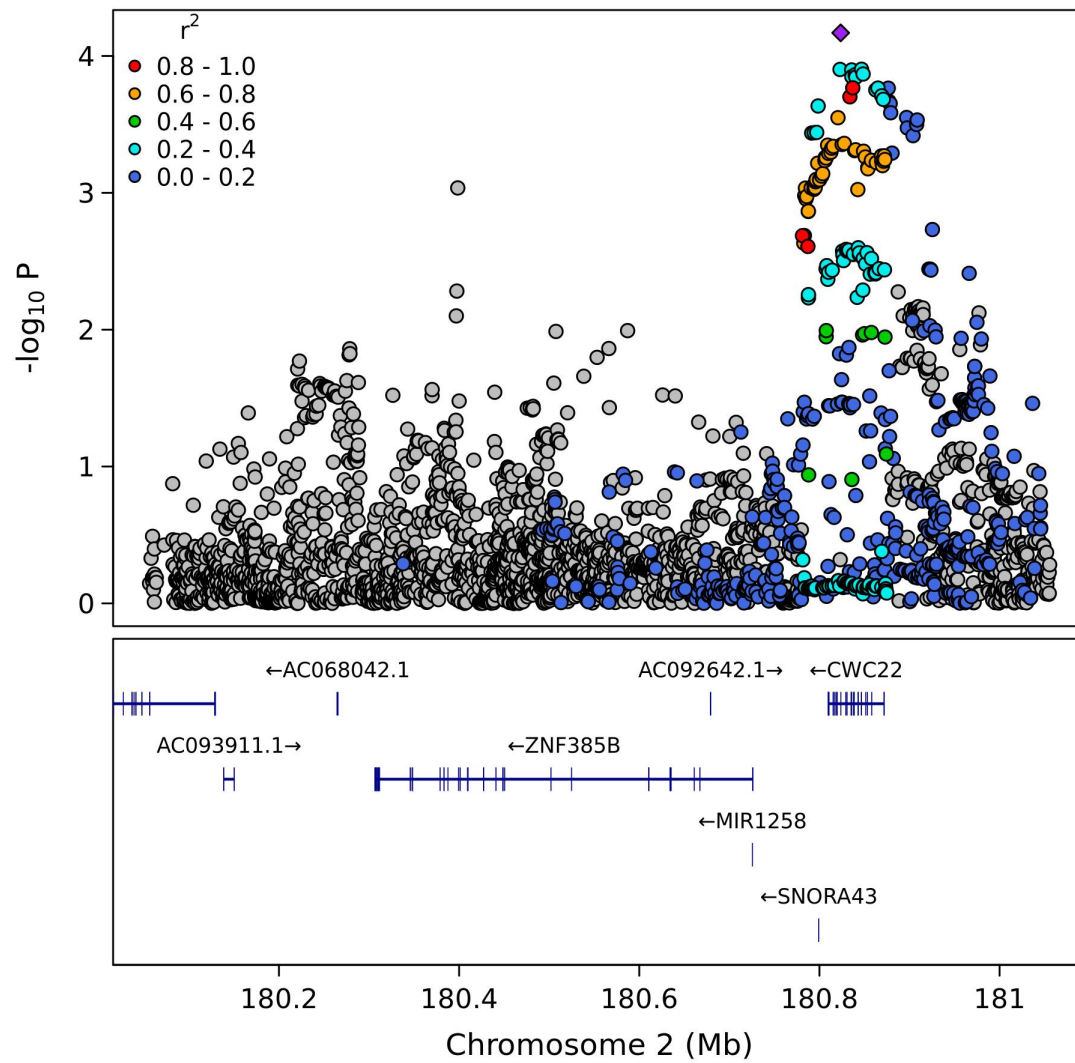


Figure E5.13 Locus plot of the result of conditional analysis on rs1022311 (2:180555884) in doctors-diagnosed FA phenotype children, hay fever adjusted model.

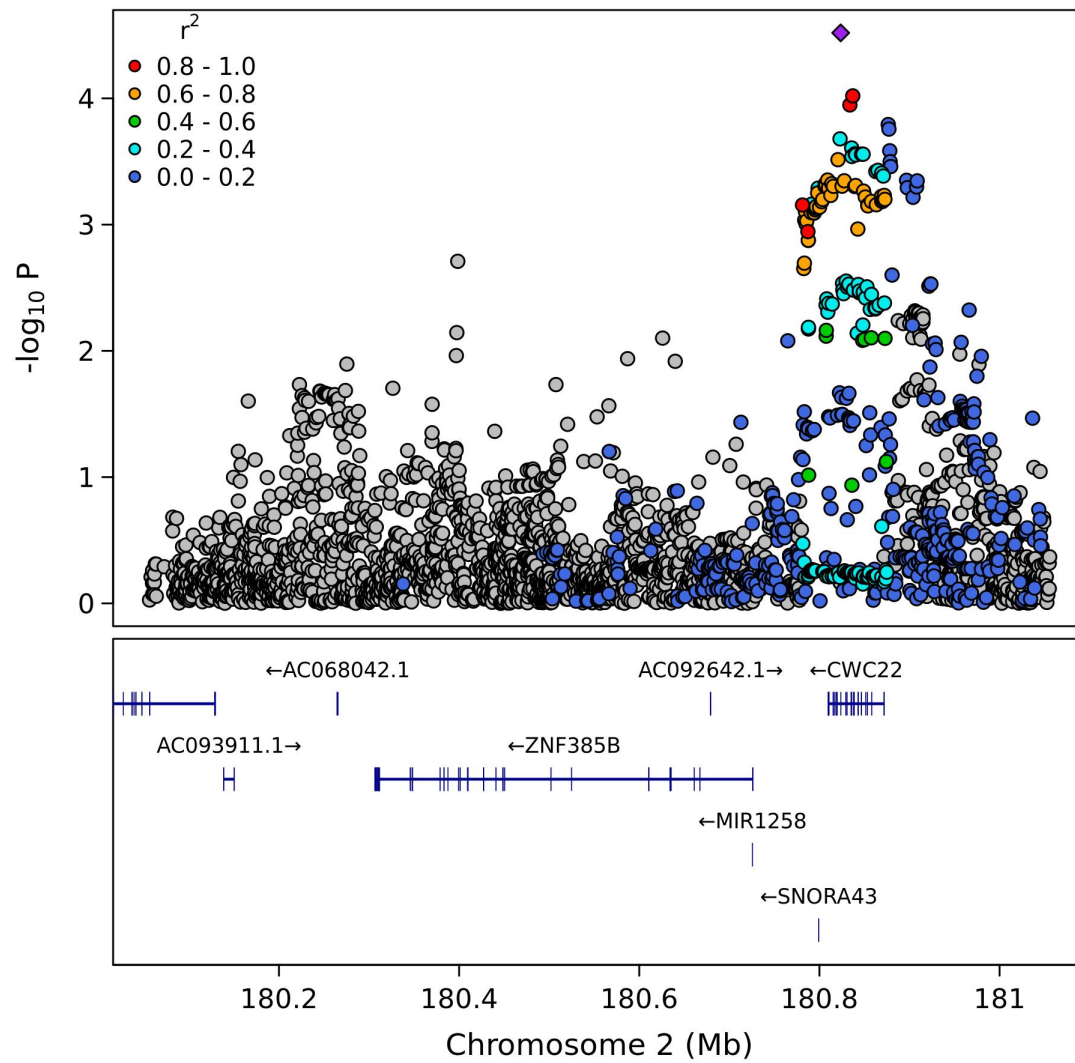


Figure E5.14 Locus plot of the result of conditional analysis on rs16849773 (1:202204213) in sensitization phenotype adults, baseline model.

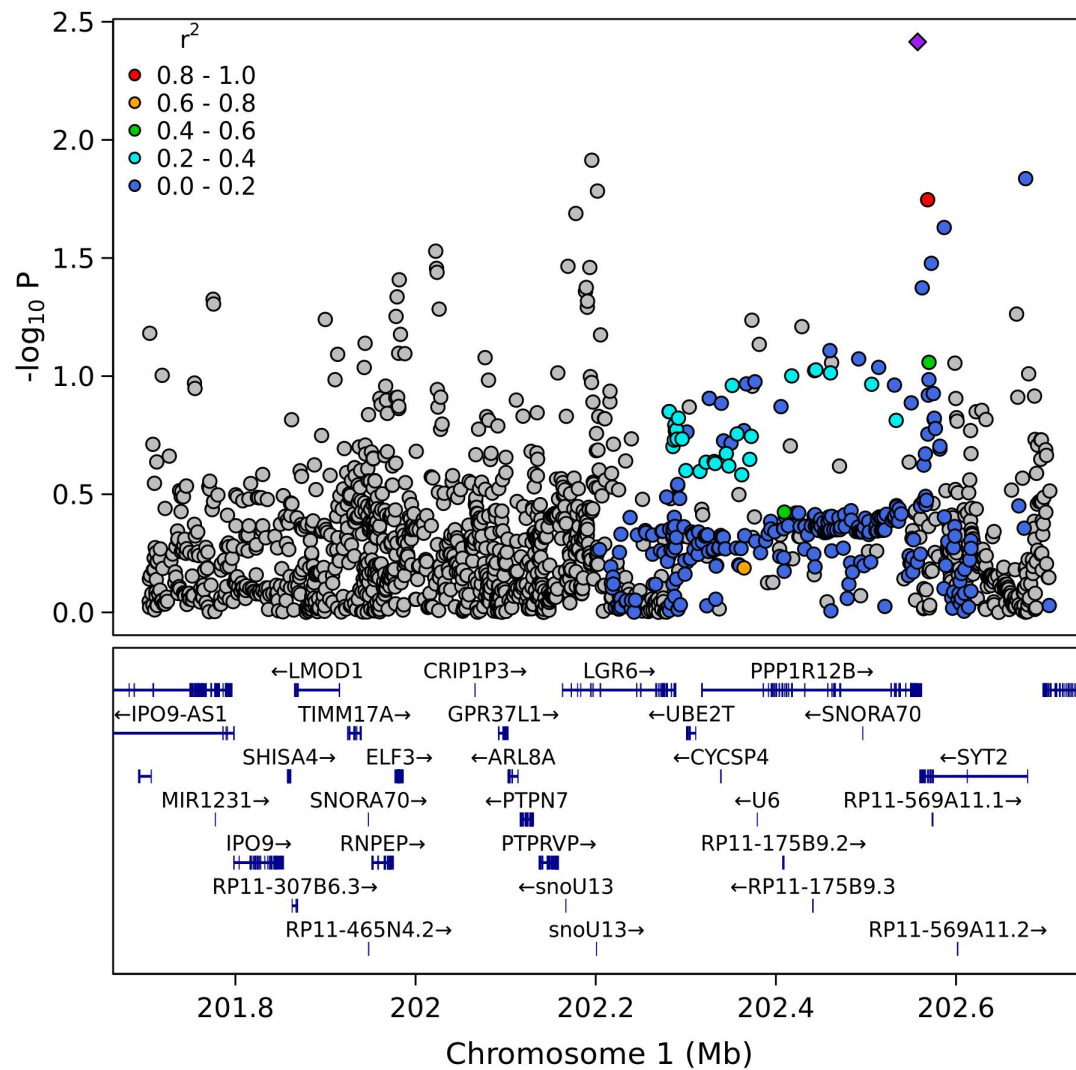


Figure E5.15 Locus plot of the result of conditional analysis on rs55681581 (5:126981185) in self-reported FA phenotype children, baseline model.

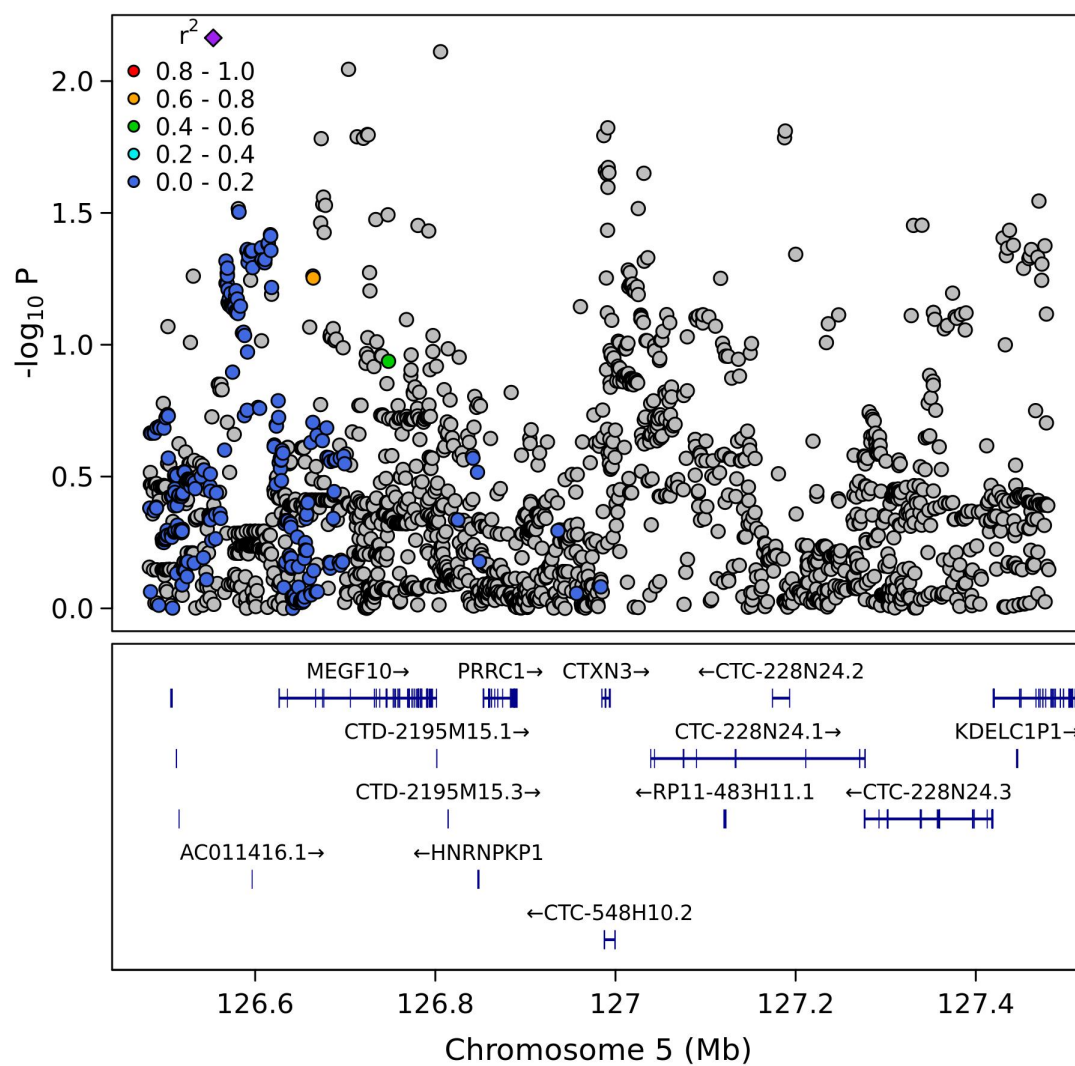


Figure E5.16 Locus plot of the result of conditional analysis on rs11645276 (16:53092980) in doctors-diagnosed FA + sensitization phenotype children, baseline model.

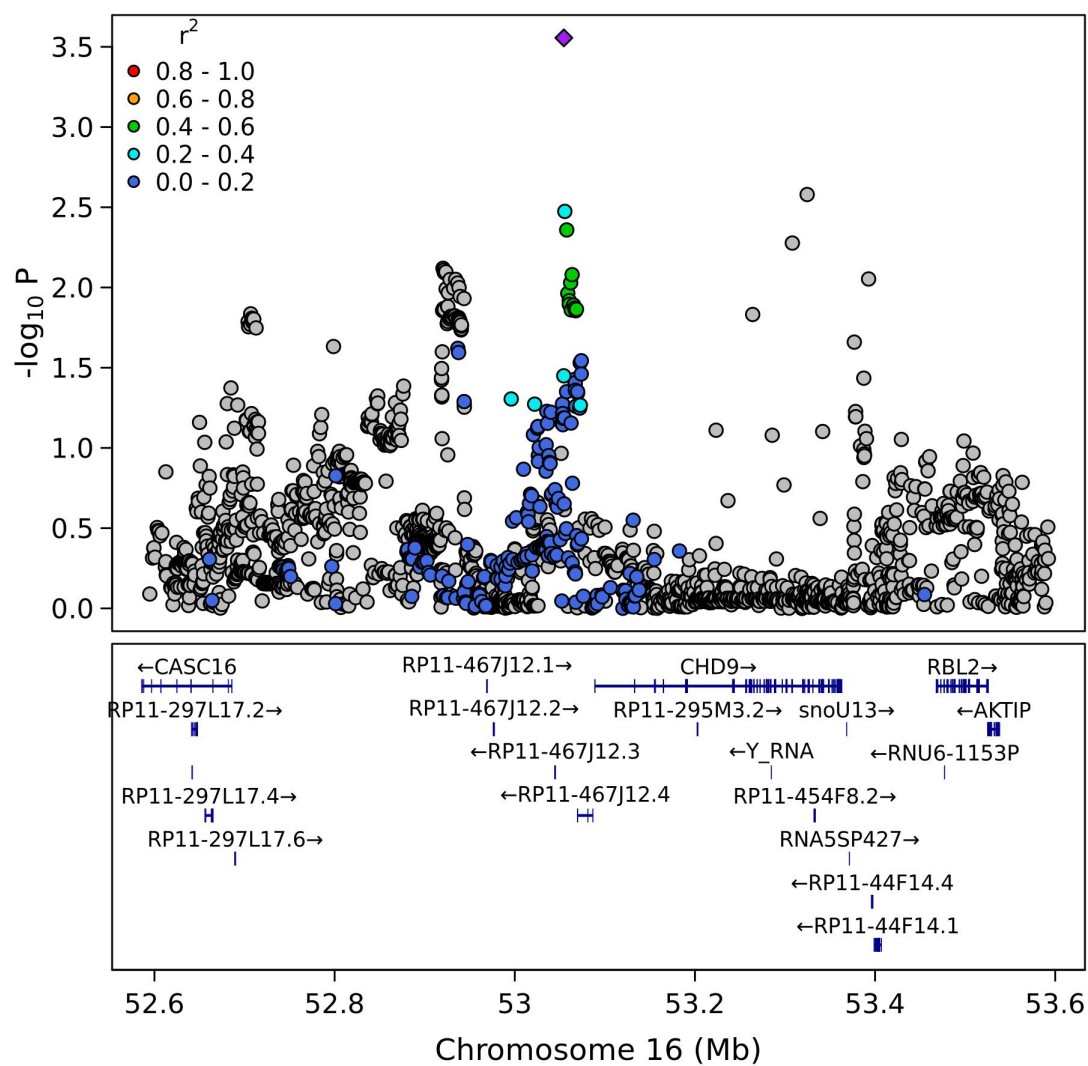


Figure E5.17 Locus plot of the result of conditional analysis on rs62248296 (3:68324177) in self-reported FA phenotype children, hay fever adjusted model.

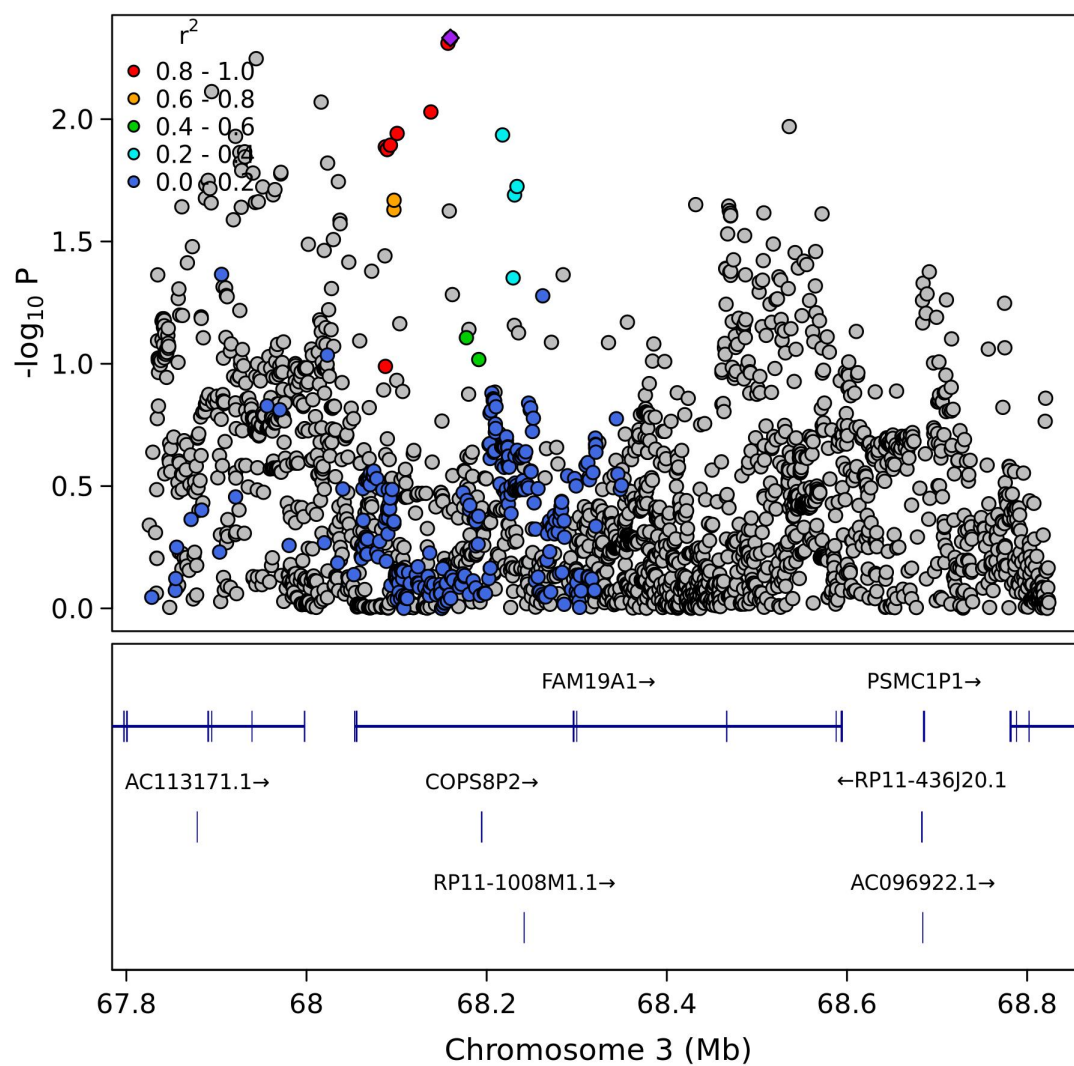


Figure E5.18 Locus plot of the result of conditional analysis on rs74991536 (1:231163221) in doctors-diagnosed FA phenotype children, baseline model.

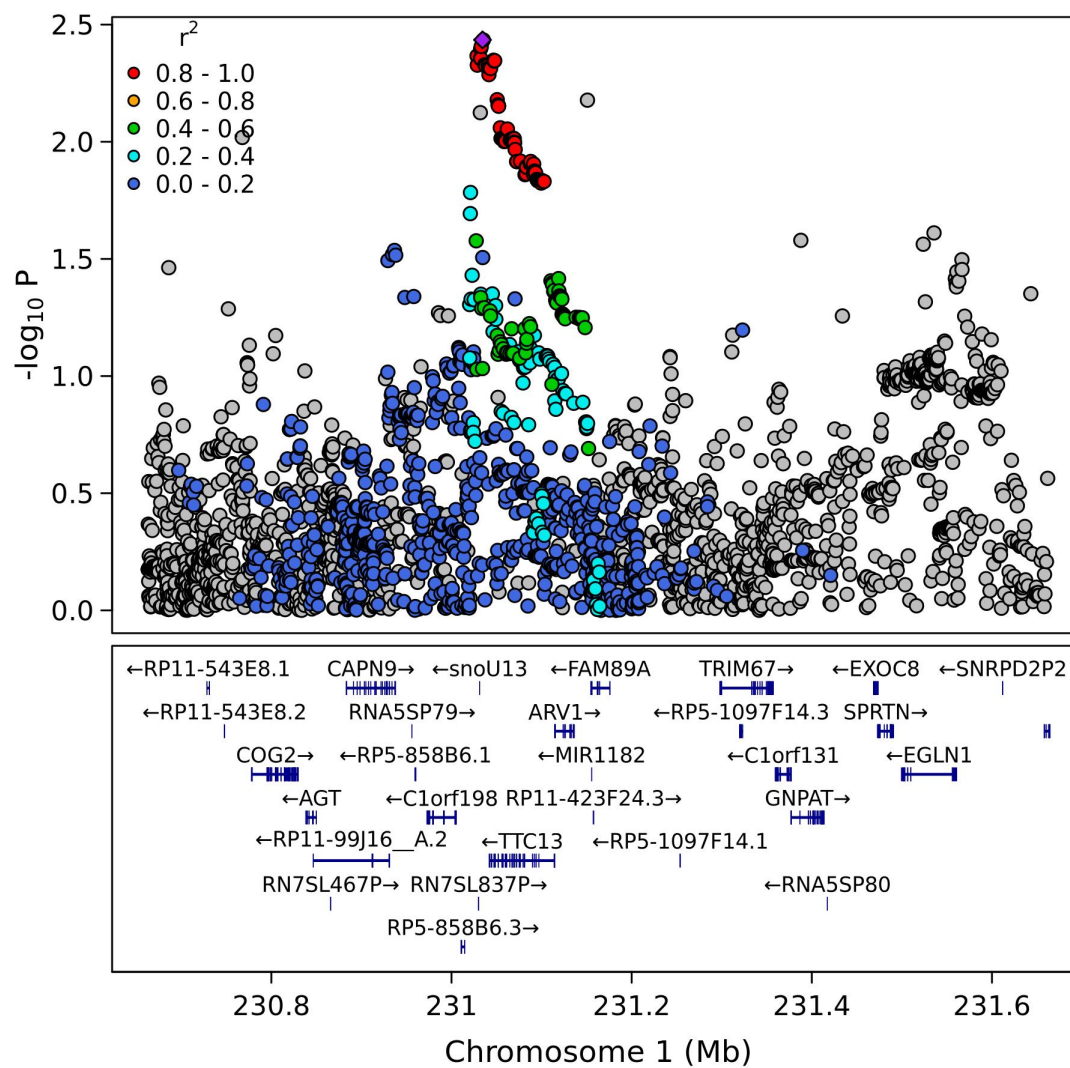


Figure E5.19 Locus plot of the result of conditional analysis on rs74991536 (1:231163221) in doctors-diagnosed FA phenotype children, hay fever adjusted model.

