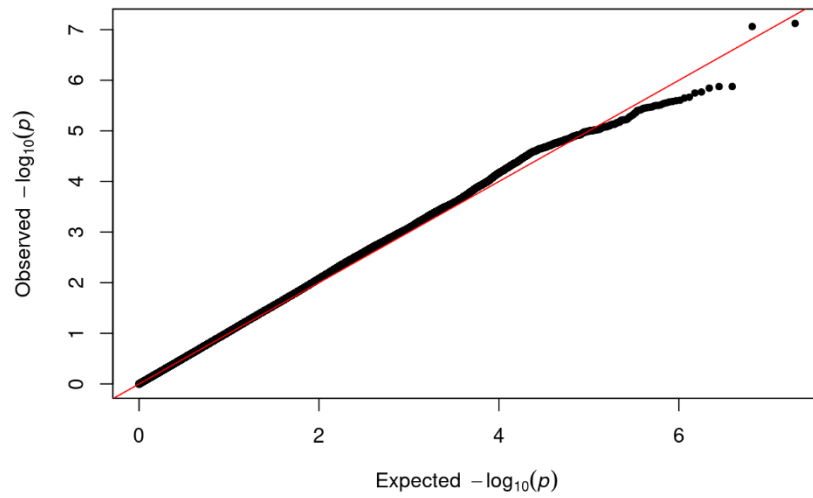
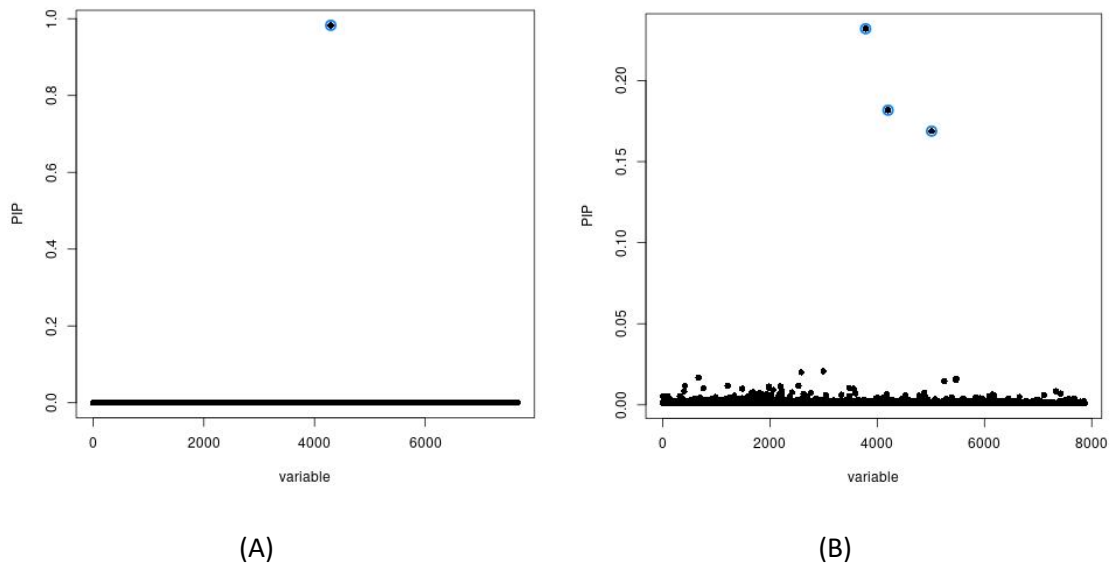


Figure S1: Quantile-quantile plot of genome-wide associations of asthma exacerbations within asthmatics



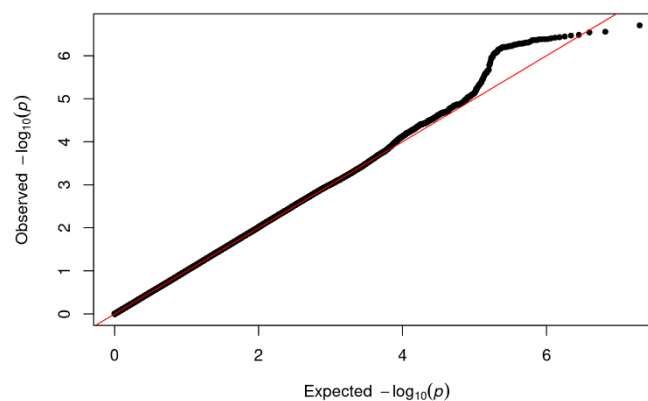
In this plot, observed $-\log_{10} p$ values are plotted on the y axis, while expected $-\log_{10} p$ values are plotted on the x-axis, representing the null-hypothesis. The genomic control ratio (λ) was 1.043, indicating limited p-value inflations resulting from systematic errors such as population stratification.

Figure S2 : Fine-mapping for the two replicated loci.



Credible sets for (A) rs34643691 and (B) rs149721630 identified using susie fine mapping. Variants across each region are ordered by position along the chromosome (x axis) and the y-axis gives the posterior inclusion probability (PIP) of each variant. The higher the PIP the more likely the variant is to be the causal variant. SNPs circled in blue represent those belonging to the 95% credible sets. Both sentinel SNPs identified by our GWAS had the highest PIP within their identified credible sets within the regions.

