

ALLERGY

UPDATE ON ASTHMA AND ALLERGY GENES

9.11.2021

Even the most [recent attempt](#) by [Open Targets](#) integrating basically everything

(GWAS Catalog and UK Biobank) with transcriptomic, proteomic and epigenomic data, including systematic disease-disease and disease-molecular trait colocalization results across 92 cell types and tissues ... trained a machine-learning model ... to distinguish causal genes from neighboring genes, outperforming a naive distance-based model

ended up with nothing new

Hay fever and/or eczema Compare Studies
Johansson A (2018) Hum Mol Genet

Study summary 5

External references: **GWAS Catalog: GC37099717** Study size: 323,607
Published ID: 37381370 N Study: NA
N Replication: NA
N Cases: 84,834

Lead Variant	P-value	Recombination Rate	LD Ratio	95% Confidence Interval	Credible Set Size	LD Set Size	LD ²	Closest Gene	Colocalisation	View
4,3079884_A_G	1.0e-72	0.87	0.88	(0.86, 0.89)	176	10,81	0.87	TDR2	Gene Prioritisation	
11,7650208_G_C	4.0e-70	0.71	0.71	(0.7, 0.72)	58	10,81	0.71	LRRC32	Gene Prioritisation	
2,3023988_G_A	1.0e-63	0.81	0.81	(0.8, 0.82)	89	11,81	0.81	SLMO1	Gene Prioritisation	
5,1113892_G_C	2.0e-58	0.81	0.81	(0.8, 0.82)	67	10,81	0.81	HEK293	Gene Prioritisation	
1,1889272_G_C	5.0e-52	0.71	0.71	(0.7, 0.72)	142	11,81	0.71	TMEM212	Gene Prioritisation	
3,2471982_G_A	0.0e-51	0.80	0.80	(0.79, 0.81)	20	11,81	0.80	GALNT3	Gene Prioritisation	
5,3041882_G_C	1.0e-48	0.81	0.81	(0.8, 0.82)	58	11,81	0.81	SLMO1	Gene Prioritisation	
4,3088472_G_C	0.0e-45	0.81	0.81	(0.8, 0.82)	78	11,81	0.81	HLA-DQB1	Gene Prioritisation	
10,113184_G_A	1.0e-38	0.81	0.81	(0.8, 0.82)	101	11,81	0.81	RAB2	Gene Prioritisation	
2,3023988_G_C	2.0e-33	0.81	0.81	(0.8, 0.82)	67	11,81	0.81	SLMO1	Gene Prioritisation	

Asthma (childhood onset) Compare Studies
Perrais MAR (2018) Am J Hum Genet

Study summary 5

External references: **GWAS Catalog: GC37007900** Study size: 314,633
Published ID: 39269786 N Study: 248,608
N Replication: 13,962
N Cases: 13,962

Lead Variant	P-value	Recombination Rate	LD Ratio	95% Confidence Interval	Credible Set Size	LD Set Size	LD ²	Closest Gene	Colocalisation	View
7,2395992_G_C	1.0e-115	0.27	0.27	(0.25, 0.28)	147	10,81	0.27	CD34	Gene Prioritisation	
2,3023988_G_C	1.0e-67	0.26	0.26	(0.24, 0.27)	98	10,81	0.26	SLMO1	Gene Prioritisation	
1,1889272_G_C	4.4e-57	0.45	0.45	(0.44, 0.47)	9	10,81	0.45	CD3	Gene Prioritisation	
1,1889272_G_C	4.4e-53	0.52	0.52	(0.49, 0.54)	5	9	0.52	HLA-D	Gene Prioritisation	
3,2471982_G_A	1.0e-51	0.30	0.30	(0.29, 0.31)	5	11,81	0.30	SLMO1	Gene Prioritisation	
2,3023988_G_C	4.0e-49	0.26	0.26	(0.25, 0.27)	47	10,81	0.26	SLMO1	Gene Prioritisation	
1,1889272_G_C	2.0e-46	0.22	0.22	(0.21, 0.23)	9	10,81	0.22	CD34	Gene Prioritisation	
1,1889272_G_C	2.0e-46	0.52	0.52	(0.49, 0.54)	5	9	0.52	HLA-D	Gene Prioritisation	
4,3088472_G_C	5.0e-45	0.30	0.30	(0.28, 0.31)	5	11,81	0.30	SLMO1	Gene Prioritisation	
2,3023988_G_C	1.0e-41	0.29	0.29	(0.28, 0.30)	2	11,81	0.29	SLMO1	Gene Prioritisation	

I am glad to see, however, that [my criticism of the ORMDL3 hype](#) has been taken up [by other authors as well](#)

In the first report of the association of the 17q21 locus with asthma, Moffatt et al. suggested ORMDL3 as a promising candidate on the basis of gene expression studies in EBV-transformed lymphoblastoid cell lines 5. However, the function of ORMDL3 remains to be fully elucidated and it is possible that other genes in this region, or more distant genes, contain the true causal variants.

while ORMDL3 isn't appearing at all in the above analysis. So ORMDL3 seems to suffer the same fate as [FcER1b/MS4A2](#) identified by the same group.