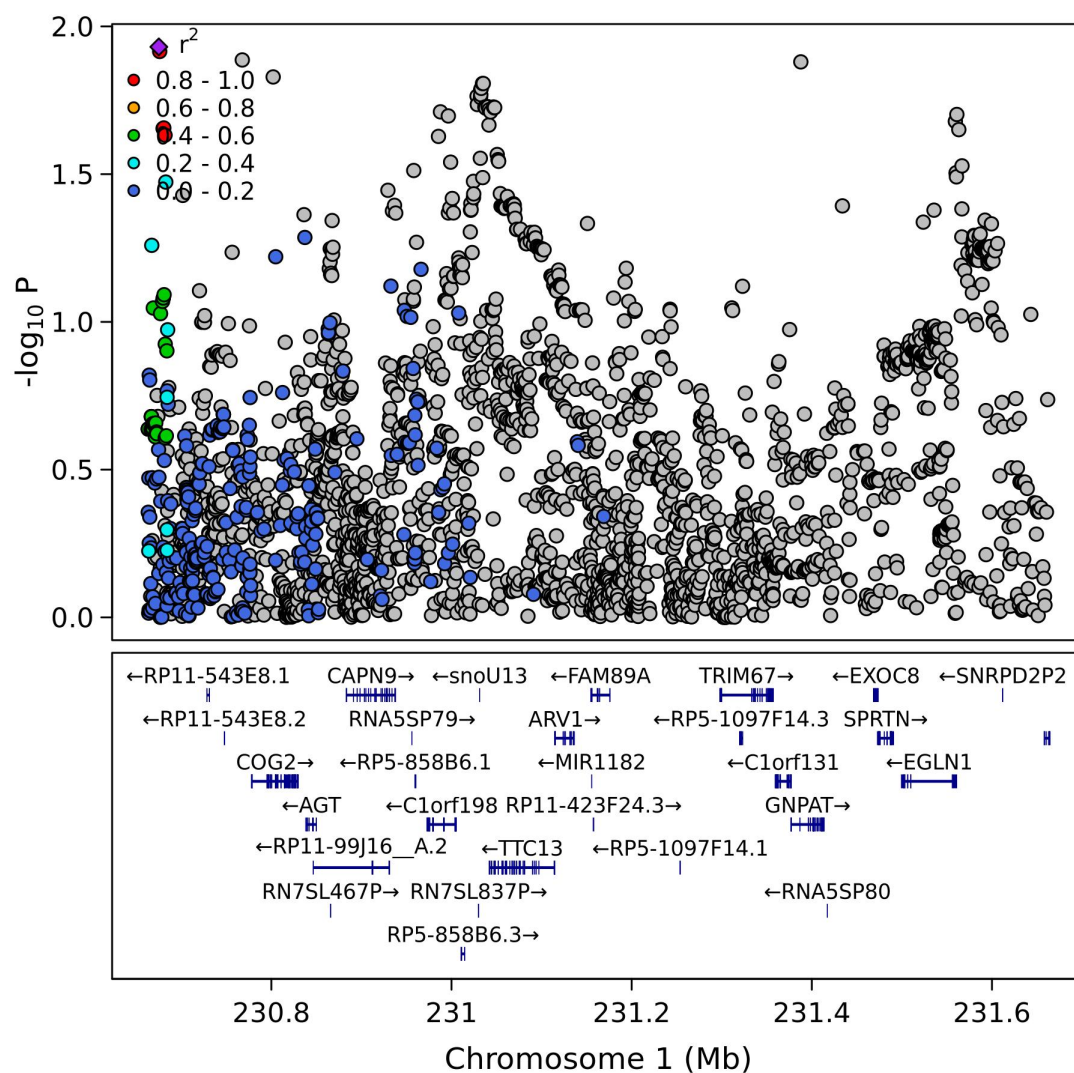


Figure E5.20 Locus plot of the result of conditional analysis on rs76119799 (2:212415241) in self-reported FA phenotype children, baseline model.

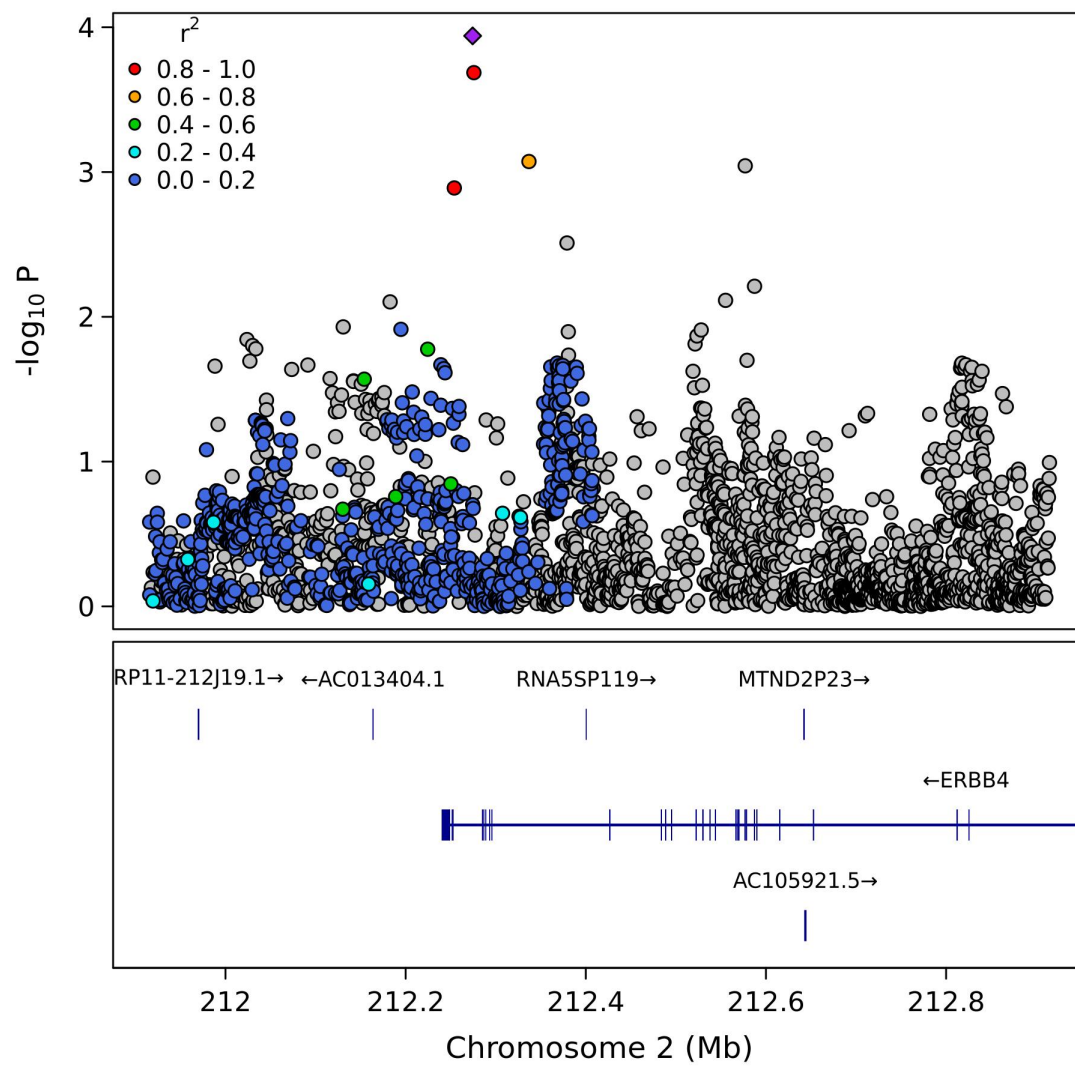


Figure E5.21 Locus plot of the result of conditional analysis on rs76119799 (2:212415241) in self-reported FA phenotype children, hay fever adjusted model.

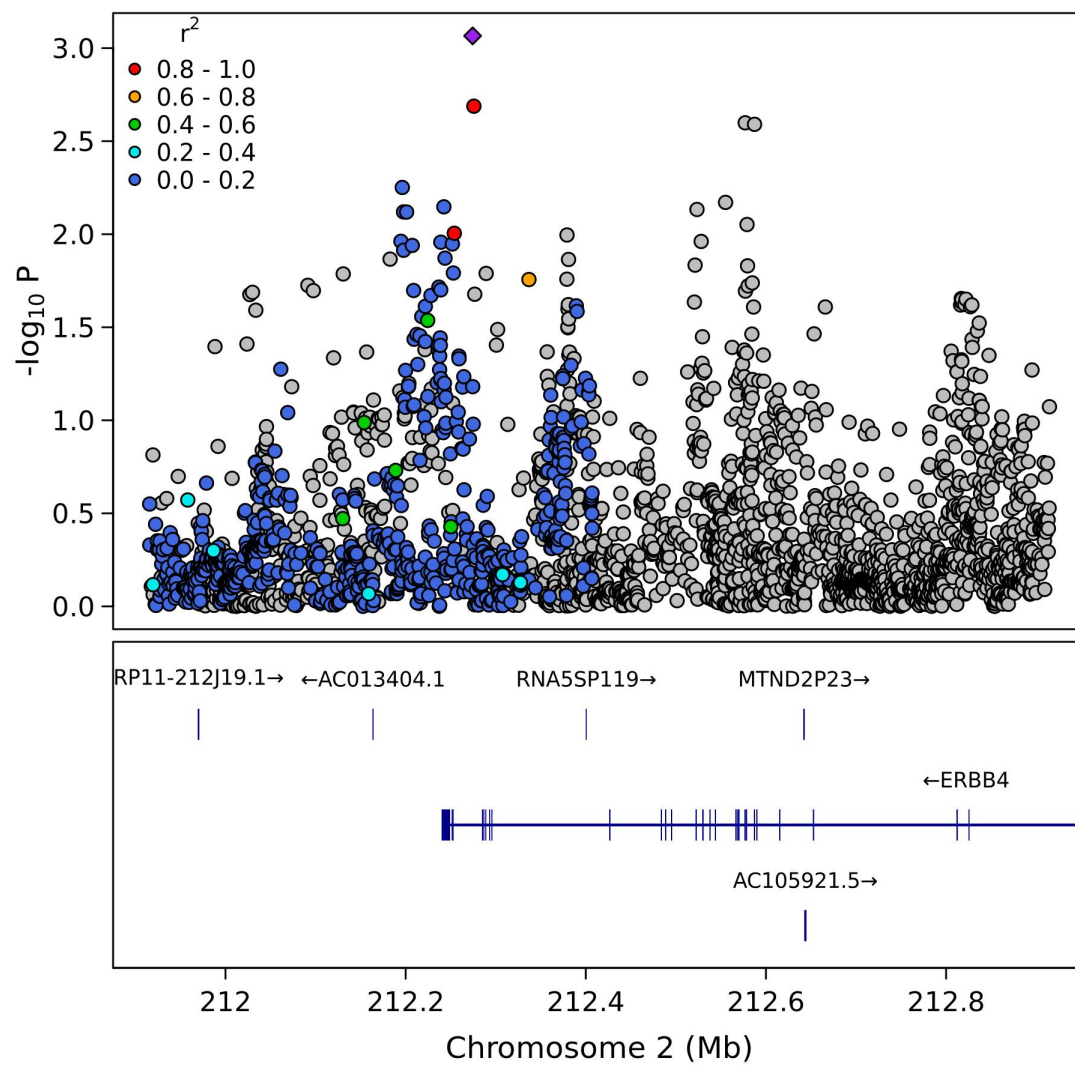


Figure E5.22 Locus plot of the result of conditional analysis on rs73174808 (3:177288324) in self-reported FA phenotype children, baseline model.

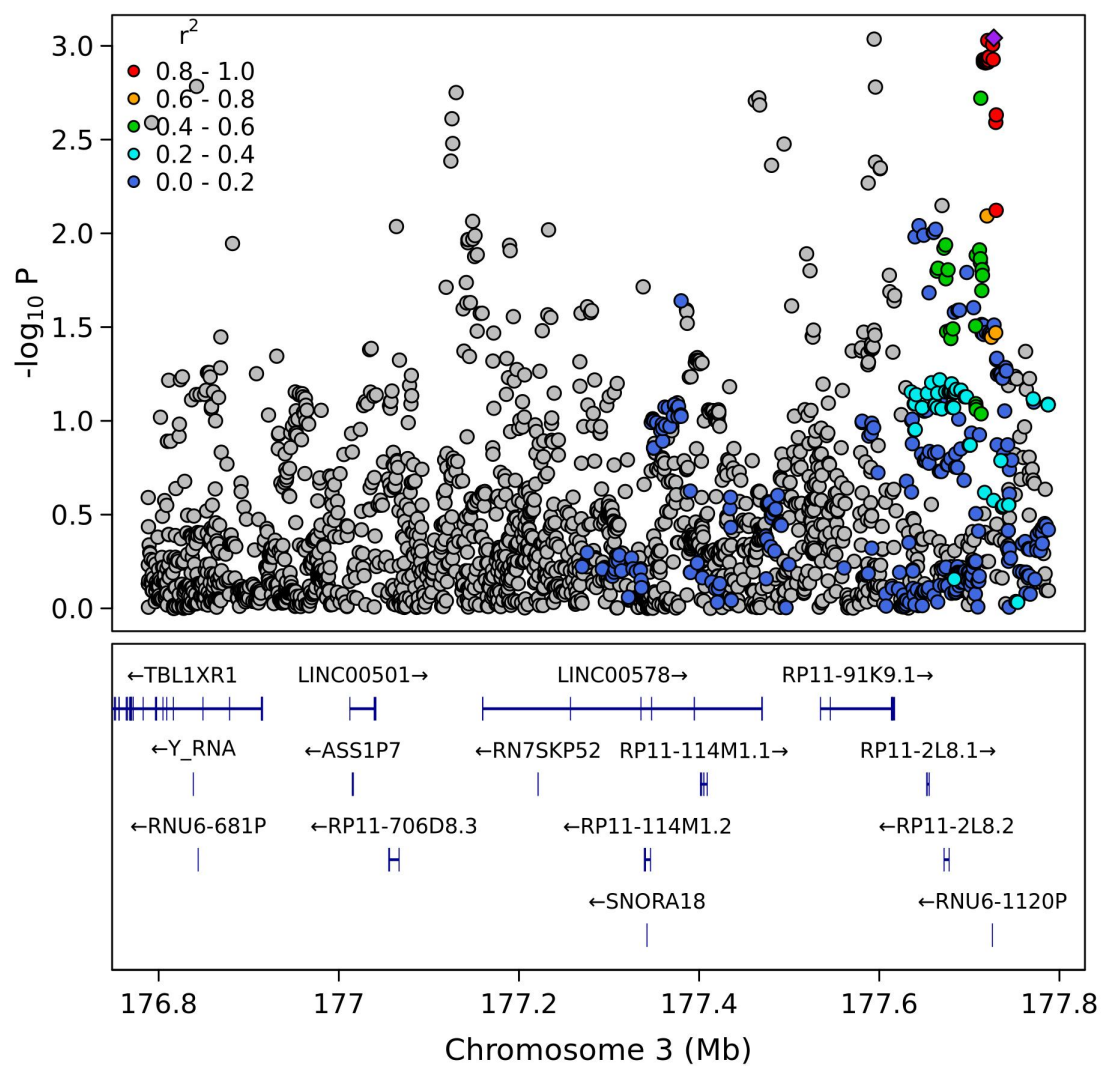


Figure E5.23 Locus plot of the result of conditional analysis on rs2055684 (3:69108316) in doctors-diagnosed FA + sensitization phenotype children, baseline model.

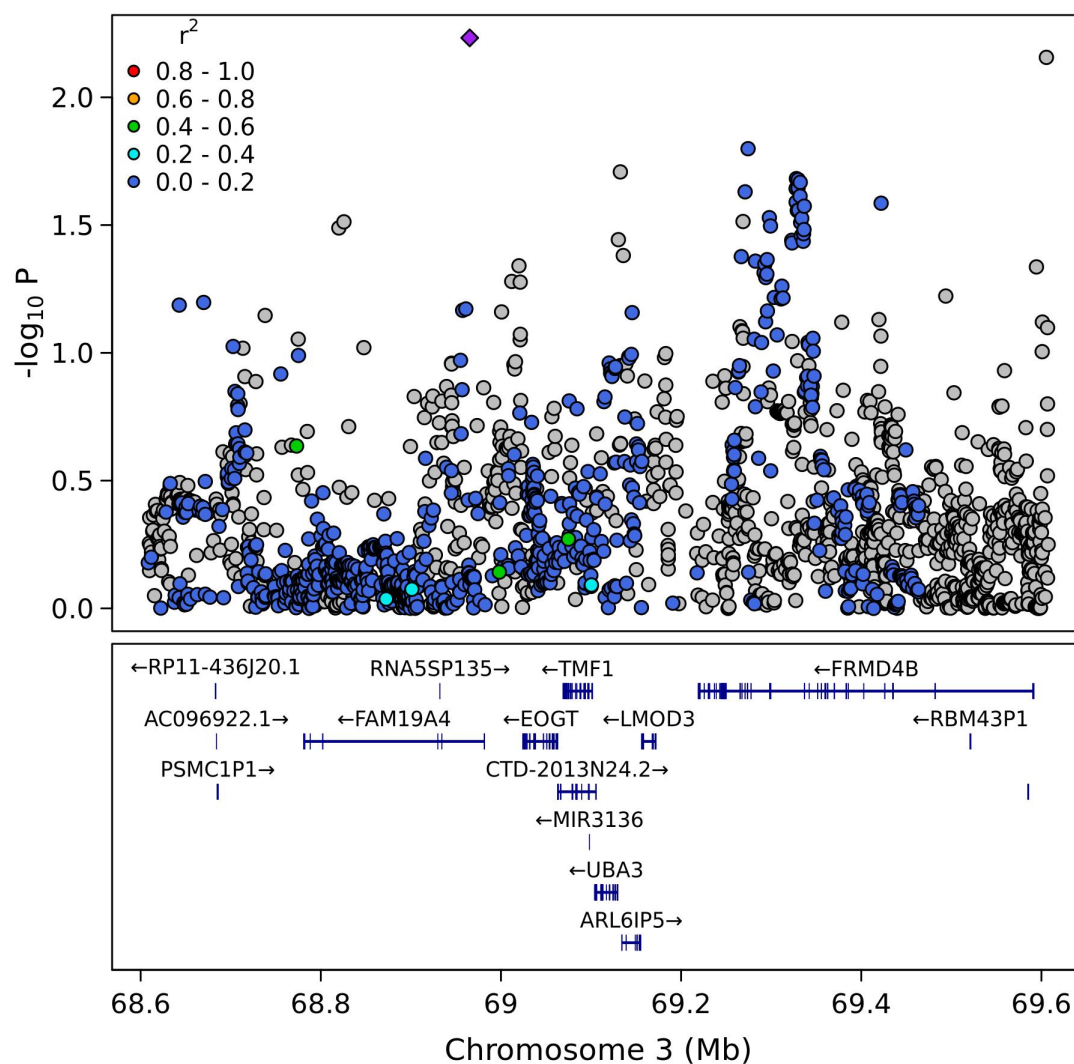


Figure E5.24 Locus plot of the result of conditional analysis on rs2055684 (3:69108316) in doctors-diagnosed FA + sensitization phenotype children, hay fever adjusted model.

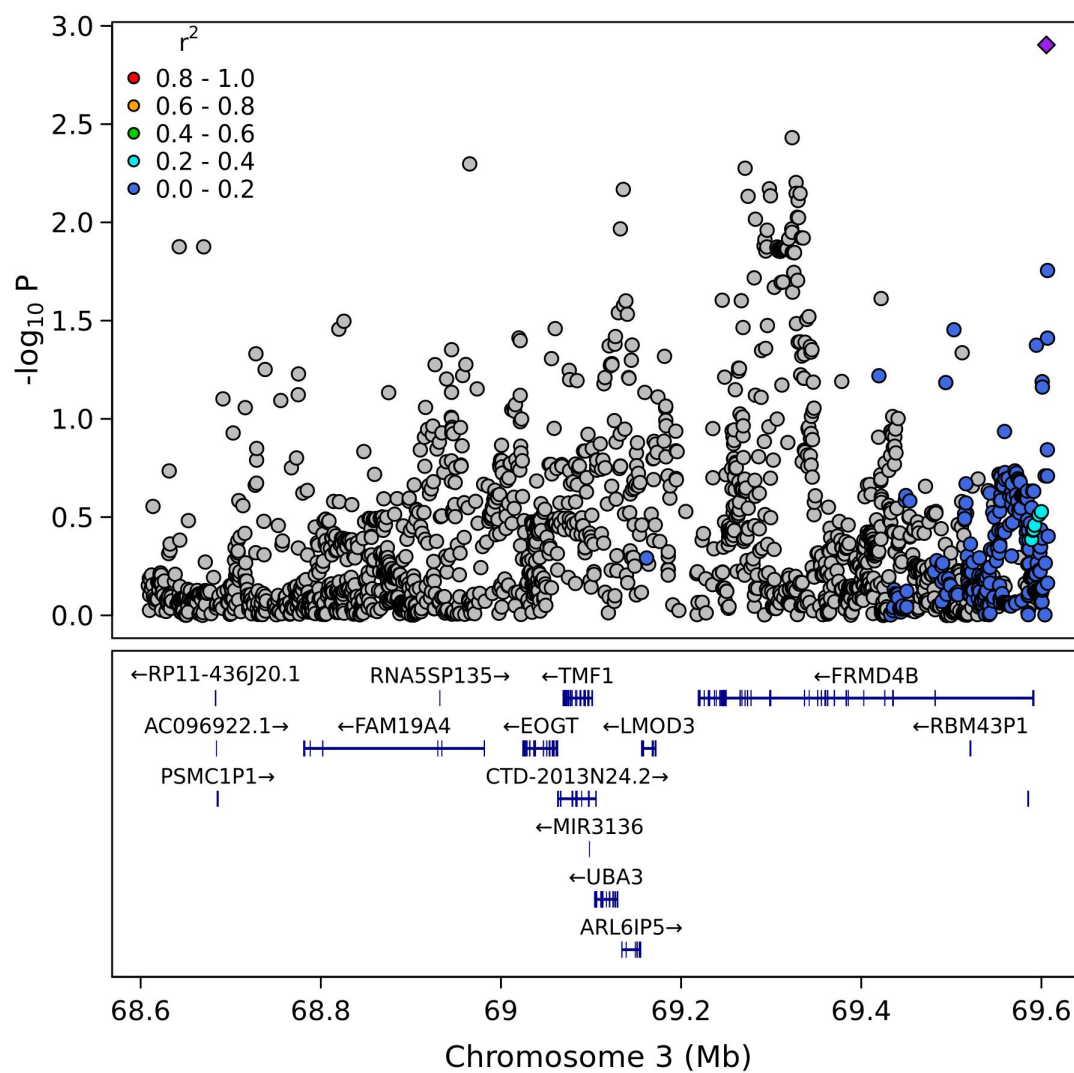


Figure E5.25 Locus plot of the result of conditional analysis on rs4025780 (17:764038) in doctors-diagnosed FA phenotype children, baseline model.

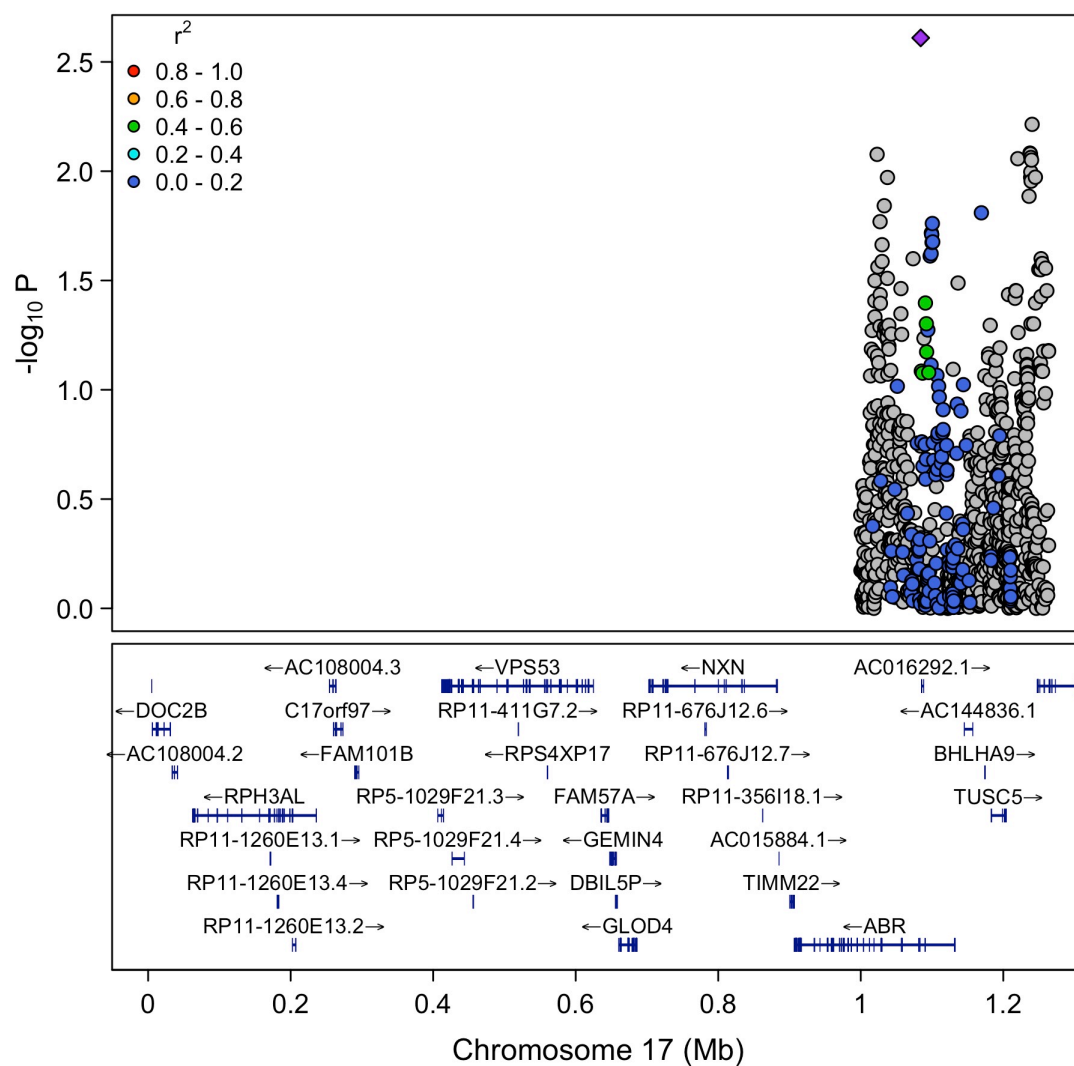


Figure E5.26 Locus plot of the result of conditional analysis on rs138021736 (13:50028384) in doctors-diagnosed FA phenotype adults, baseline model.

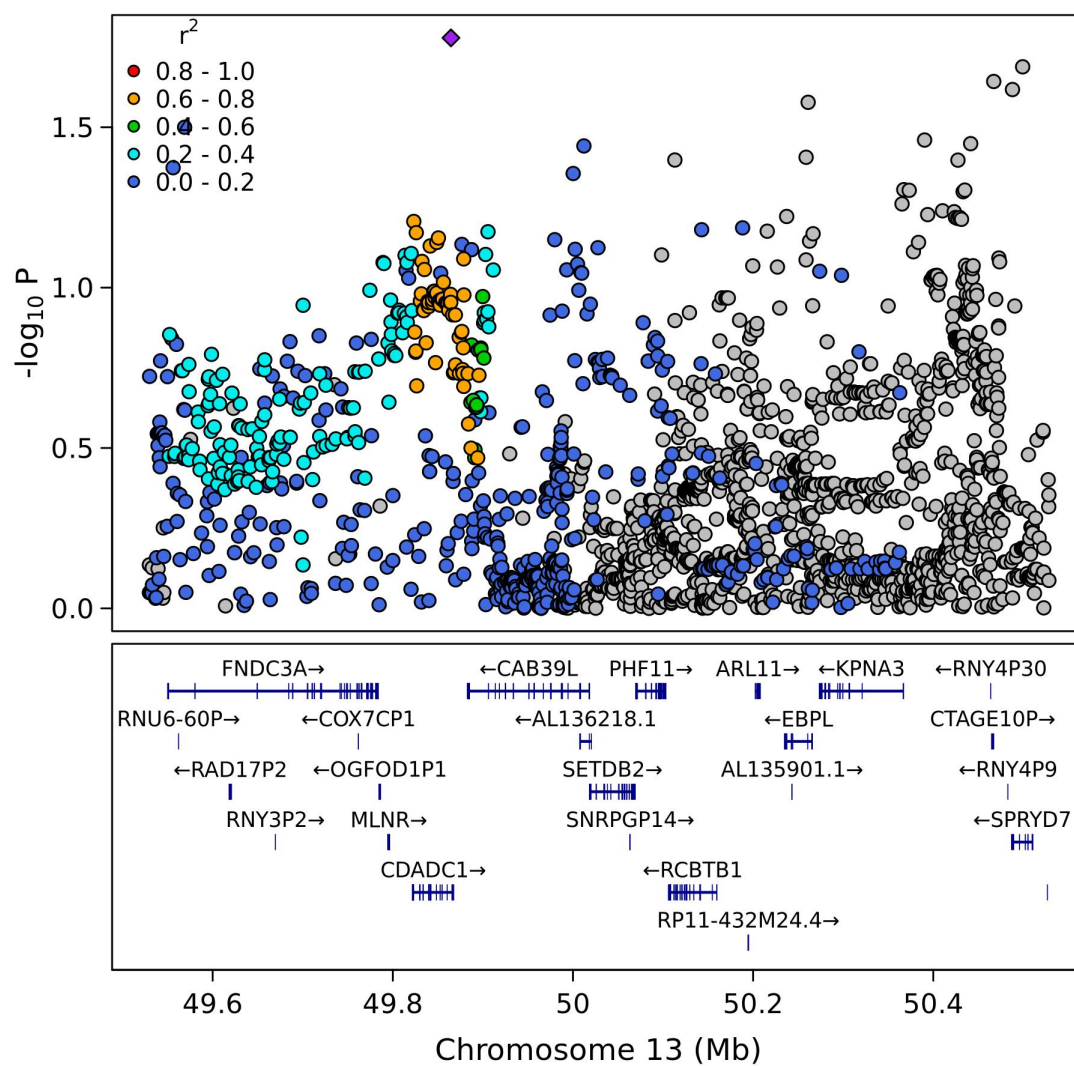


Figure E5.27 Locus plot of the result of conditional analysis on rs11643761 (16:9065990) in sensitization phenotype children, baseline model.