Figure S3: Quantile-quantile plot of genome-wide associations of SNP by eosinophilia interaction effects on asthma exacerbations within asthmatics



In this plot, observed $-\log_{10} p$ values are plotted on the y axis, while expected $-\log_{10} p$ values are plotted on the x-axis, representing the null-hypothesis. The genomic control ratio (λ) was 1.001, indicating limited p-value inflations resulting from potential systematic errors such as population stratification.

Table S3

SNP	Chromosome	pos (GRCh37)	effect allele	non-effect allele	frequency of effect allele	beta	se	p	Beta (sensitivity)	Se (sensitivity)	P (sensitivity)
rs34336667	1	177780414	AT	A	0.265062	0.091554	0.018991	1.43E-06	0.082209	0.027276	0.002579
rs3806362	1	200589810	T	C	0.081828	0.128766	0.027412	2.63E-06	0.08664	0.039365	0.027741
rs115568045	1	209310112	G	A	0.022435	-0.26182	0.056776	4.00E-06	-0.21122	0.083138	0.011066
rs5833288	2	109065481	CA	C	0.403177	0.070784	0.015474	4.78E-06	0.093651	0.022239	2.54E-05
rs2077471	2	109126070	G	A	0.448662	0.070204	0.015303	4.49E-06	0.092709	0.02203	2.57E-05
rs139774713	5	98065239	G	A	0.018811	0.248577	0.054438	4.97E-06	0.22314	0.076495	0.003533
rs219997	6	12211766	T	C	0.235934	-0.08329	0.018131	4.36E-06	-0.03414	0.026042	1.90E-01
rs219999	6	12211902	A	G	0.236263	-0.08347	0.018086	3.93E-06	-0.03362	0.025973	0.195491
rs149721630	7	48542408	C	T	0.012403	-0.35835	0.077318	3.57E-06	-0.35628	0.116836	0.002293

rs10123706	9	137096238	G	C	0.416947	0.072494	0.015407	2.54E-06	0.075127	0.022187	0.000709
rs10123726	9	137096354	G	C	0.417078	0.072569	0.015407	2.47E-06	0.07463	0.022187	0.000769
rs10123728	9	137096383	G	C	0.417081	0.072883	0.015408	2.24E-06	0.075141	0.022189	0.000708
rs10118100	9	137096413	T	G	0.41715	0.072999	0.015408	2.16E-06	0.075402	0.022188	0.000678
rs7023064	9	137096951	A	G	0.407699	0.071736	0.015486	3.62E-06	0.06749	0.022305	0.002481
rs7855448	9	137098002	A	G	0.407631	0.072343	0.015499	3.05E-06	0.068424	0.022323	0.002175
rs117027695	10	54425901	T	C	0.011521	0.32054	0.069007	3.40E-06	0.306042	0.095629	0.001373
rs7159345	14	43457114	C	A	0.100752	0.114664	0.024829	3.87E-06	0.129778	0.035131	2.21E-04
rs113932584	14	43457848	G	T	0.100713	0.114811	0.024833	3.78E-06	0.131596	0.035119	0.000179
rs1449836	14	43463396	T	G	0.067293	0.159136	0.02959	7.53E-08	0.162851	0.041765	9.65E-05
rs111821465	14	43503967	C	T	0.016421	0.263829	0.056658	3.22E-06	0.273433	0.078011	0.000457
rs59429452	14	43504463	T	G	0.016423	0.262823	0.056654	3.50E-06	0.273281	0.077995	0.000459

14:43505428_TA_T	14	43505428	T	TA	0.015663	0.280799	0.058077	1.33E-06	0.276492	0.080195	0.000565
rs111469671	14	43508371	T	C	0.016343	0.266291	0.056727	2.68E-06	0.278813	0.077991	3.50E-04
rs8015236	14	43510507	C	T	0.016405	0.264012	0.056639	3.14E-06	0.274407	0.077962	0.000432
rs8014358	14	43510518	T	G	0.016424	0.262899	0.056621	3.43E-06	0.273016	0.077958	0.000462
rs73332466	14	43511670	T	A	0.016417	0.263175	0.056626	3.36E-06	0.273702	0.077952	0.000446
rs73332487	14	43514508	A	C	0.016417	0.2638	0.056598	3.15E-06	0.27348	0.077928	0.000449
rs73332500	14	43517217	G	A	0.016775	0.267605	0.05592	1.71E-06	0.275682	0.077005	0.000344
rs772417432	14	43527515	C	CT	0.028771	0.218867	0.046714	2.80E-06	0.290661	0.063521	4.74E-06
rs111798843	14	43531913	C	G	0.016284	0.271463	0.056829	1.78E-06	0.28313	0.078094	0.000288
rs143376019	14	43538506	T	C	0.016304	0.266051	0.056864	2.89E-06	0.284993	0.078009	0.000259
rs34643691	15	88374252	T	C	0.010305	0.380397	0.071069	8.68E-08	0.291286	0.099587	0.003445
rs62077755	17	47560440	C	A	0.028413	0.212136	0.043872	1.33E-06	0.145724	0.062827	0.020371