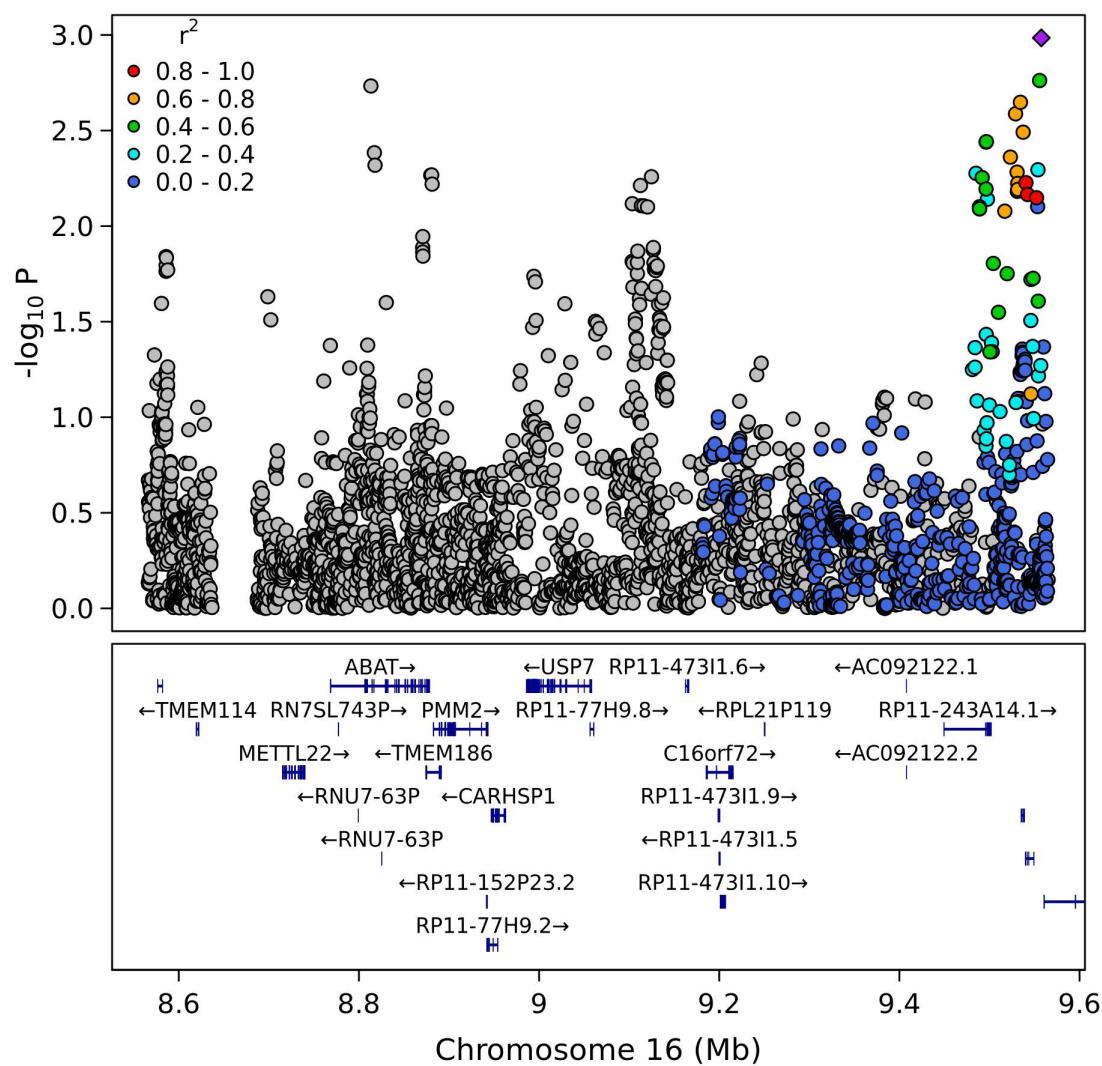


Figure E5.28 Locus plot of the result of conditional analysis on rs117937277 (9:116941113) in doctors-diagnosed FA phenotype adults, baseline model.

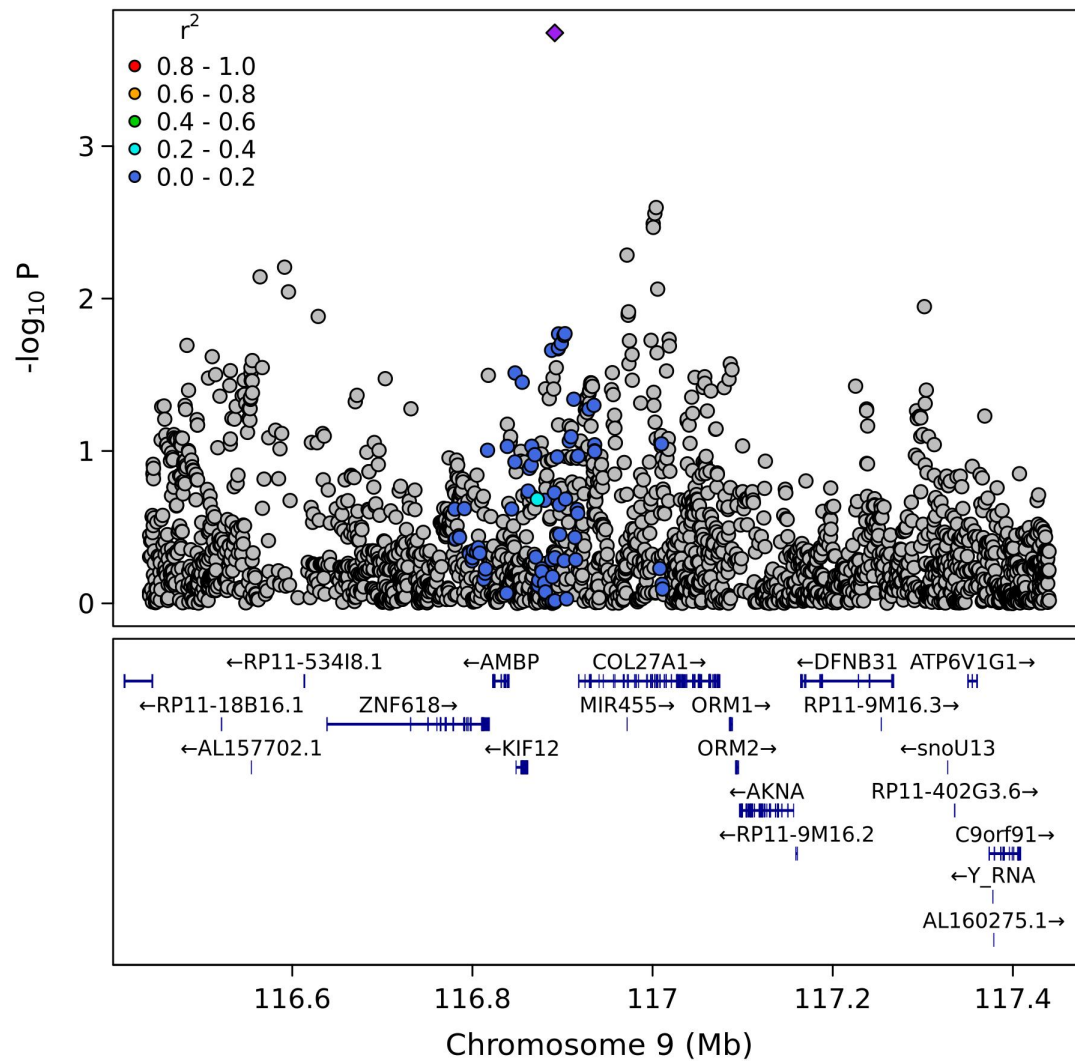


Figure E5.29 Locus plot of the result of conditional analysis on rs16952200 (18:7602849) in doctors-diagnosed FA phenotype children, hay fever adjusted model.

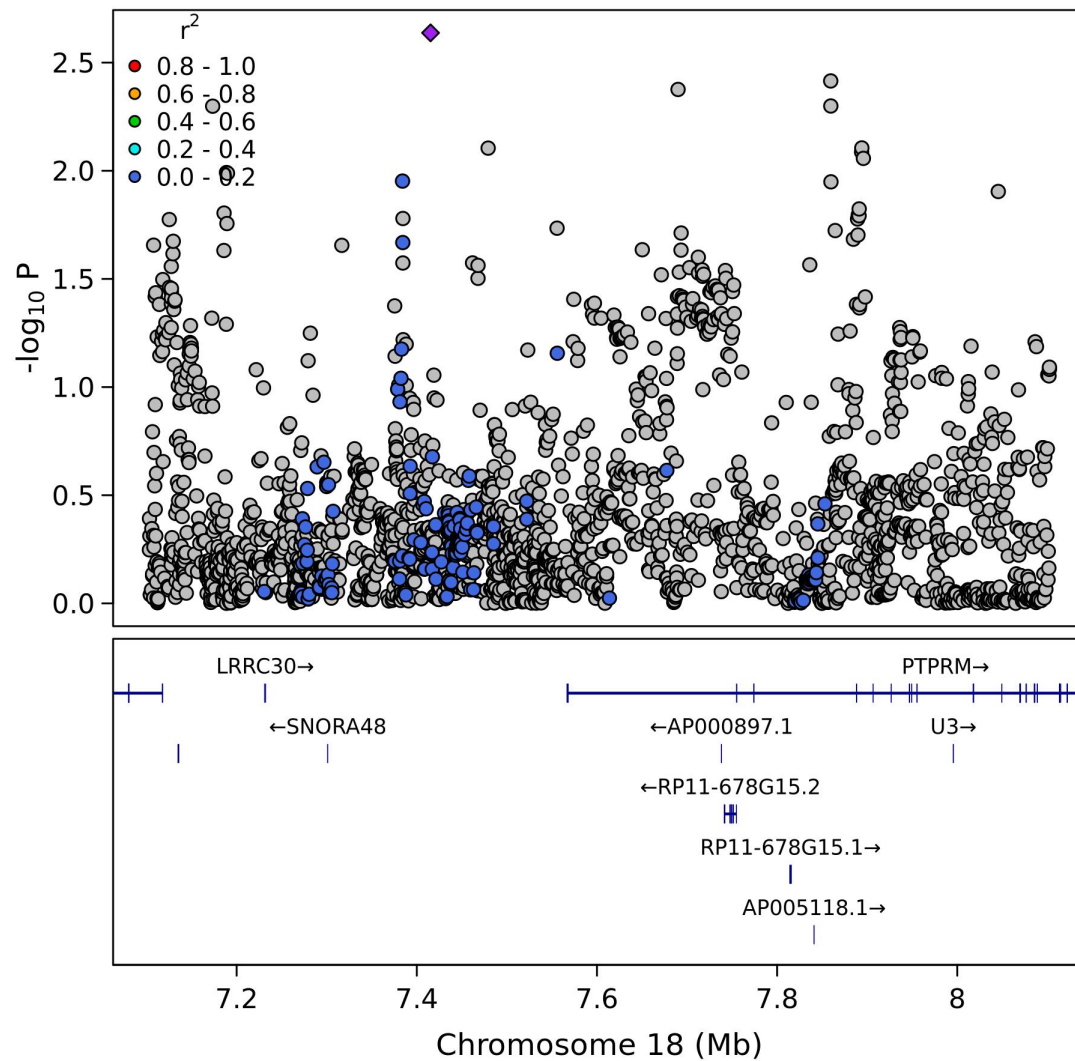


Figure E5.30 Locus plot of the result of conditional analysis on rs114560495 (5:146894281) in self-reported FA phenotype adults, baseline model.

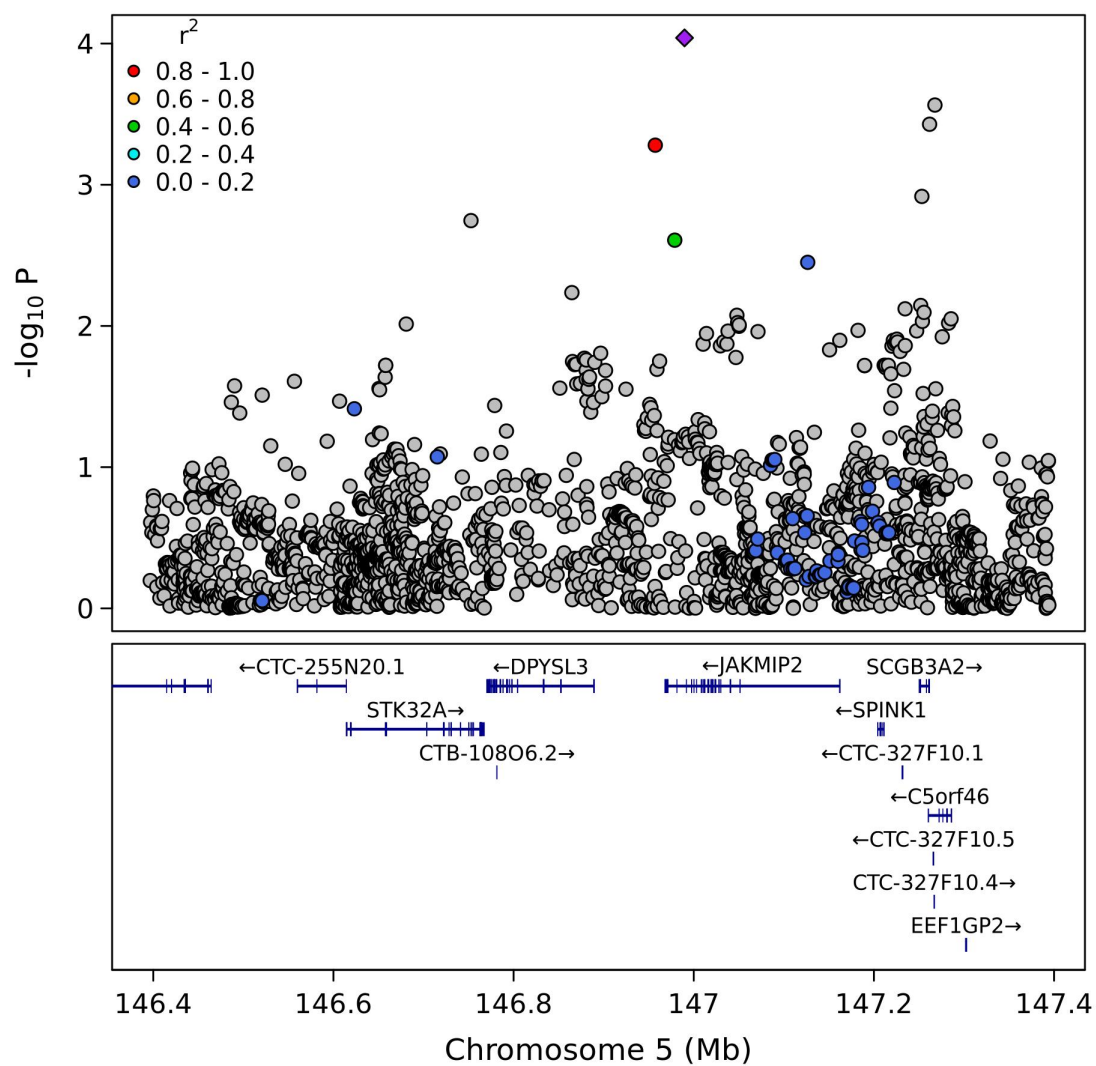


Figure E5.31 Locus plot of the result of conditional analysis on rs114560495 (5:146894281) in self-reported FA phenotype adults, hay fever adjusted model.

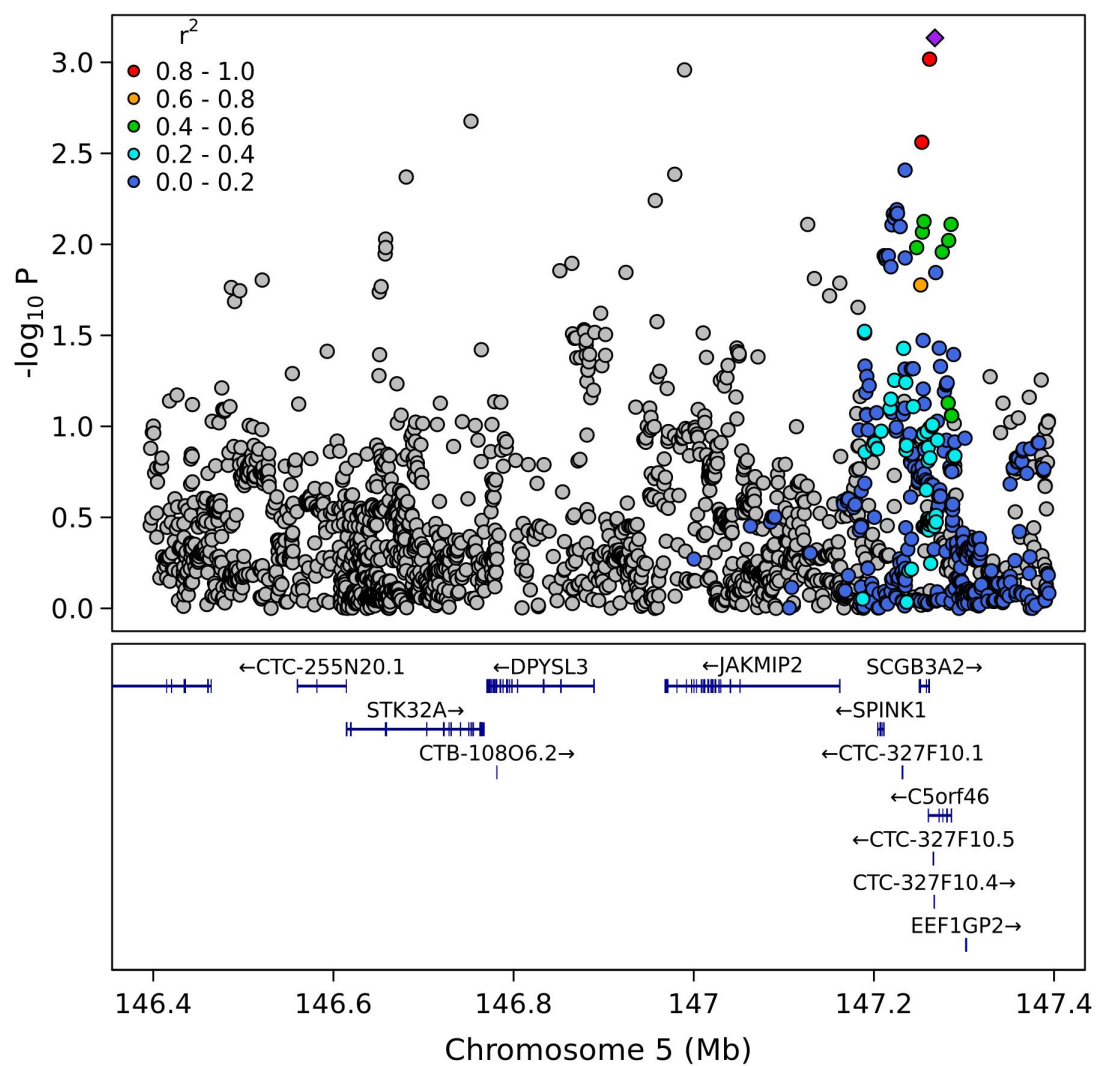


Figure E5.32 Locus plot of the result of conditional analysis on rs2692192 (3:180026087) in doctors-diagnosed FA + sensitization phenotype adults, baseline model.

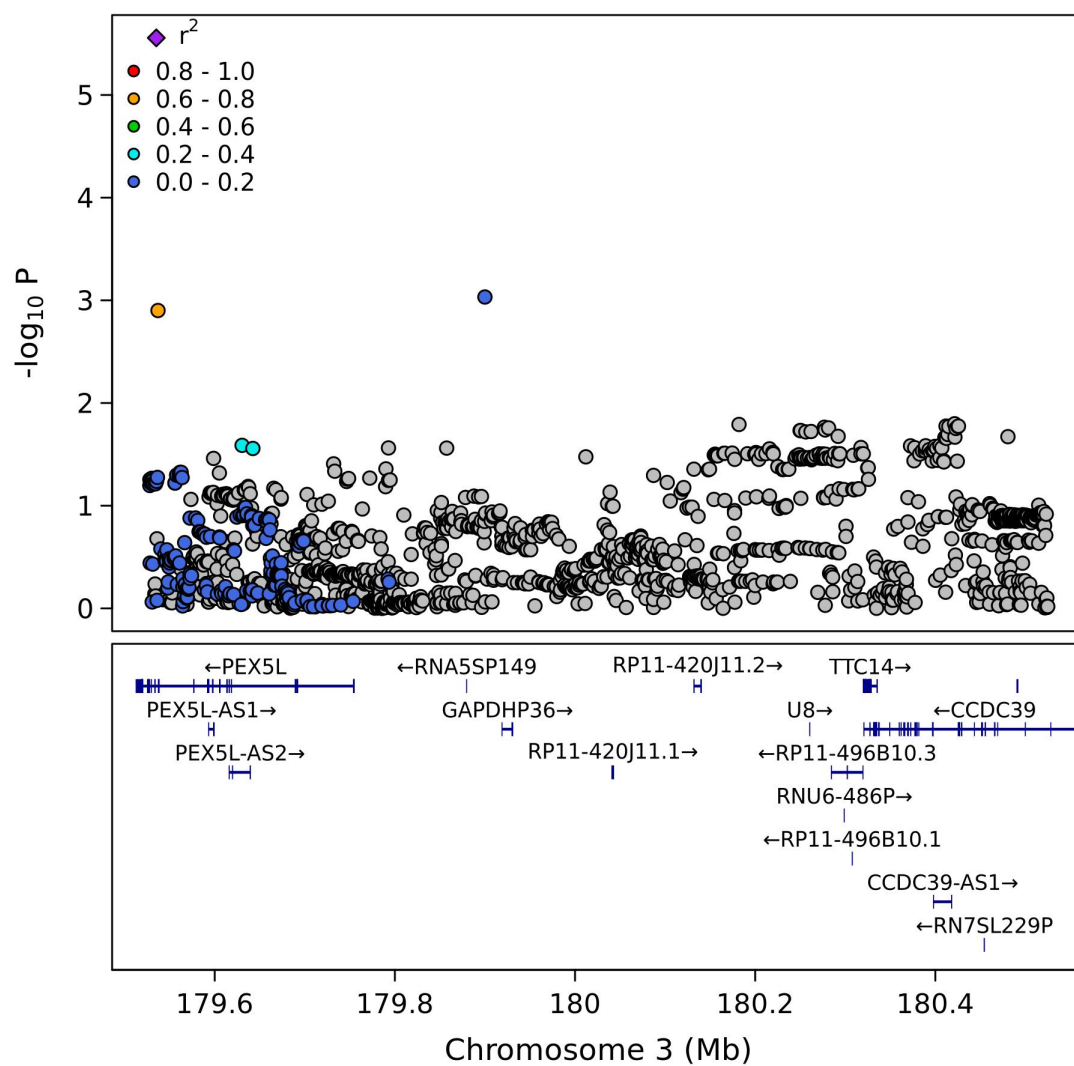


Figure E5.33 Locus plot of the result of conditional analysis on rs61648937 (15:41407730) in self-reported FA phenotype adults, baseline model.

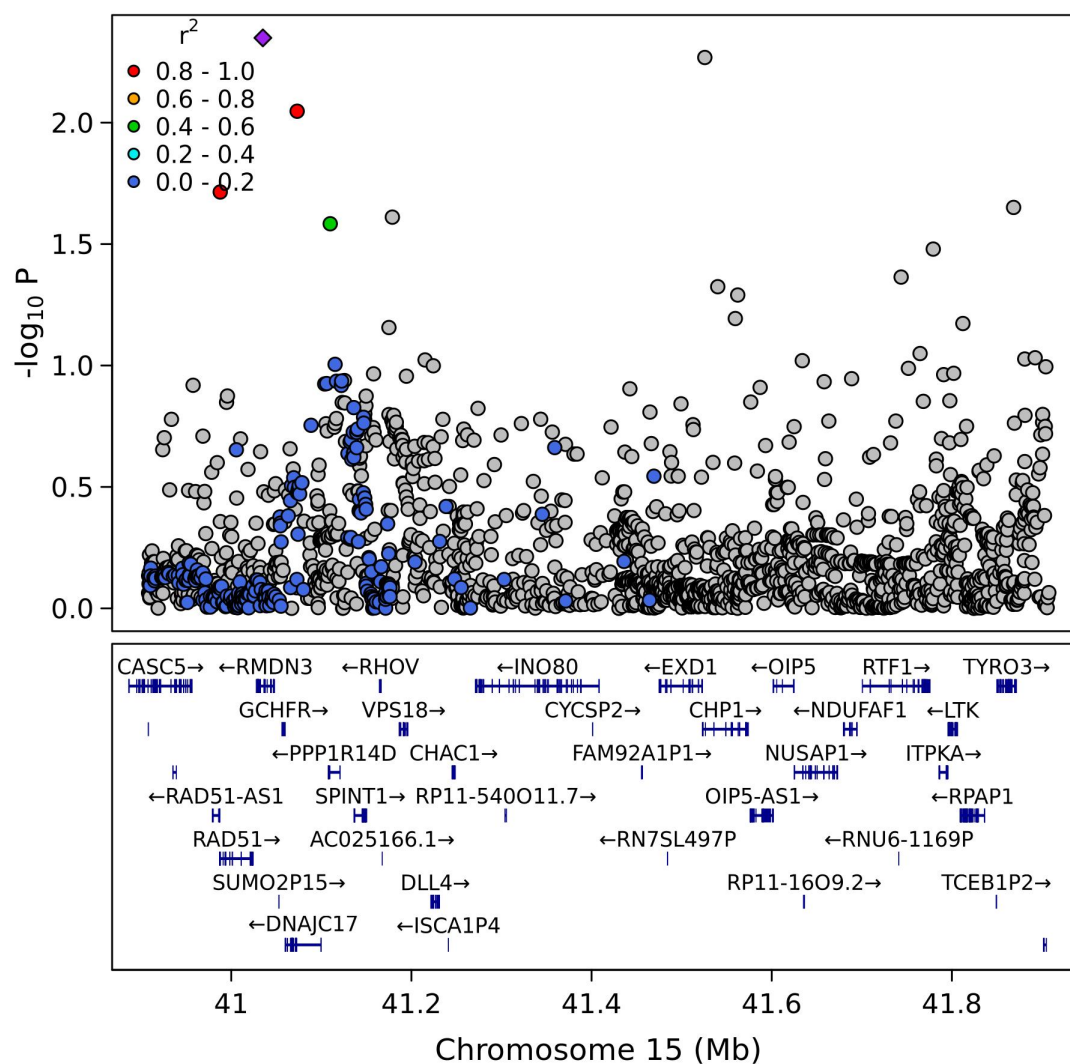


Figure E5.34 Locus plot of the result of conditional analysis on rs12650891 (4:94788391) in doctors-diagnosed FA + sensitization phenotype adults, hay fever adjusted model.

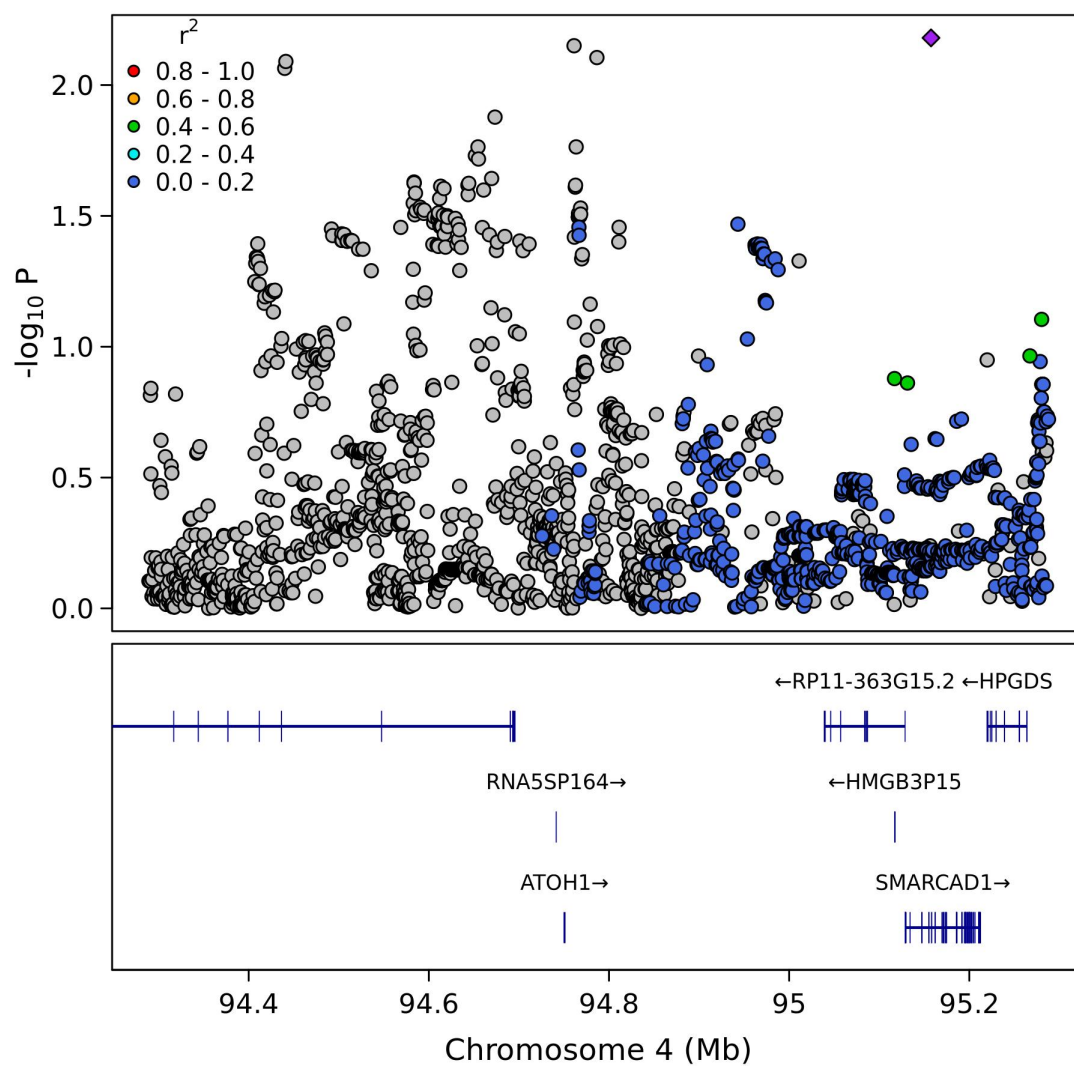


Figure E5.35 Locus plot of the result of conditional analysis on rs62305340 (4:84493126) in doctors-diagnosed FA phenotype adults, baseline model.

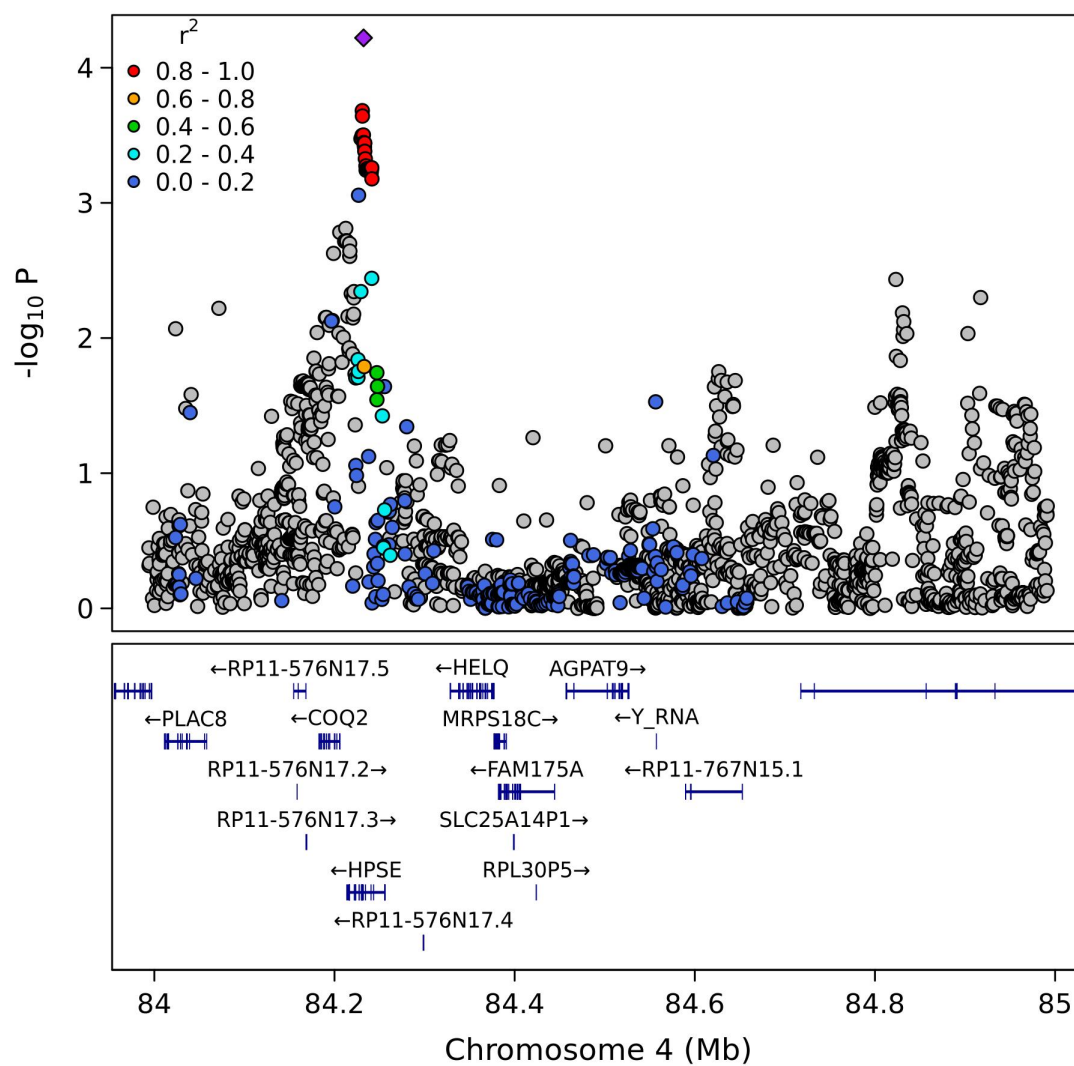


Figure E5.36 Locus plot of the result of conditional analysis on rs79989571 (3:53474278) in self-reported FA phenotype children, hay fever adjusted model.

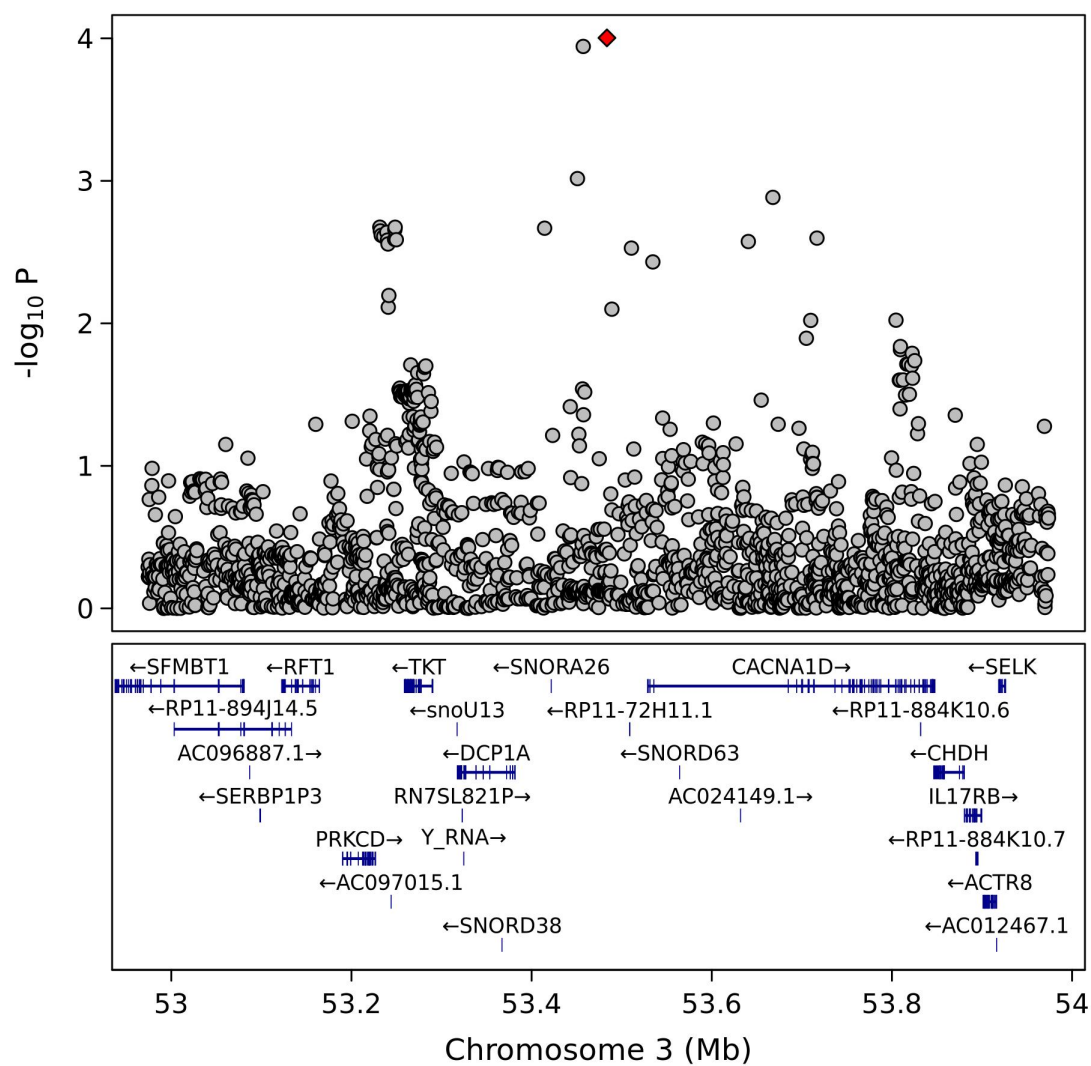


Figure E5.37 Locus plot of the result of conditional analysis on rs10899967 (10:44509338) in doctors-diagnosed FA phenotype children, baseline model.

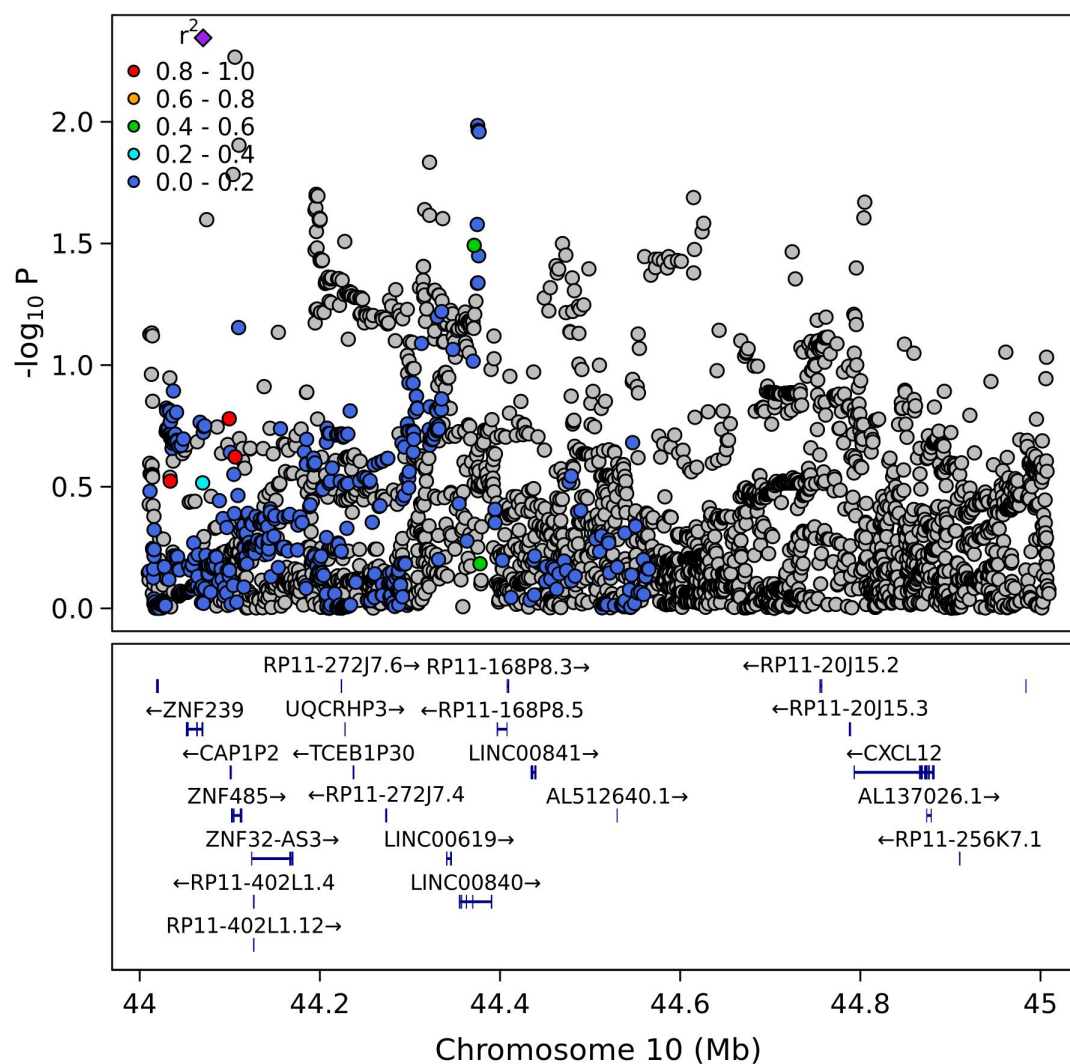


Figure E5.38 Locus plot of the result of conditional analysis on rs10265041 (7:151127104) in self-reported FA phenotype adults, baseline model.

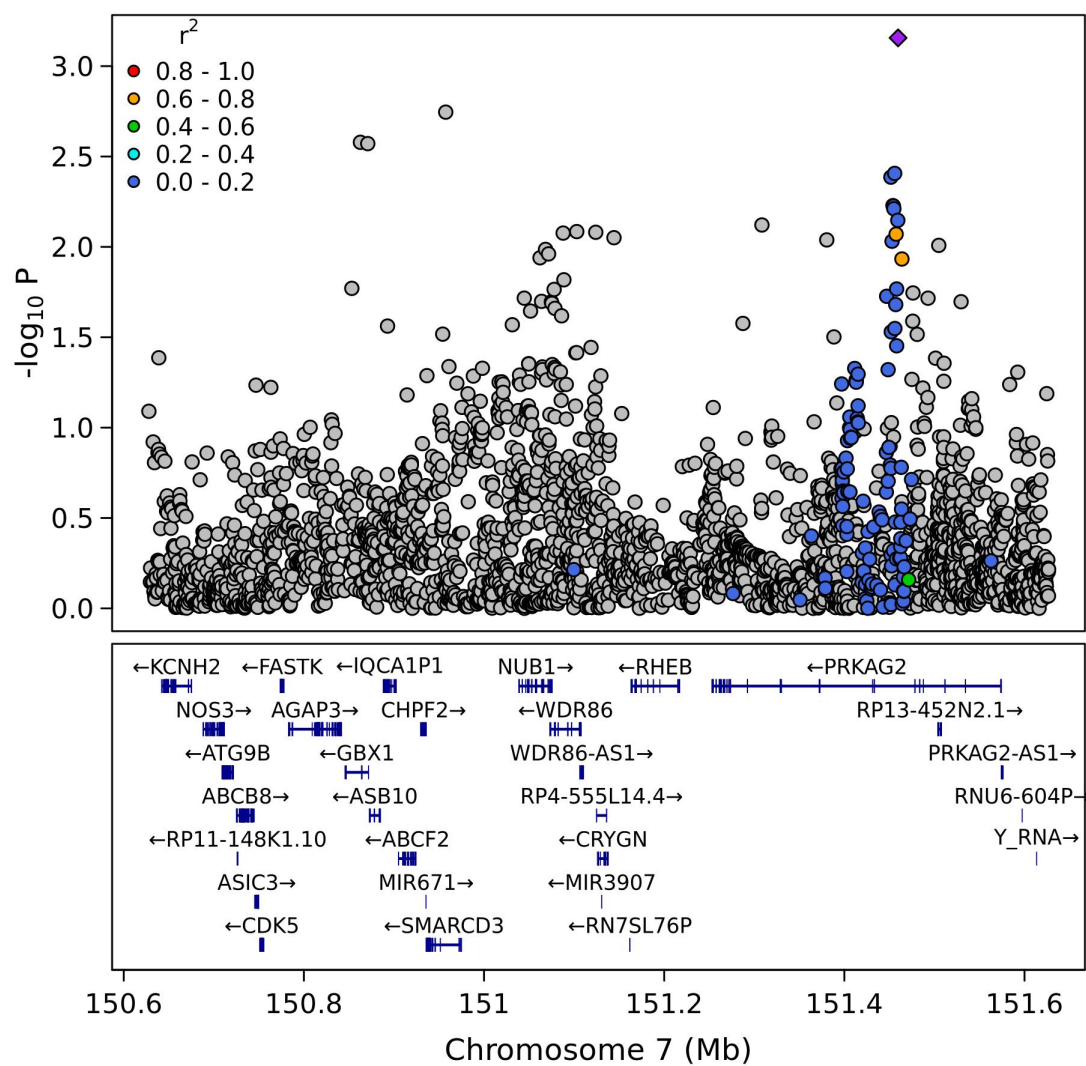


Figure E5.39 Locus plot of the result of conditional analysis on rs10265041 (7:151127104) in self-reported FA phenotype adults, hay fever adjusted model.

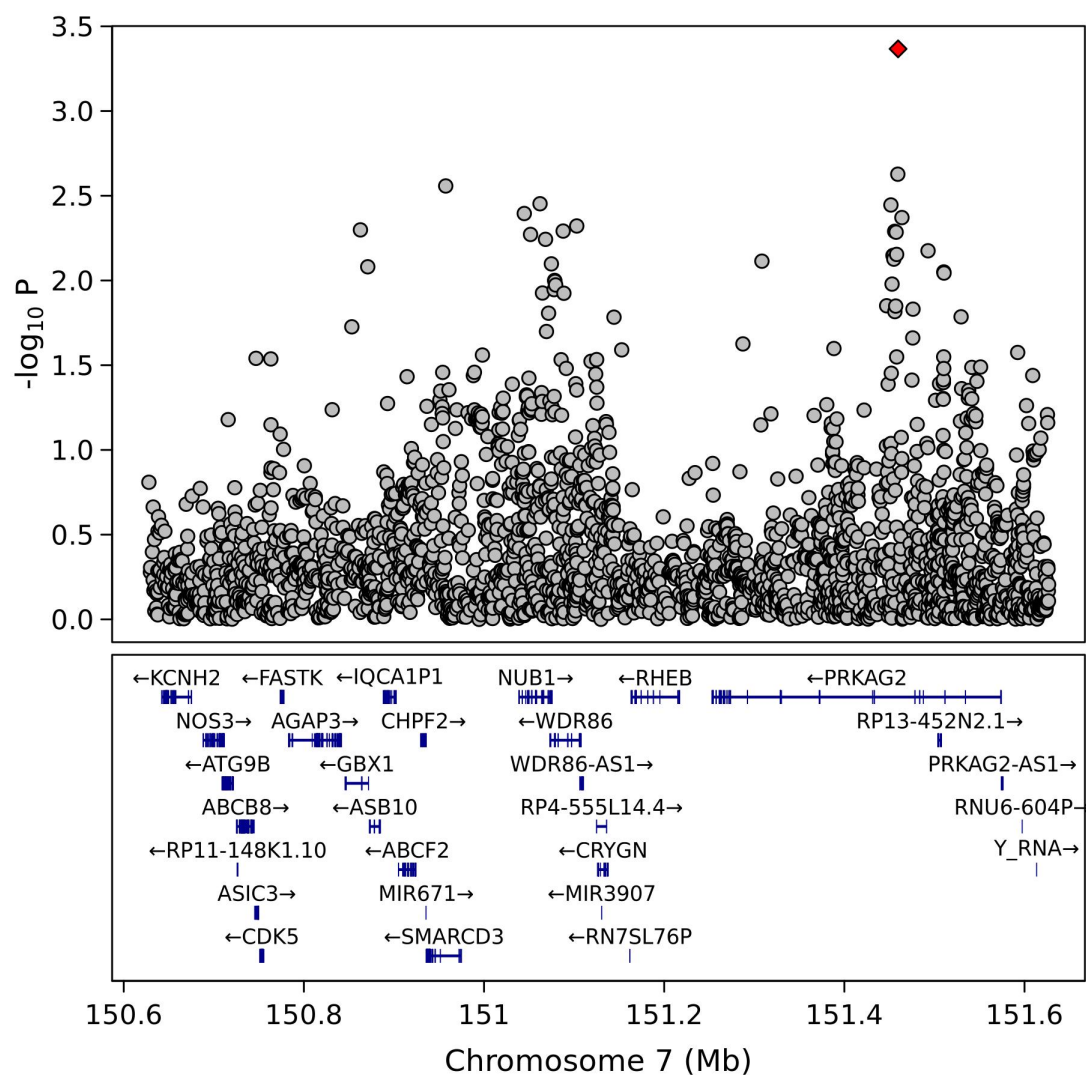


Figure E5.40 Locus plot of the result of conditional analysis on rs73228469 (12:97466262) in doctors-diagnosed FA phenotype adults, baseline model.

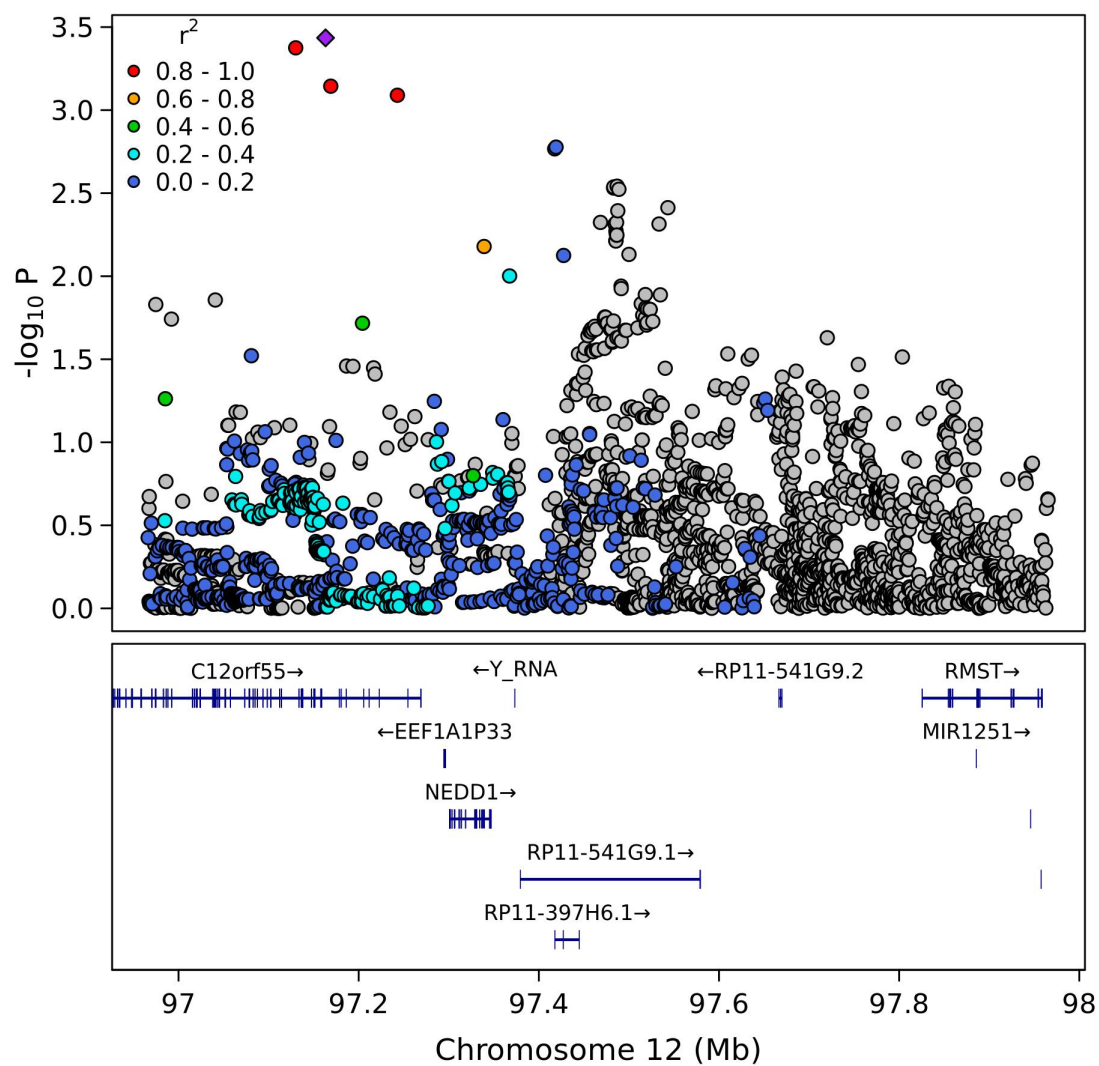


Figure E5.41 Locus plot of the result of conditional analysis on rs12450646 (17:5907793) in self-reported FA phenotype adults, baseline model.

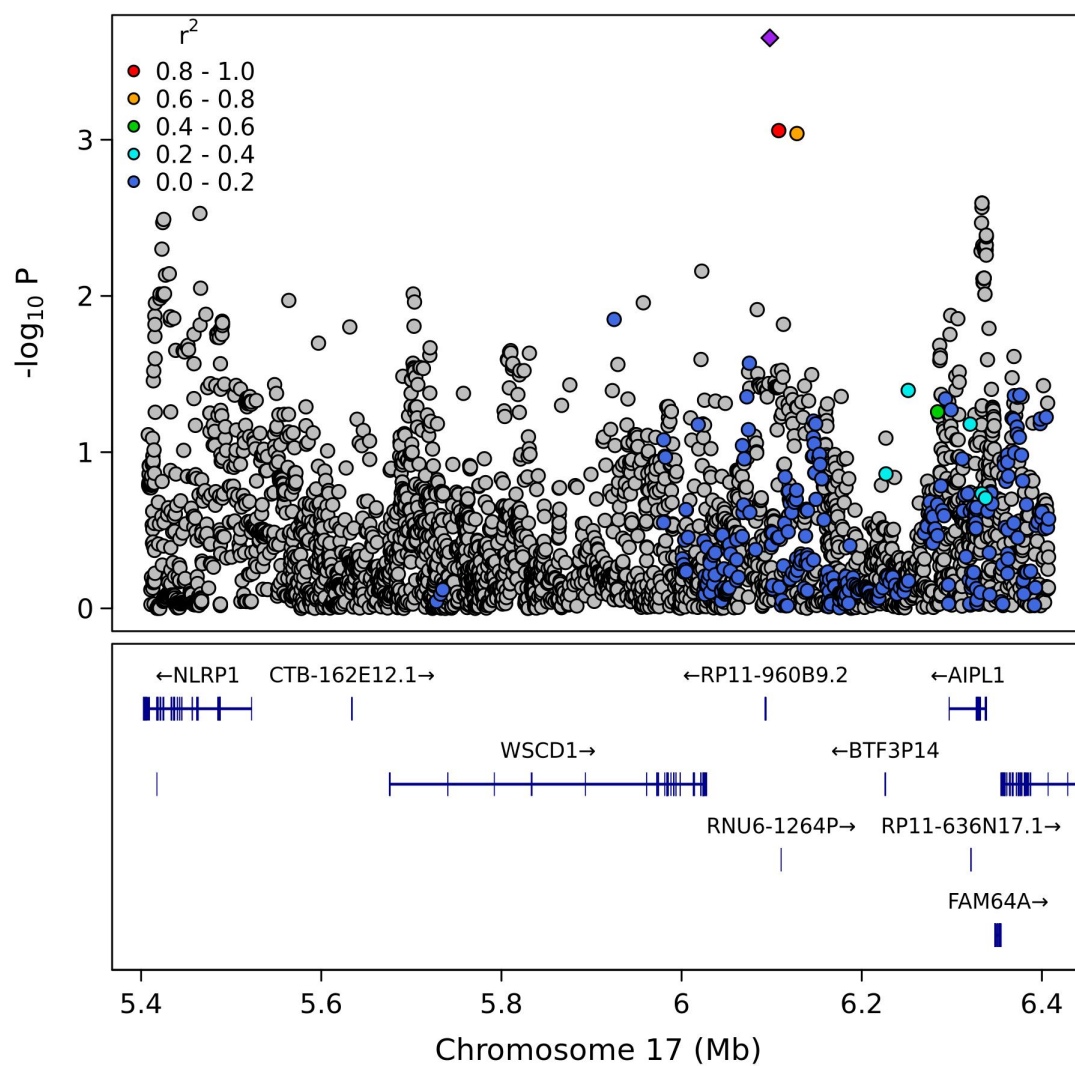


Figure E5.42 Locus plot of the result of conditional analysis on rs7108444 (11:104857234) in doctors-diagnosed FA + sensitization phenotype children, baseline model.

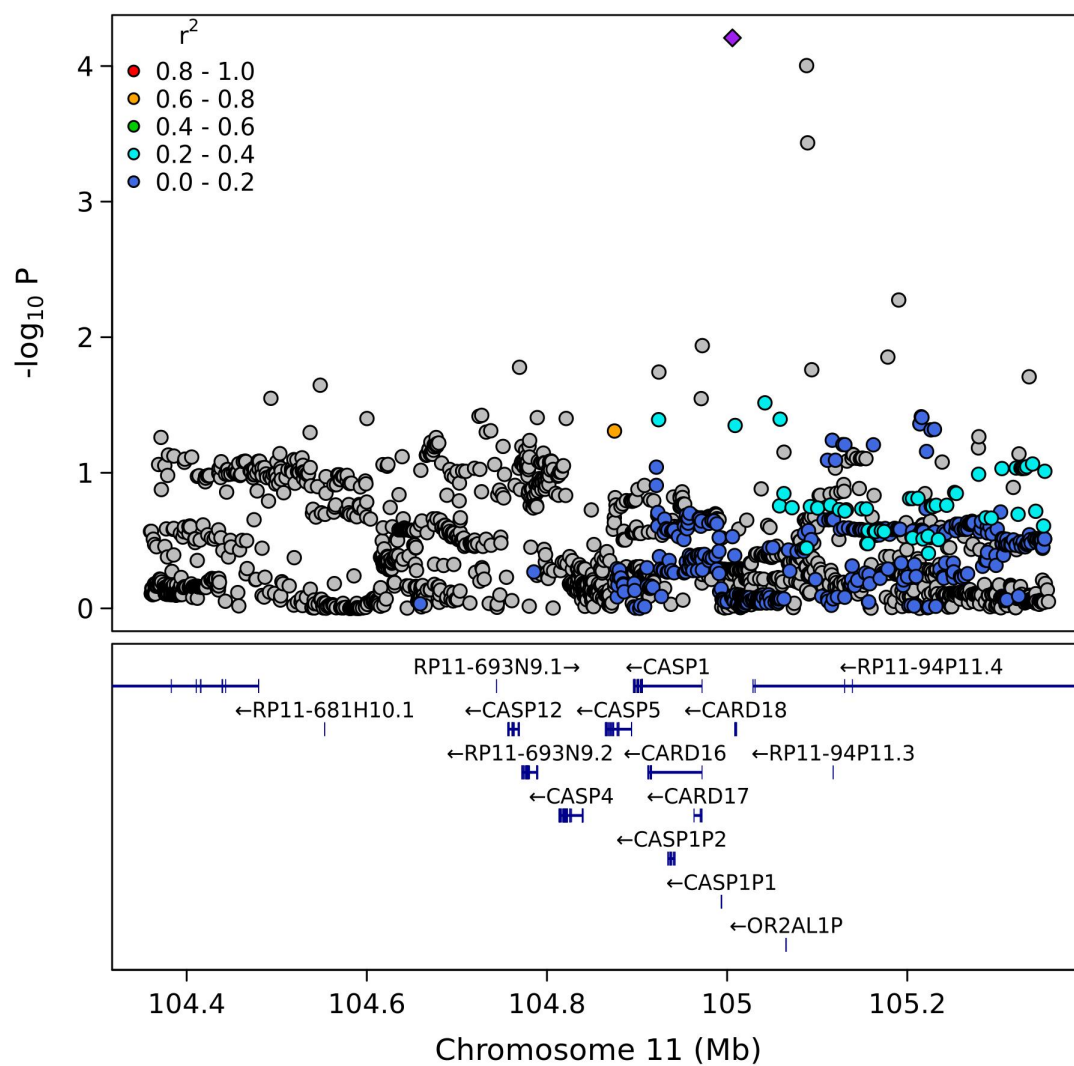


Figure E5.43 Locus plot of the result of conditional analysis on rs56296494 (10:5918344) in sensitization phenotype adults, baseline model.

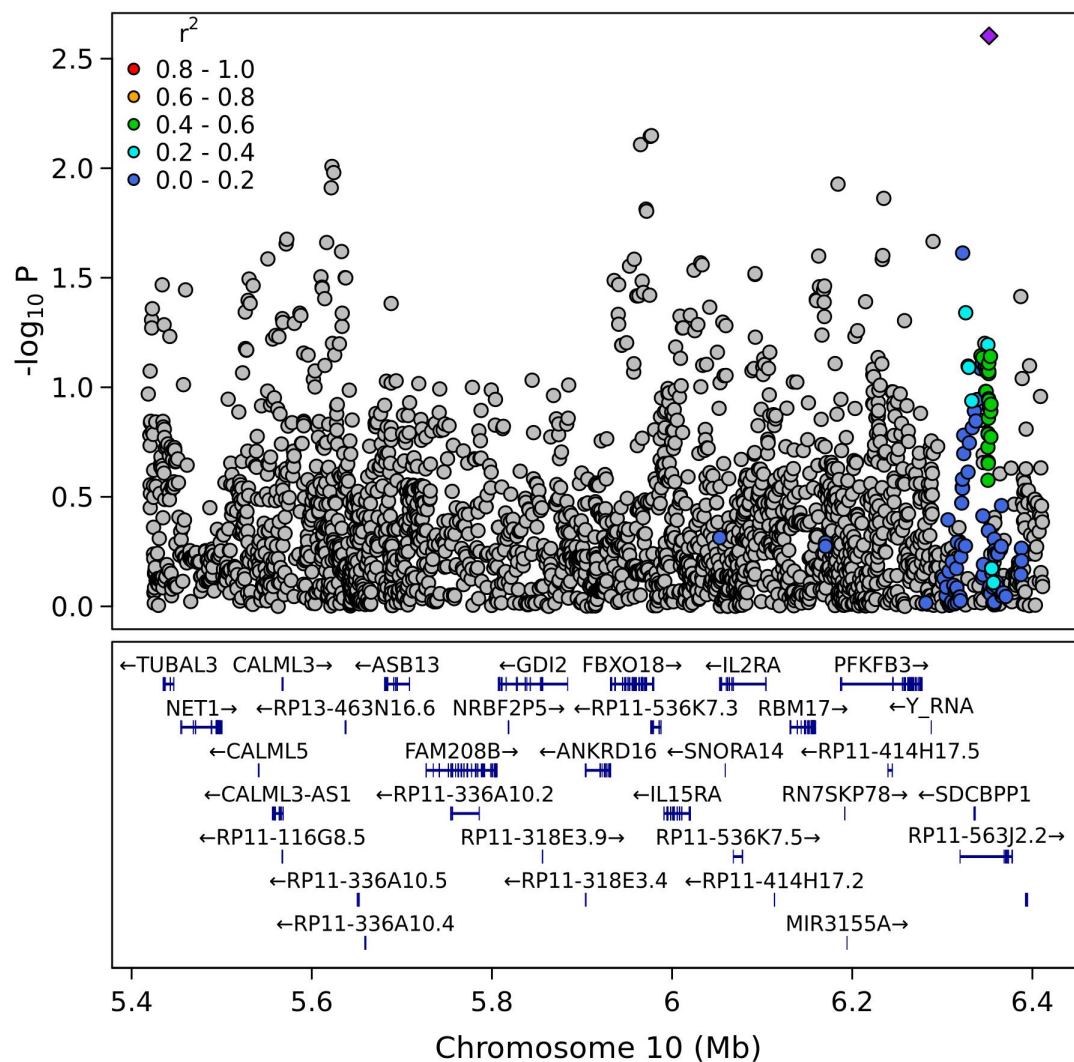


Figure E5.44 Locus plot of the result of conditional analysis on rs6007514 (22:45640136) in sensitization phenotype adults, baseline model.

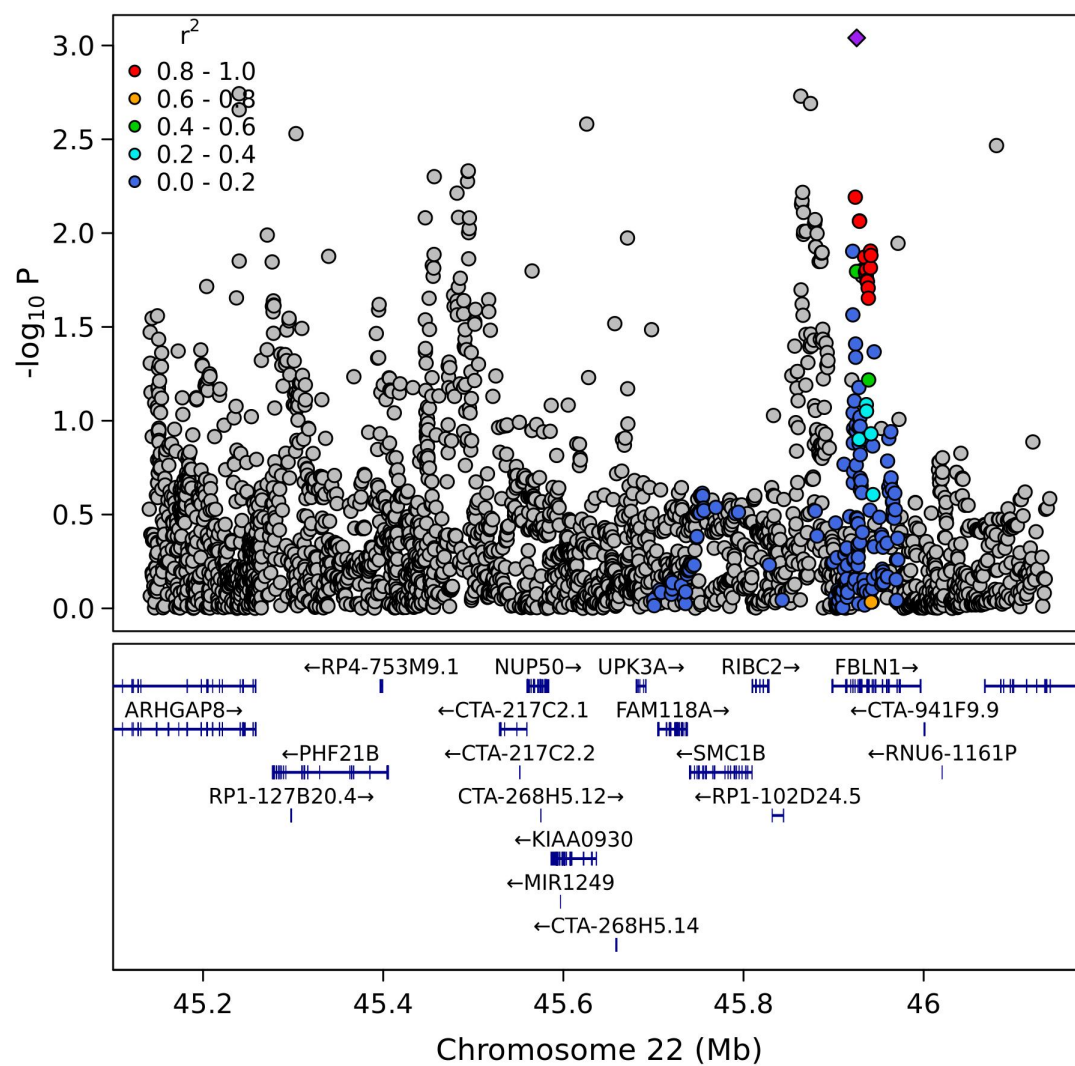


Figure E5.45 Locus plot of the result of conditional analysis on rs6007514 (22:45640136) in sensitization phenotype adults, hay fever adjusted model.

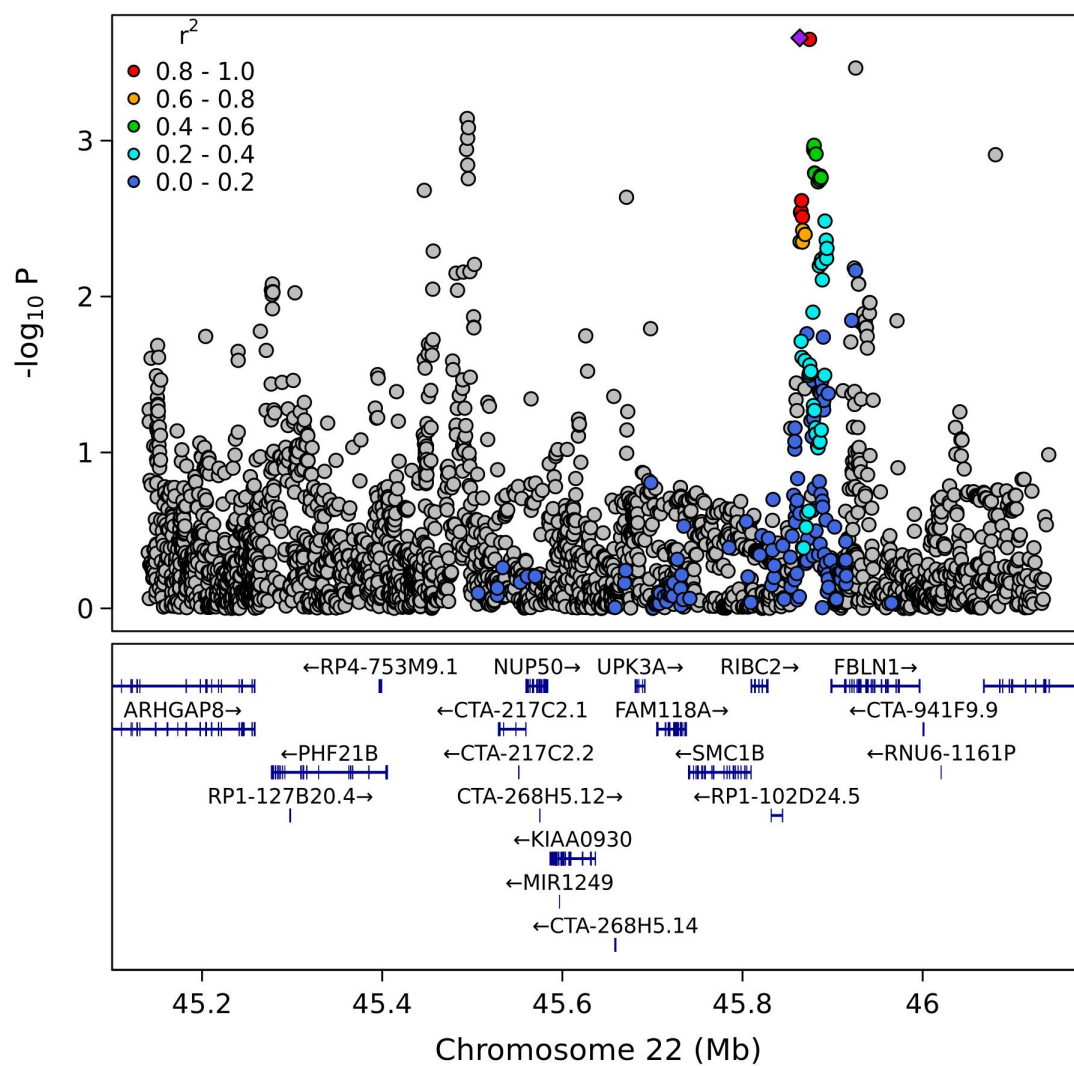


Figure E5.46 Locus plot of the result of conditional analysis on rs2033784 (15:67449660) in doctors-diagnosed FA phenotype adults, baseline model.

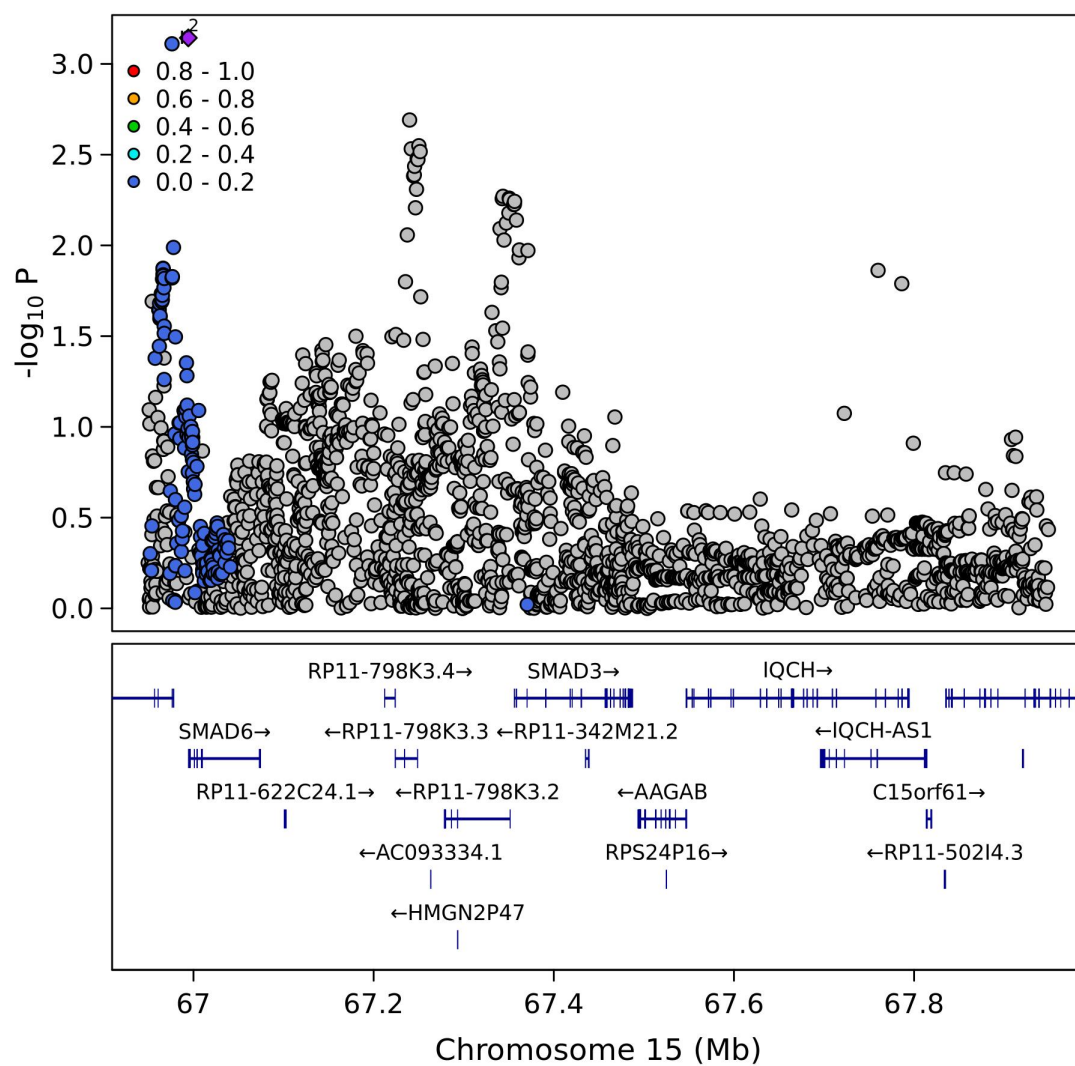


Figure E5.47 Locus plot of the result of conditional analysis on rs66609926 (2:61067286) in sensitization phenotype children, baseline model.

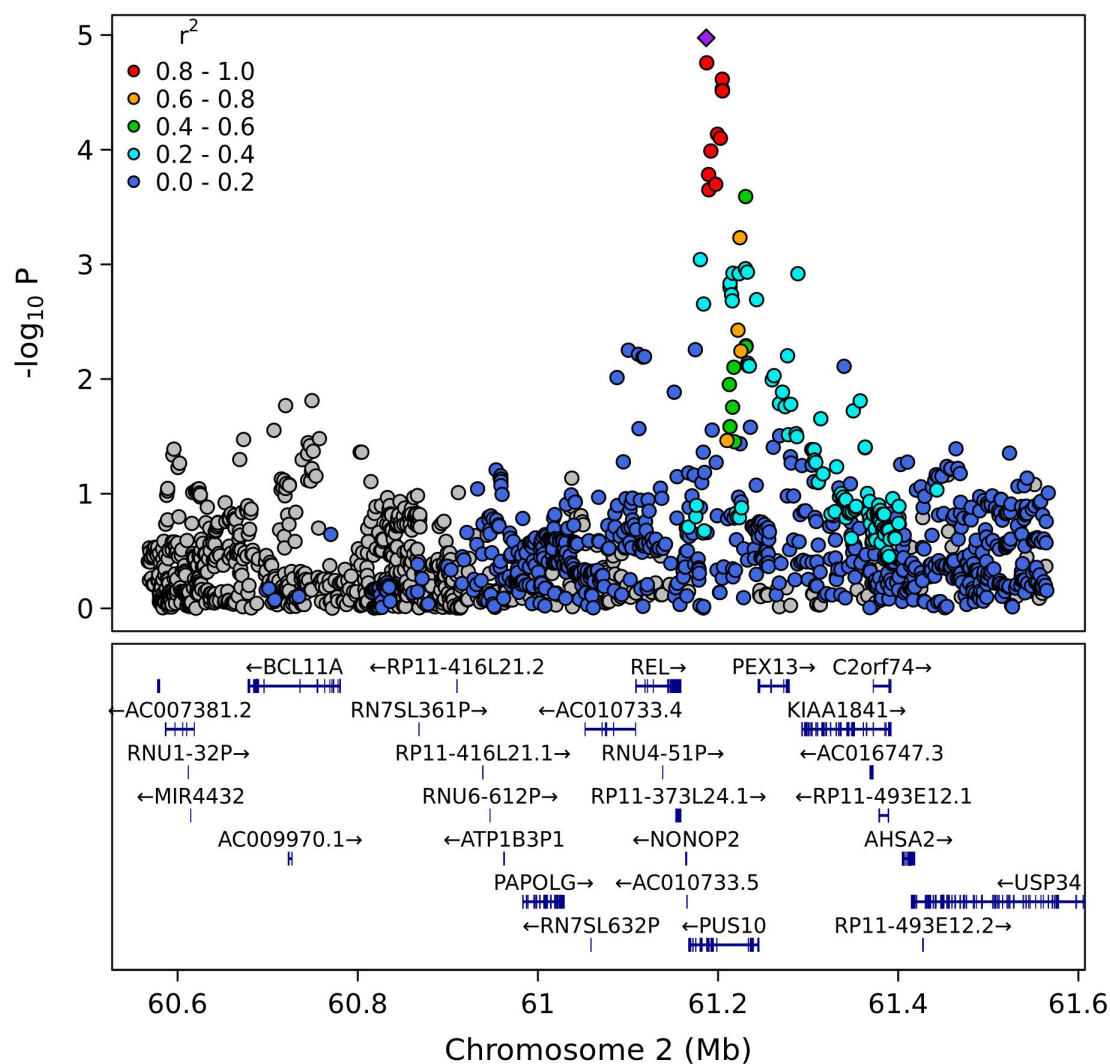


Figure E5.48 Locus plot of the result of conditional analysis on rs66609926 (2:61067286) in sensitization phenotype children, hay fever adjusted model.

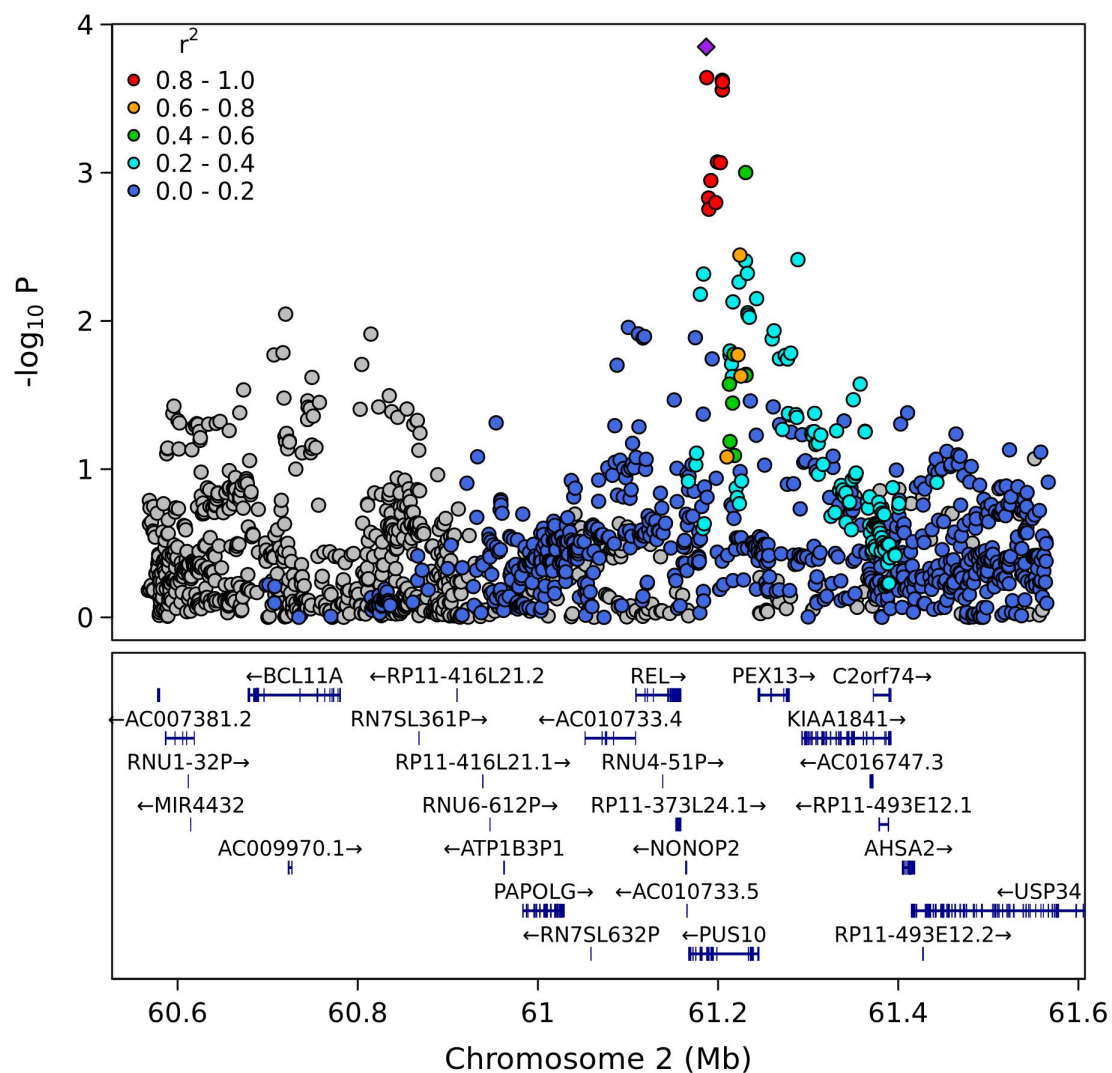
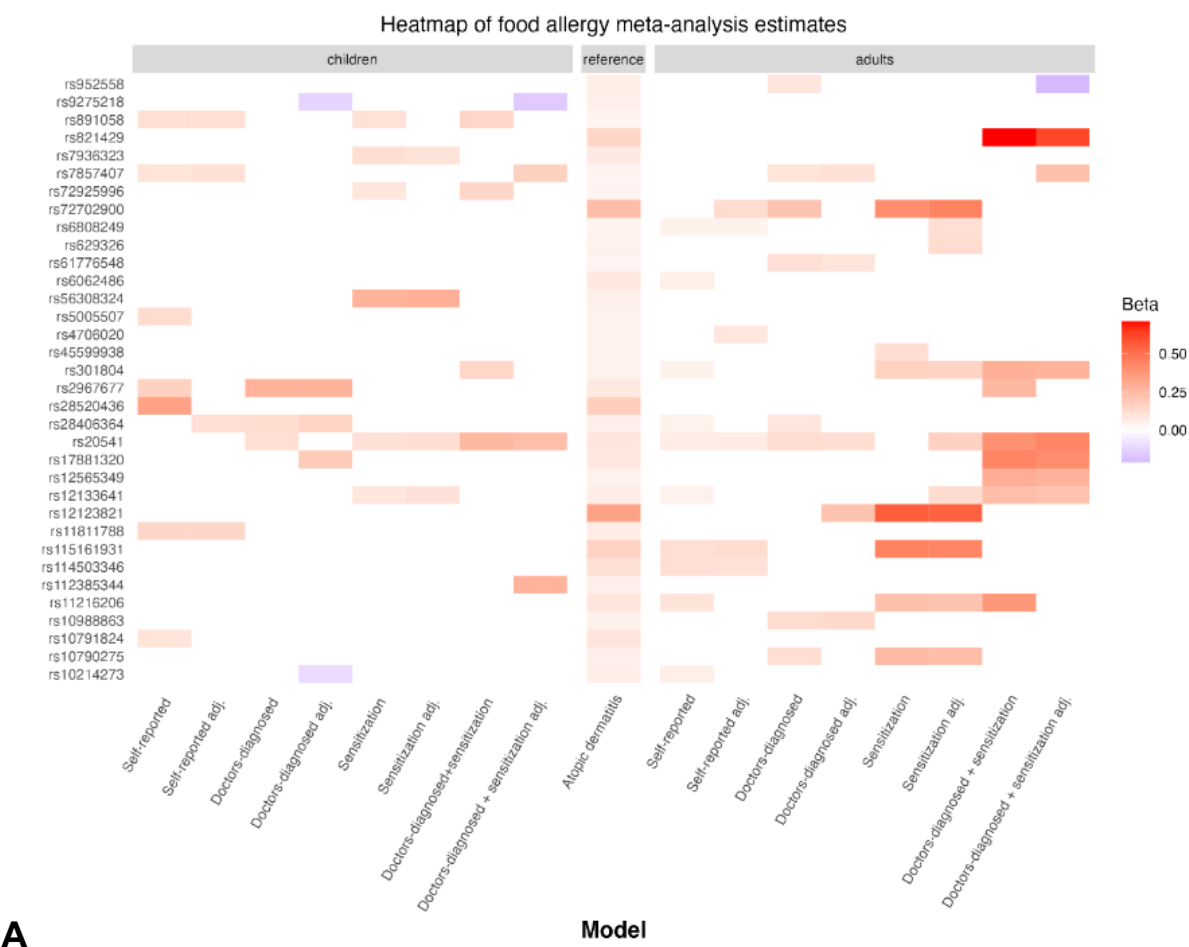
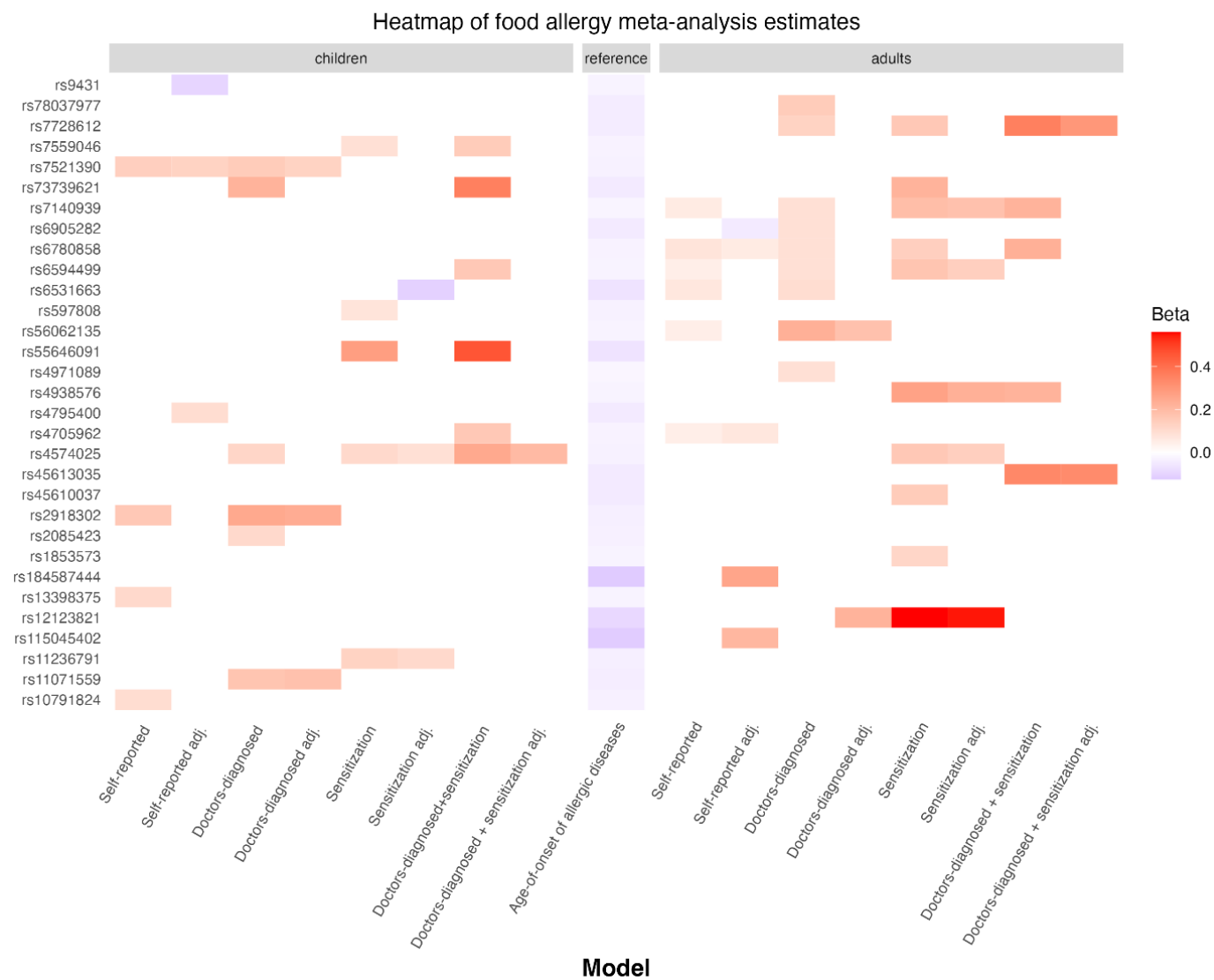


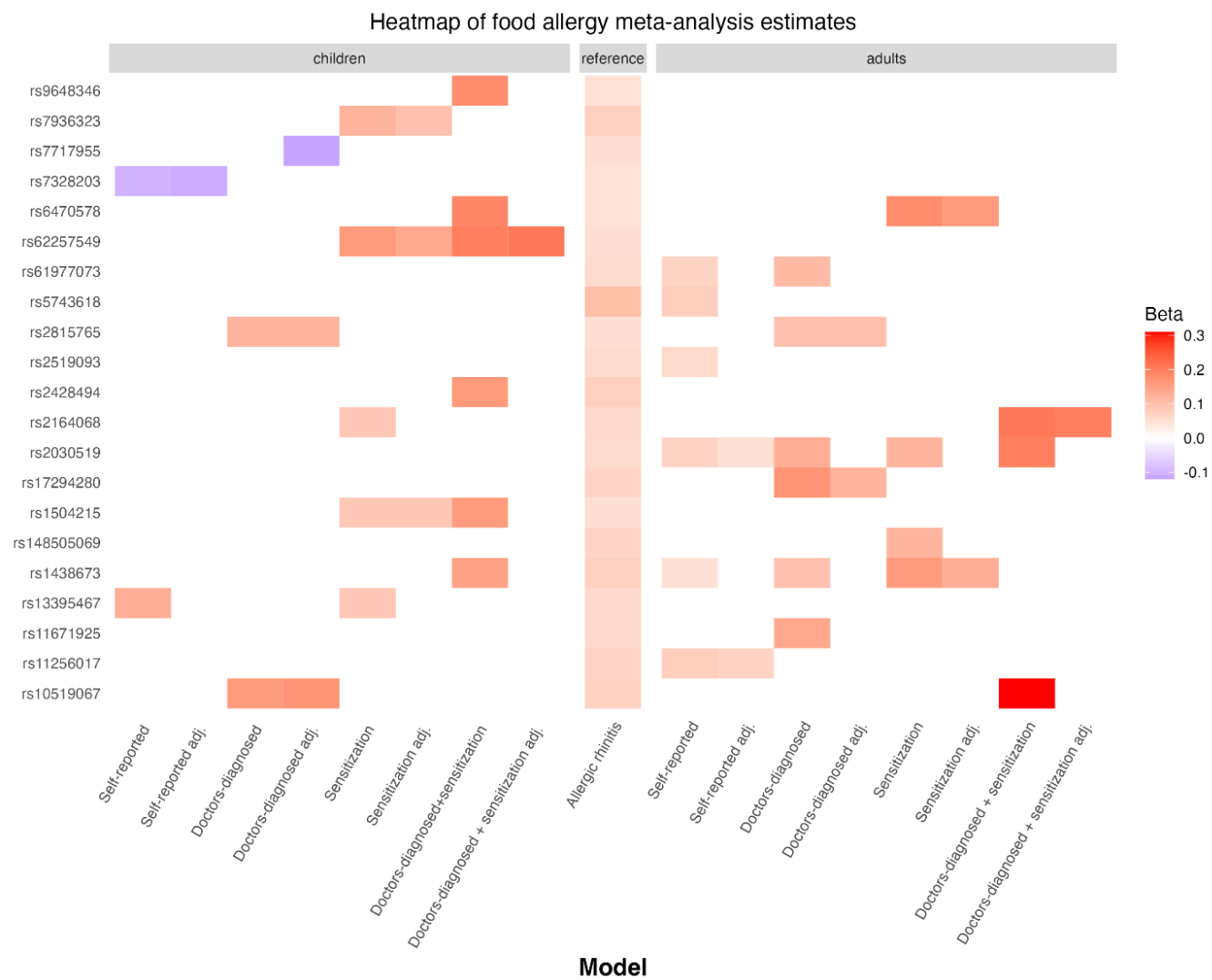
Figure E6: Heatmaps of food allergy meta-analysis estimates compared with effects of other atopic diseases from previous GWAS. Effects were compared with A) atopic dermatitis, B) age of allergy onset, C) allergic rhinitis, D) asthma, E) atopic diseases, F) childhood onset asthma



Reference: Budu-Aggrey A, Kilanowski A, Sobczyk MK, Shringarpure SS, Mitchell R, Reis K, et al. European and multi-ancestry genome-wide association meta-analysis of atopic dermatitis highlights importance of systemic immune regulation. Nat Commun. 2023;14(1):6172.

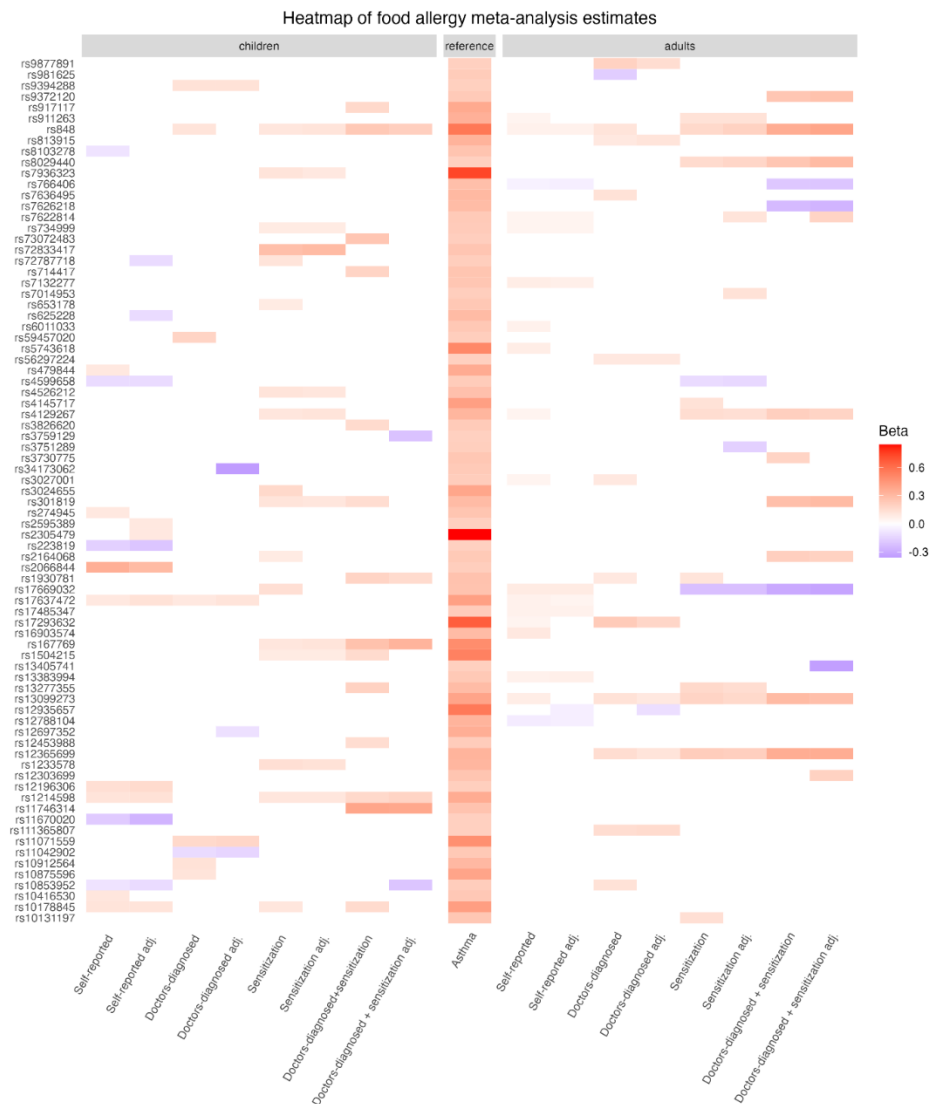


Reference: Ferreira MAR, Vonk JM, Baurecht H, Marenholz I, Tian C, Hoffman JD, et al. Age-of-onset information helps identify 76 genetic variants associated with allergic disease. PLoS Genet. 2020;16(6):e1008725.



C

Reference: Waage J, Standl M, Curtin JA, Jessen LE, Thorsen J, Tian C, et al. Genome-wide association and HLA fine-mapping studies identify risk loci and genetic pathways underlying allergic rhinitis. Nature Genetics. 2018;50(8):1072-80.



D Reference: Han Y, Jia Q, Jahani PS, Hurrell BP, Pan C, Huang P, et al. Genome-wide analysis highlights contribution of immune system pathways to the genetic architecture of asthma. Nat Commun. 2020;11(1):1776.



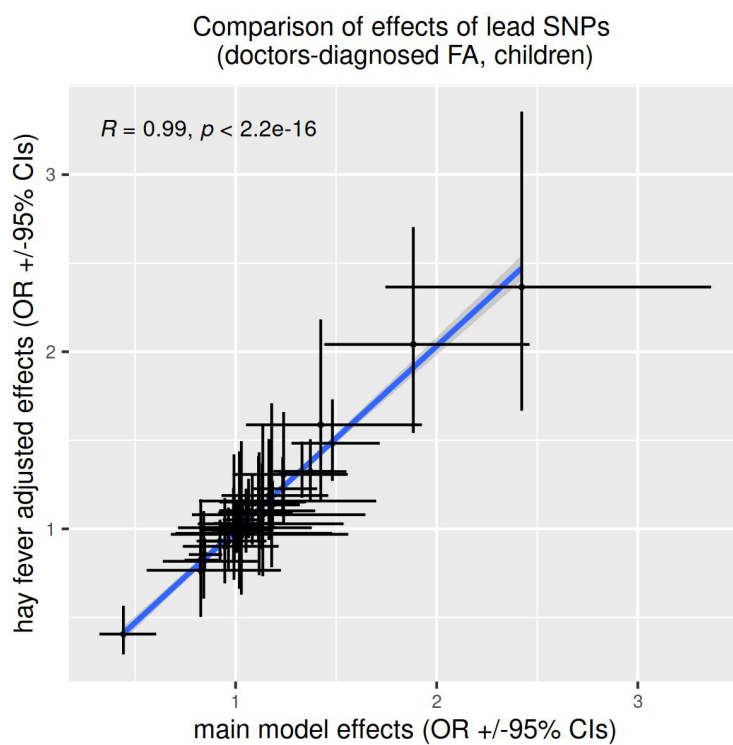
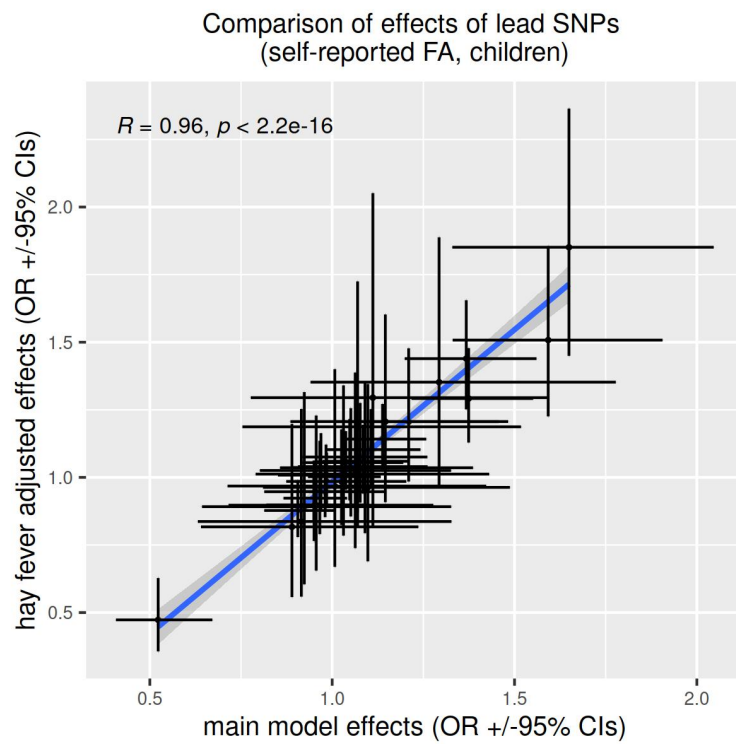
E Reference: Ferreira MA, Vonk JM, Baurecht H, Marenholz I, Tian C, Hoffman JD, et al. Shared genetic origin of asthma, hay fever and eczema elucidates allergic disease biology. Nat Genet. 2017;49(12):1752-7.

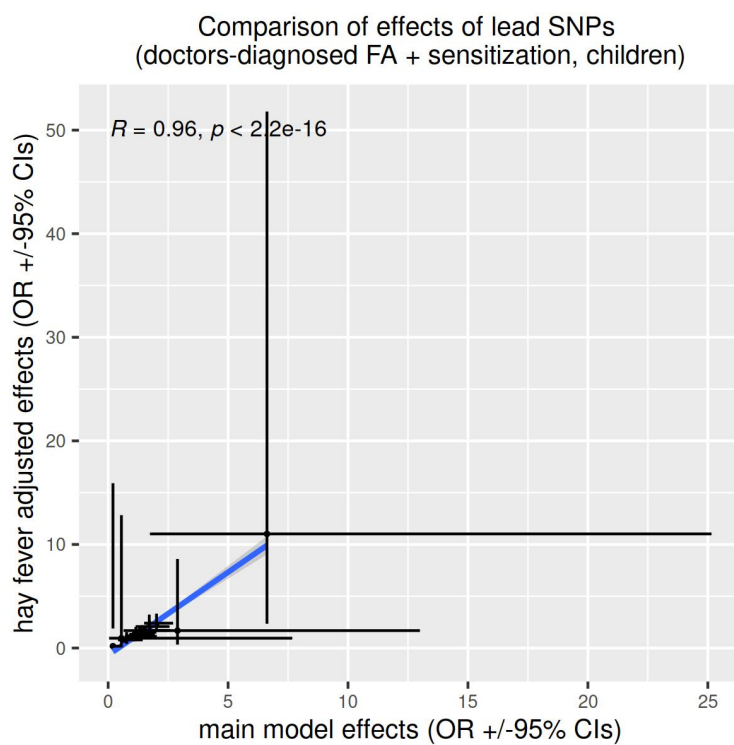
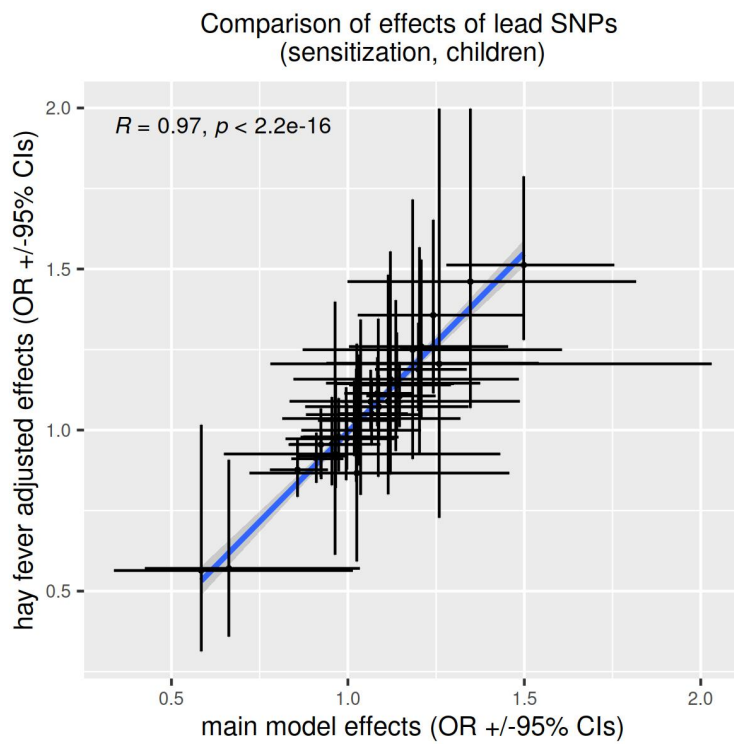


F Reference: Pividori, Milton et al. “Shared and distinct genetic risk factors for childhood-onset and adult-onset asthma: genome-wide and transcriptome-wide studies.” The Lancet. Respiratory medicine vol. 7,6 (2019): 509-522.

Figure E7: Comparison of effect sizes of lead SNPs (N=37) between main model and hay fever adjusted model (OR $\pm$ 95% confidence interval).

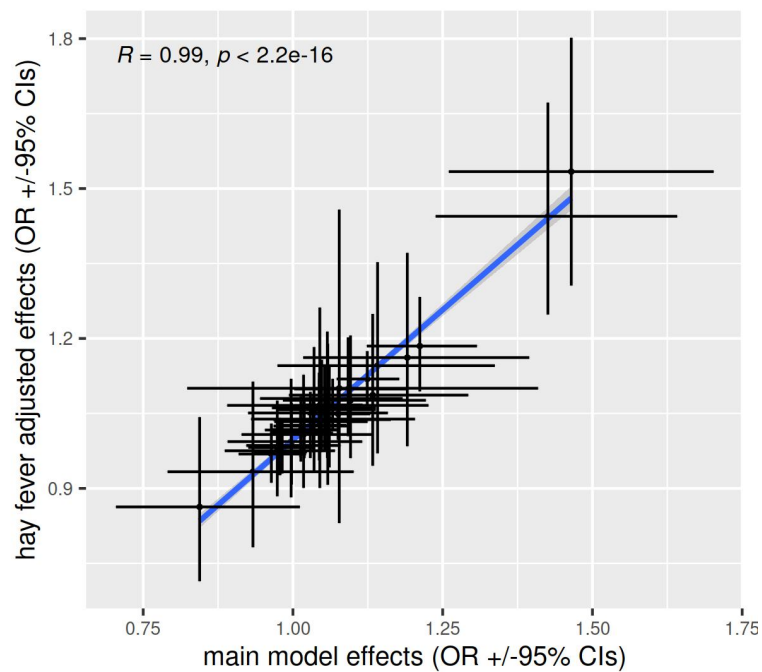
Children



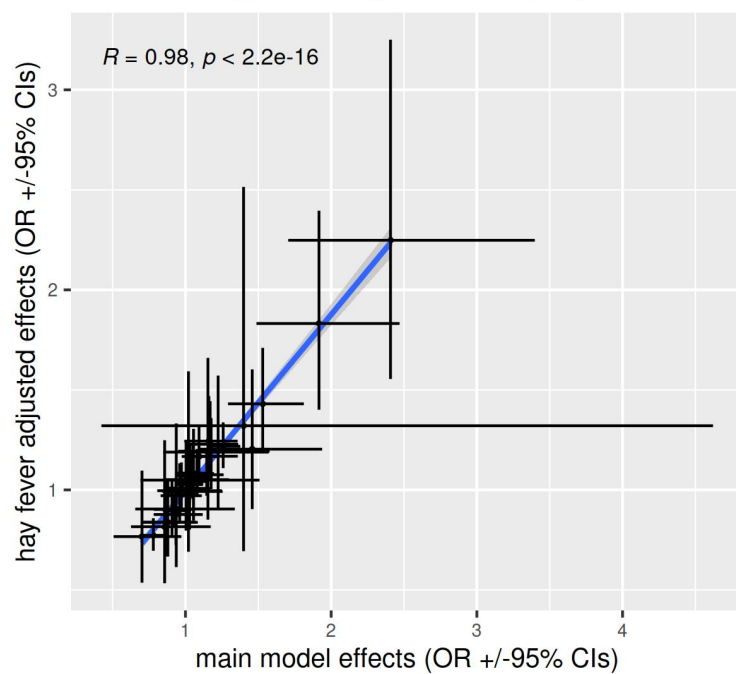


Adults

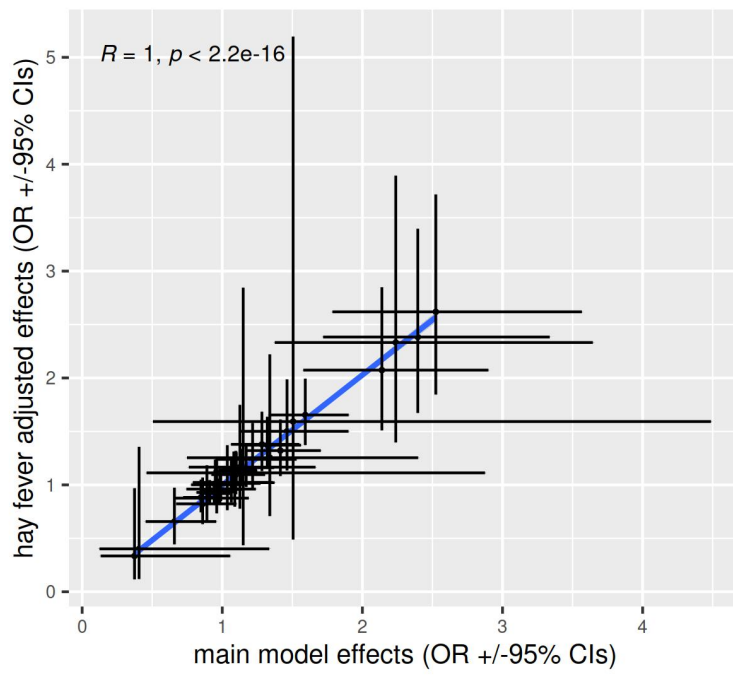
Comparison of effects of lead SNPs
(self-reported FA, adults)



Comparison of effects of lead SNPs
(doctors-diagnosed FA, adults)



Comparison of effects of lead SNPs
(sensitization, adults)



Comparison of effects of lead SNPs
(doctors-diagnosed FA + sensitization, adults)

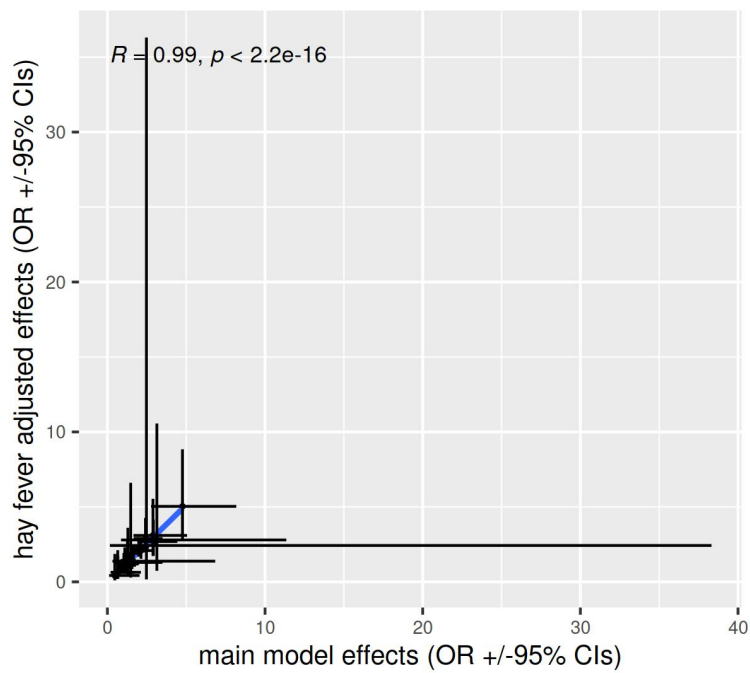
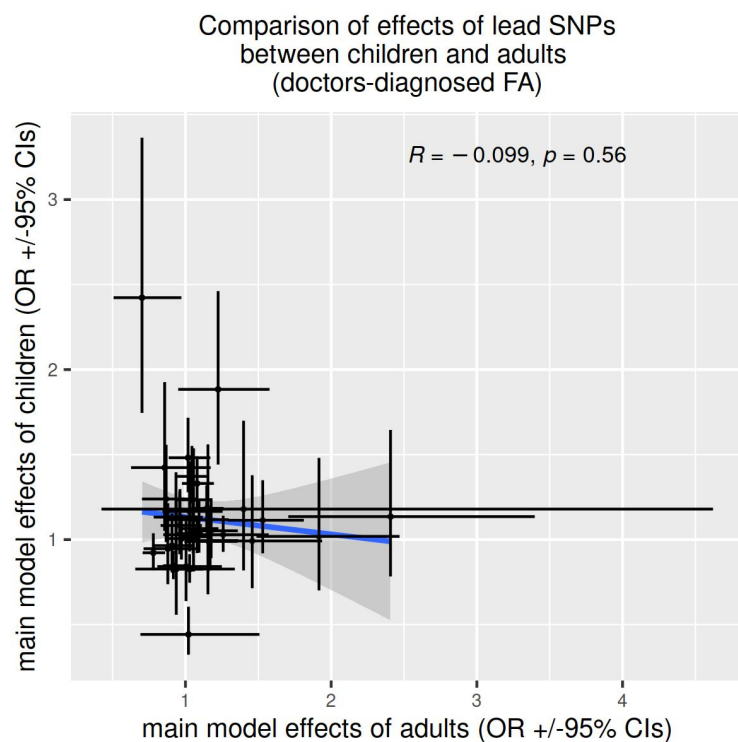
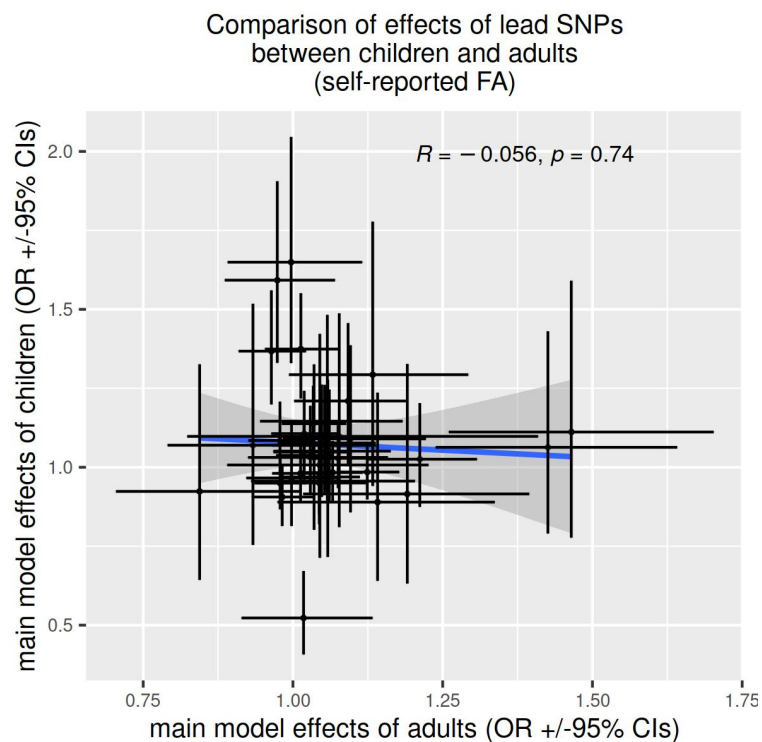
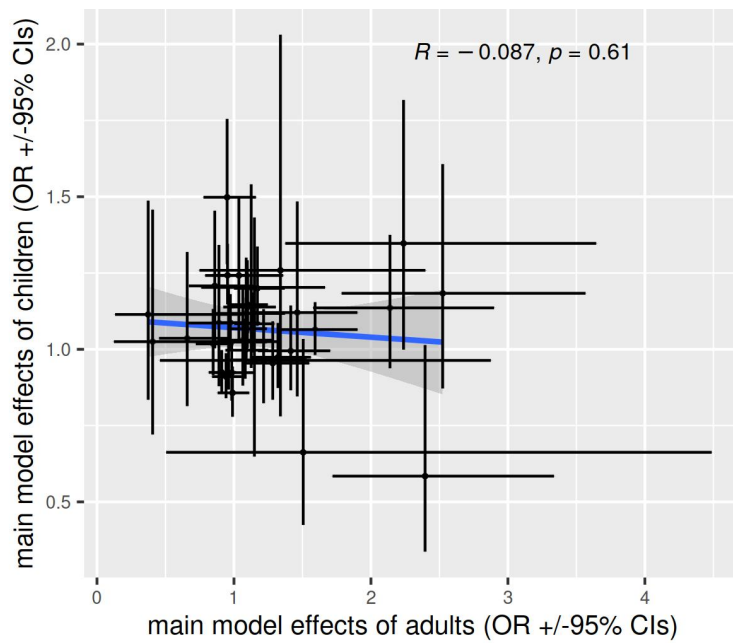


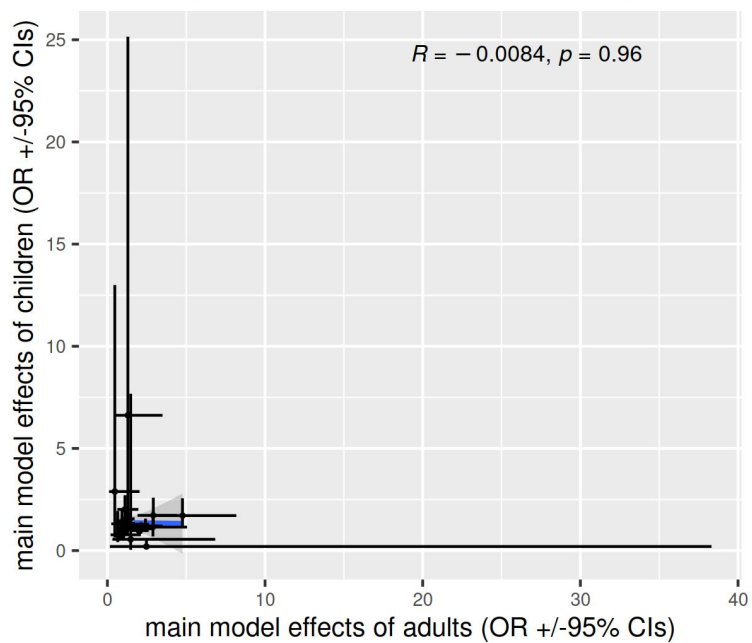
Figure E8: Comparison of effect sizes (OR $\pm$ 95% confidence interval) of lead SNPs (N=37) between children and adults.



Comparison of effects of lead SNPs
between children and adults
(sensitization)



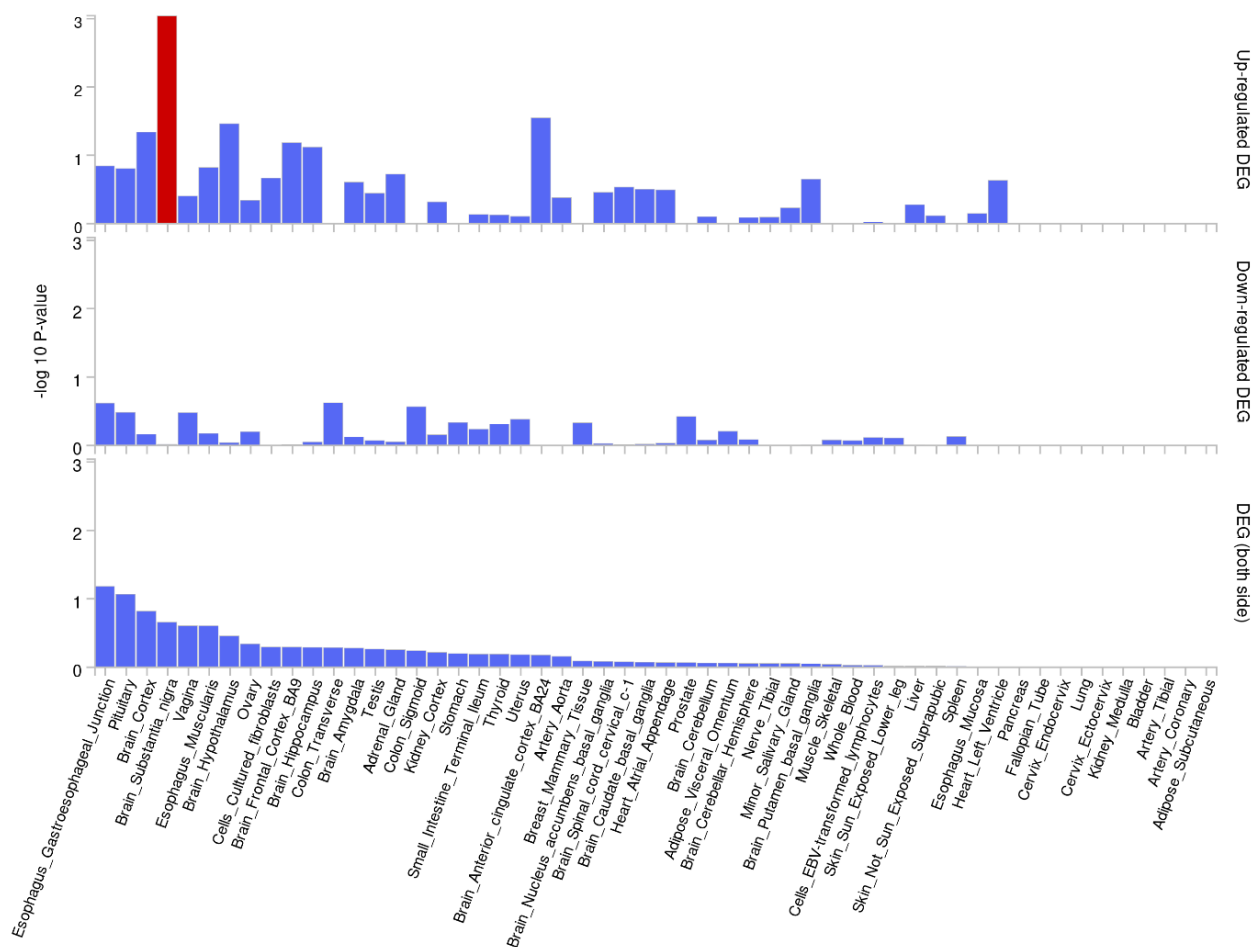
Comparison of effects of lead SNPs
between children and adults
(doctors-diagnosed FA + sensitization)



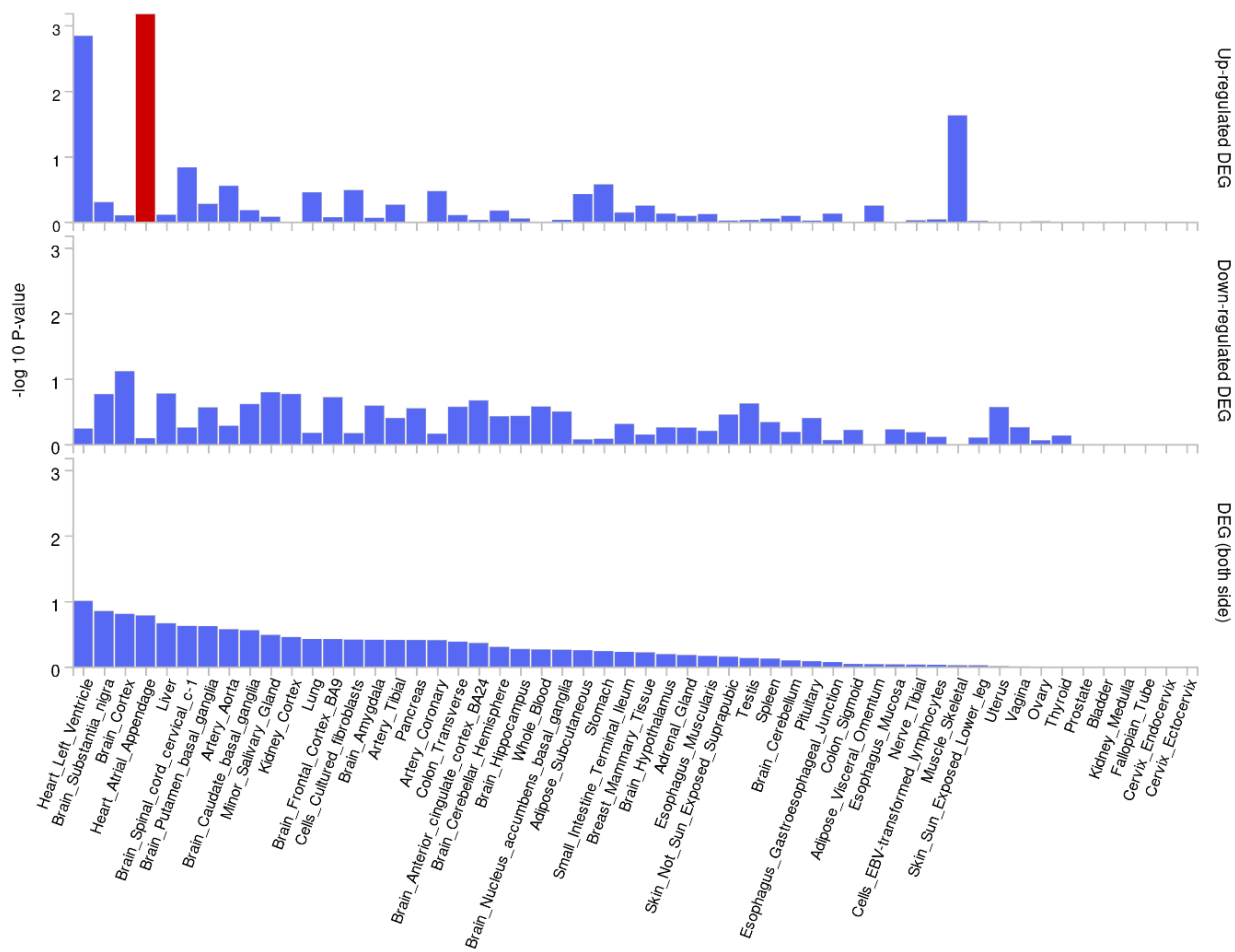
A



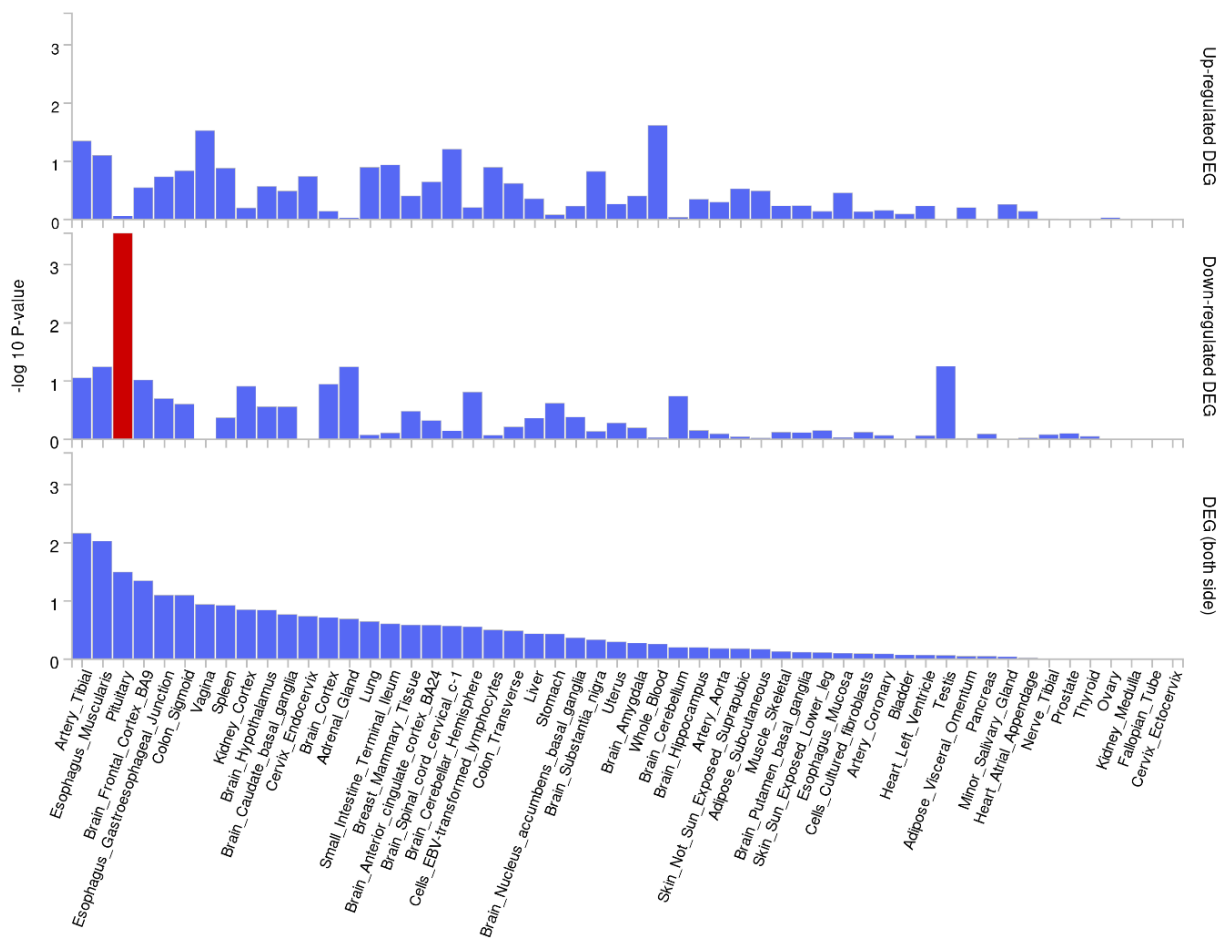
B



C



D



E

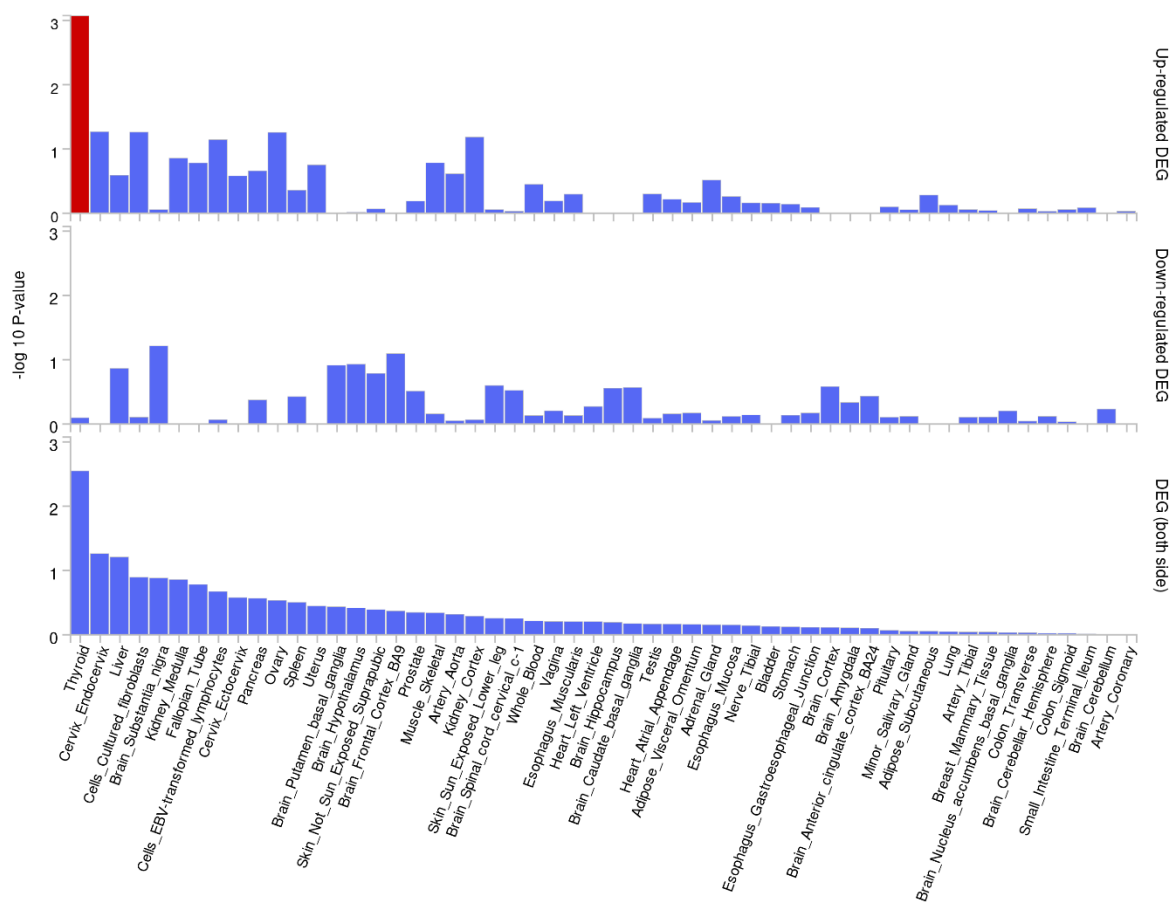
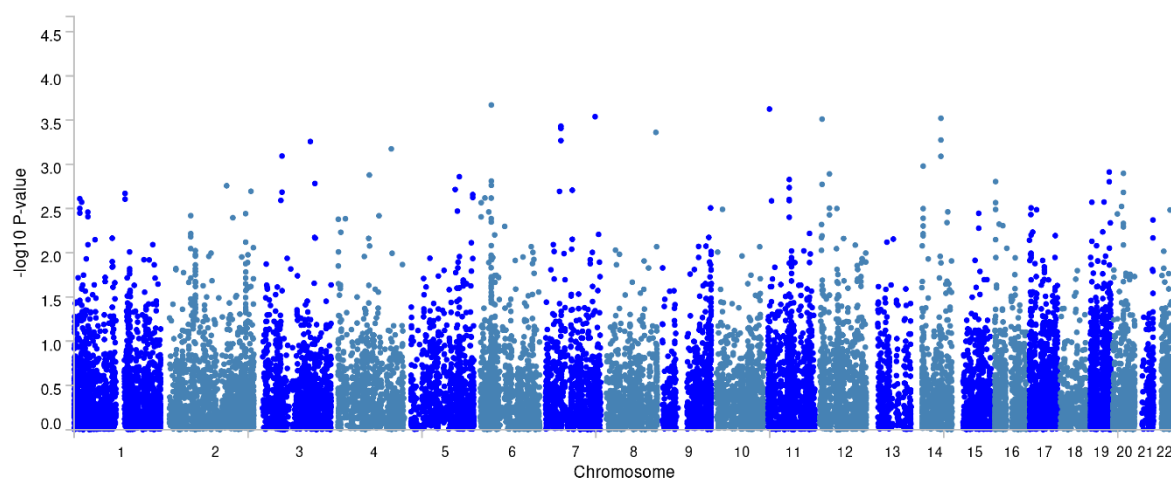
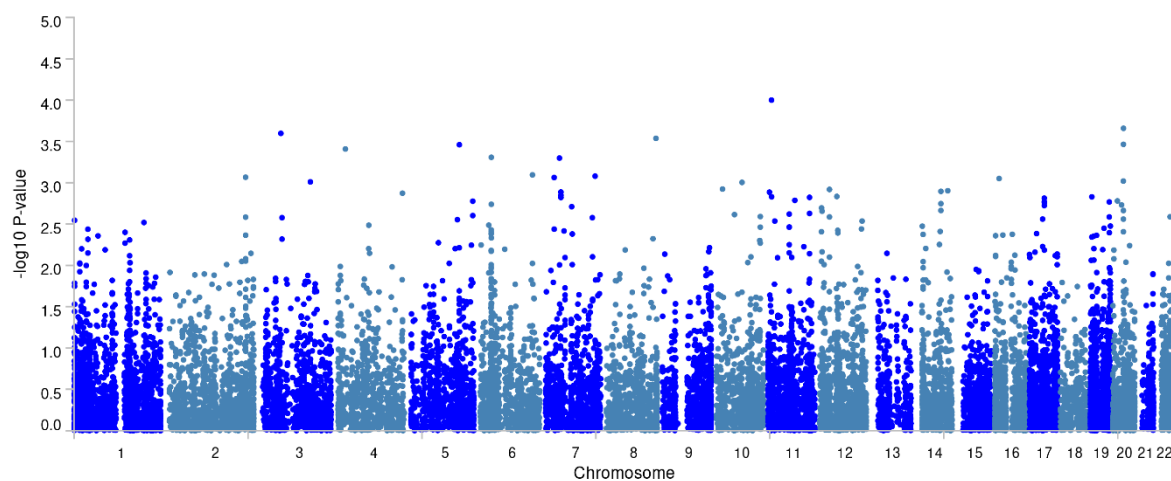


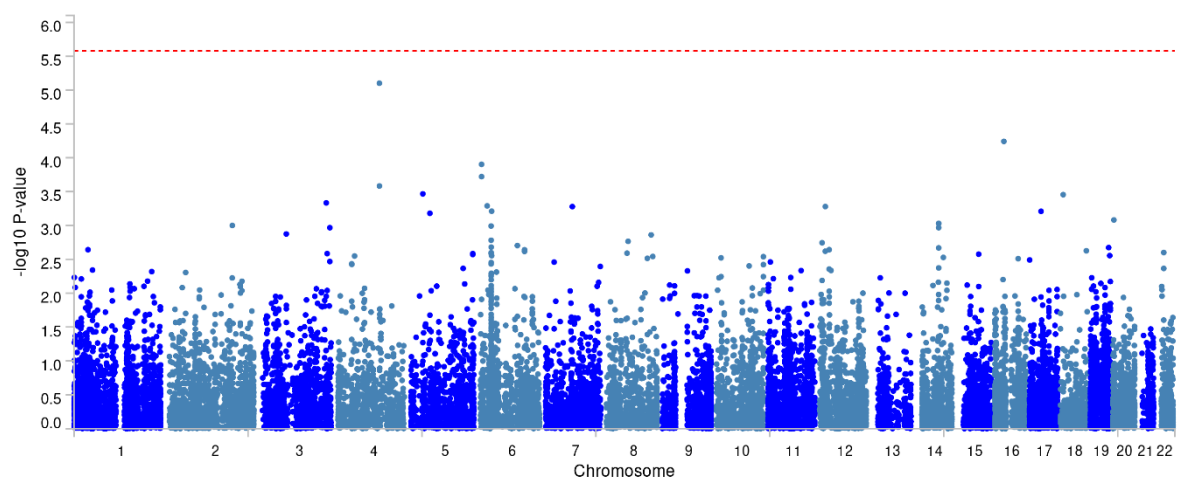
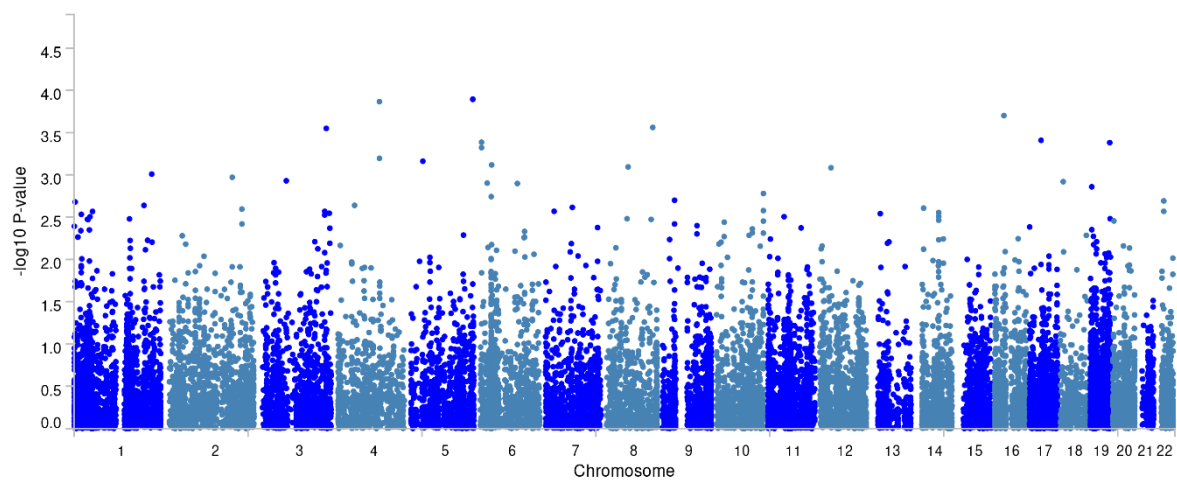
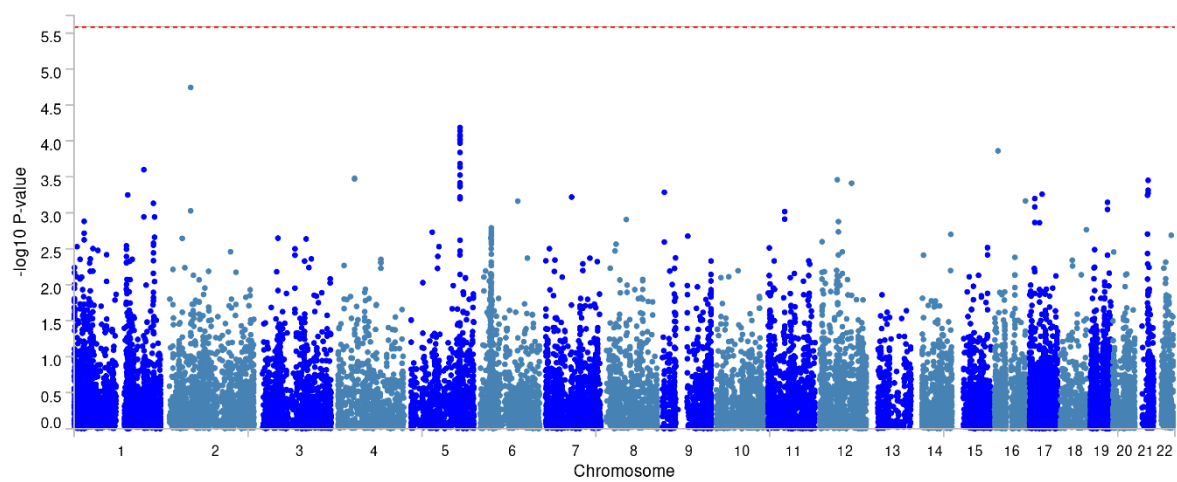
Figure E10: Manhattan plots of gene-based tests computed by MAGMA based on meta-analysis results from children on A) self-reported food allergy main model, B) self-reported food allergy hay fever adjusted model, C) doctors-diagnosed food allergy main model, D) doctors-diagnosed food allergy hay fever adjusted model, E) food-specific sensitization main model, F) food-specific sensitization hay fever adjusted model, G) doctors-diagnosed plus food-specific sensitization main model, H) doctors-diagnosed plus food-specific sensitization hay fever adjusted model.

A



B



C**D****E**

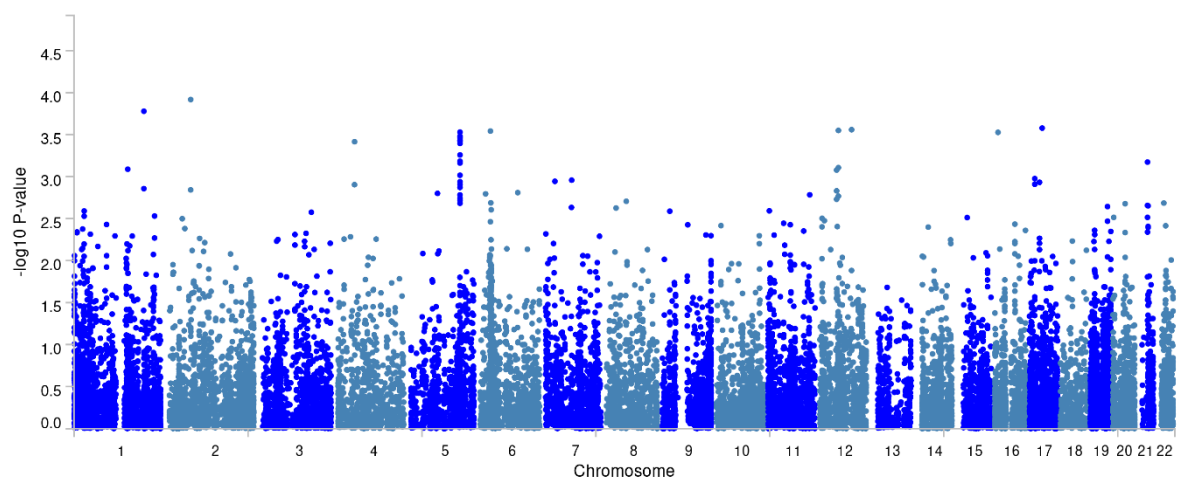
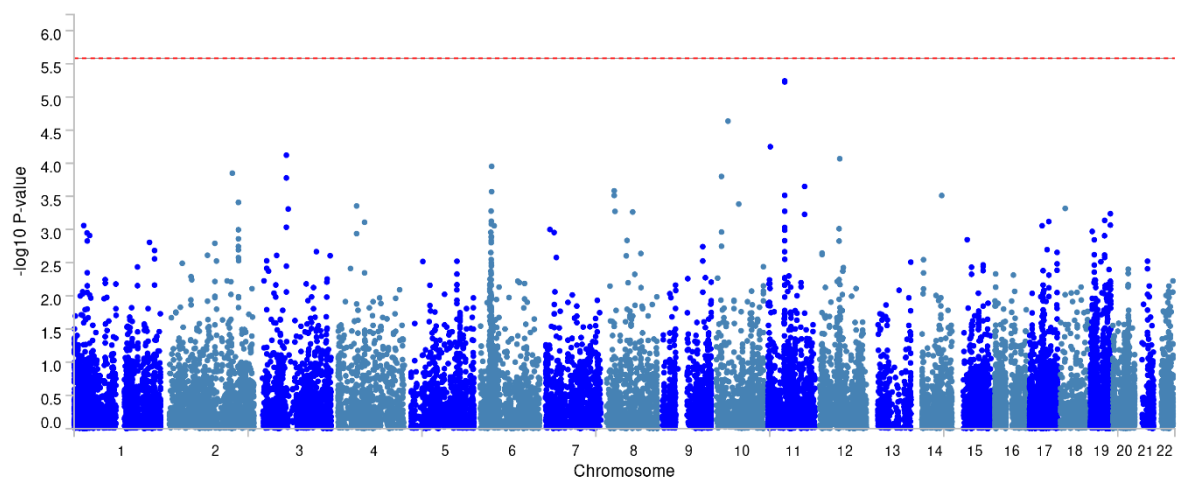
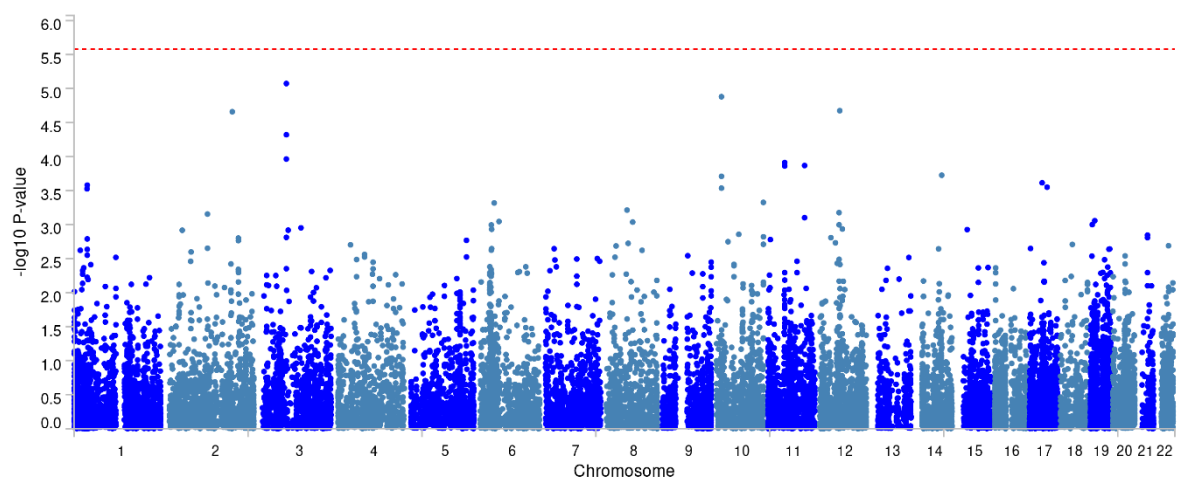
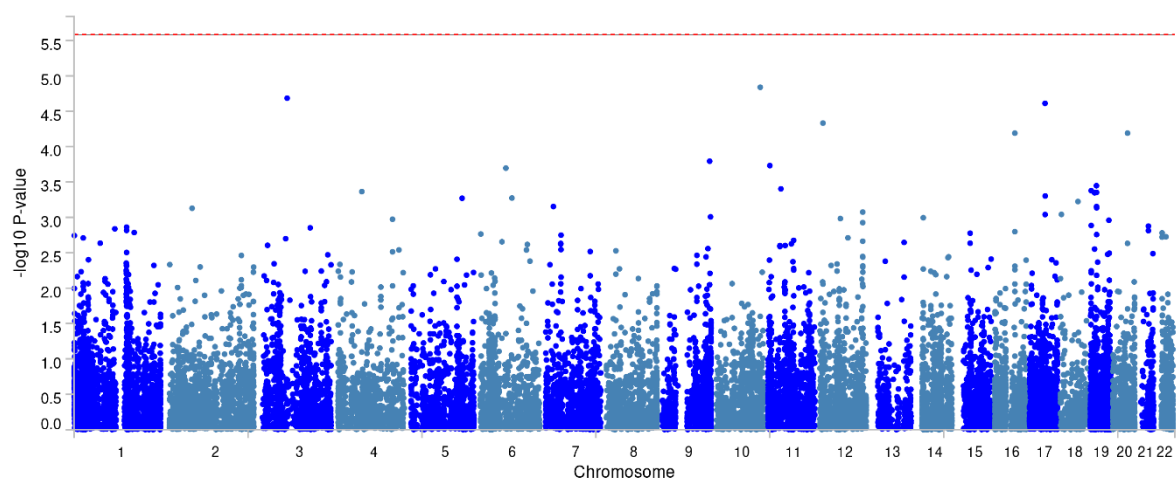
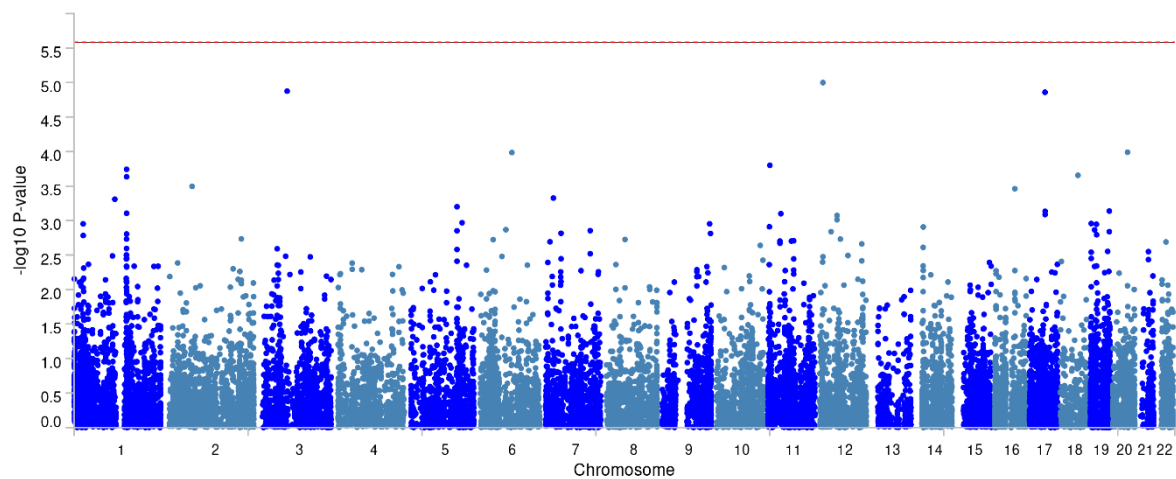
F**G****H**

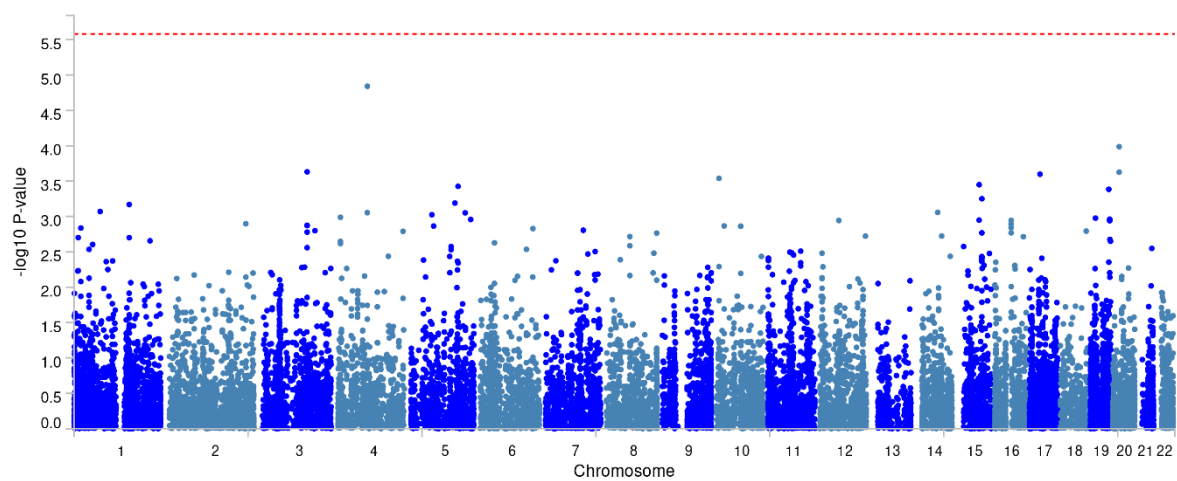
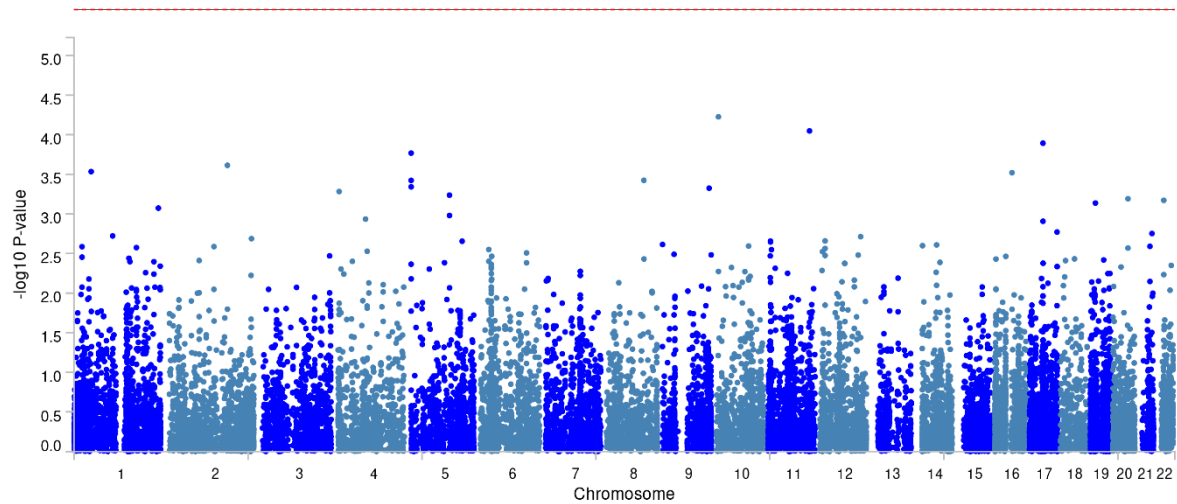
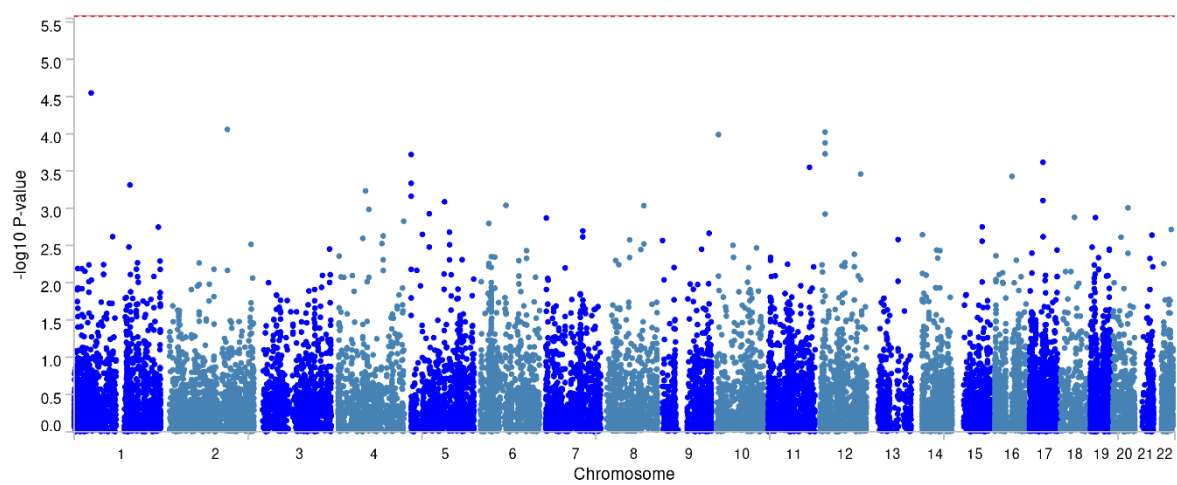
Figure E11: Manhattan plots of gene-based tests computed by MAGMA based on meta-analysis results from adults on A) self-reported food allergy main model, B) self-reported food allergy hay fever adjusted model, C) doctors-diagnosed food allergy main model, D) food-specific sensitization main model, E) food-specific sensitization hay fever adjusted model, F) doctors-diagnosed plus food-specific sensitization main model, G) doctors-diagnosed plus food-specific sensitization hay fever adjusted model.

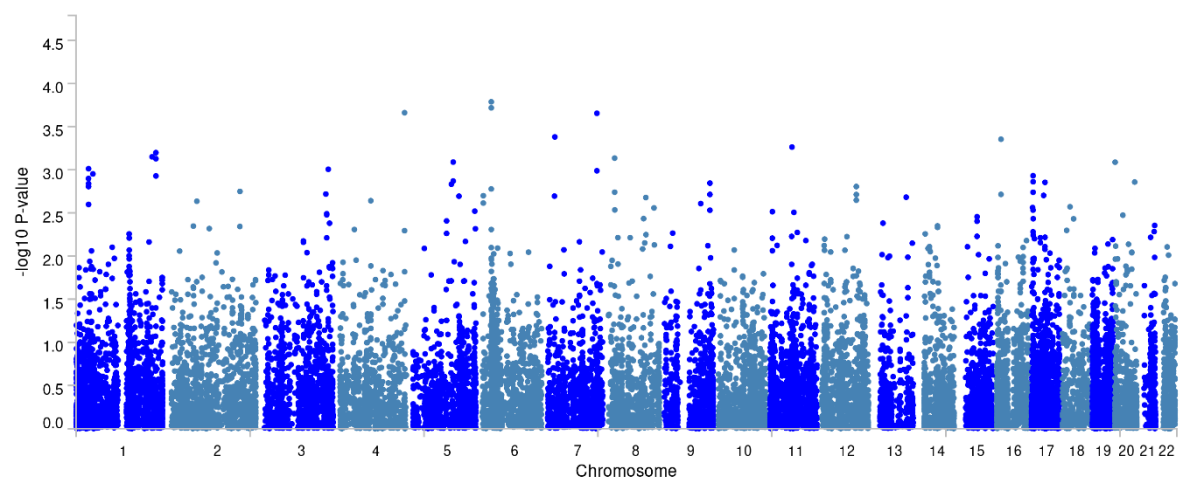
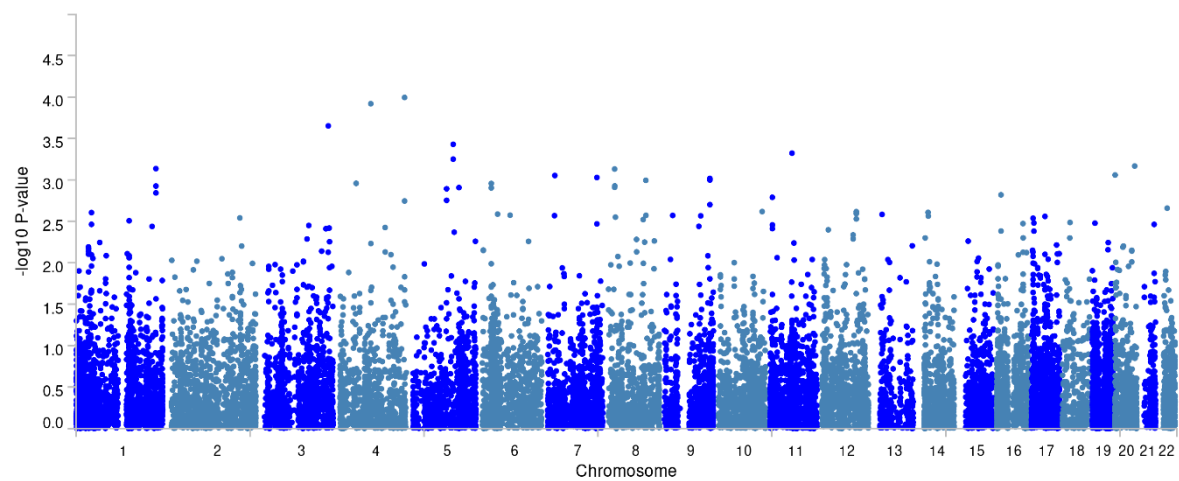
A



B



C**D****E**

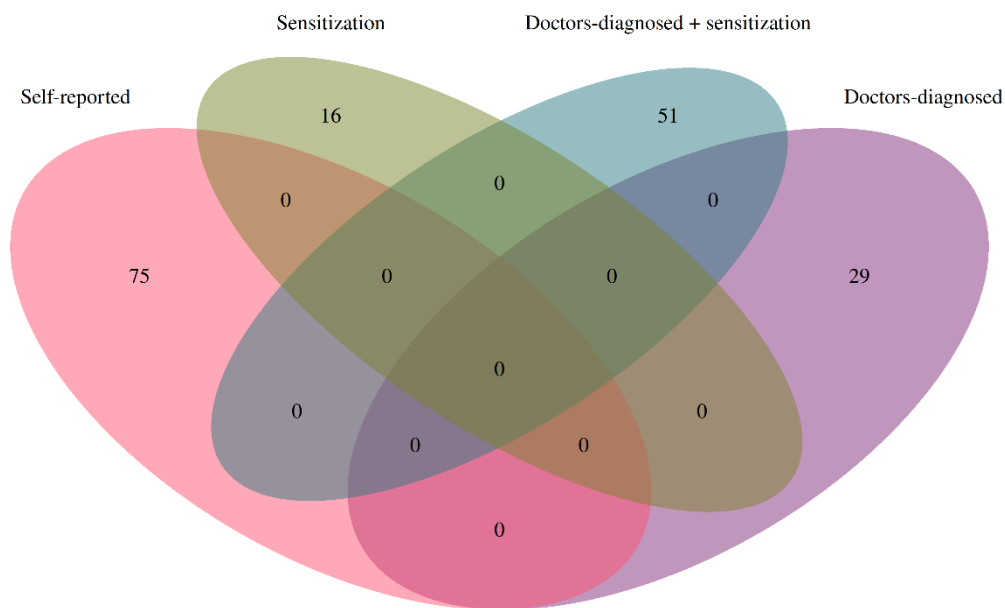
F**G**

A

Overlap of genes from children meta-analyses (hay fever adjusted)

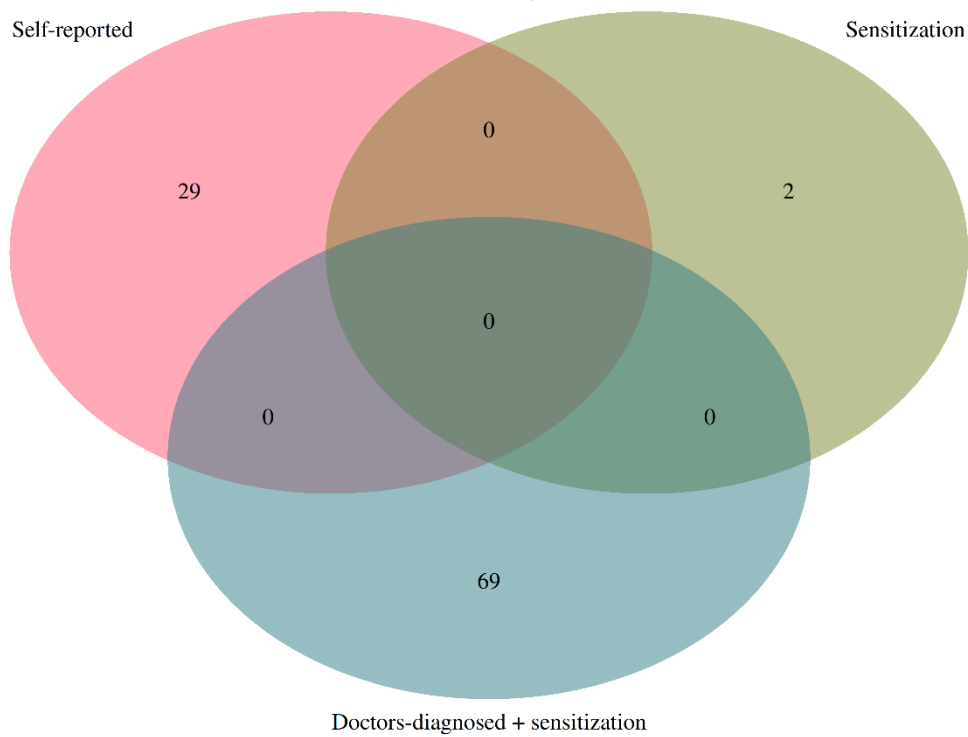


Overlap of genes from adults meta-analyses



C

Overlap of genes from adults meta-analyses
(hay fever adjusted)



D