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Asthma and IgE associated polymorphisms affect expression of T_H17 genes

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SHORT TITLE

Asthma and IgE linked SNPs affect expression of T_H17 genes

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ABSTRACT

T_H17 cells contribute to the pathogenesis of chronic inflammatory diseases such as asthma and T_H17 pathway tagging SNPs were associated with asthma and total serum IgE levels in childhood. In this study genotype-specific effects of these SNPs on the expression of T_H17 related molecules were analyzed in peripheral blood mononuclear cells (PBMCs) before and after allergen stimulation in 61 individuals. After correction for multiple testing, protein or mRNA expression levels of several molecules, including IL-17A, IL17-F, IL-23 and IL-23 receptor, were significantly correlated with asthma-associated SNPs (located in *IL17F*, *IL22*, *IL23R* and *IL23A*) and IgE-associated polymorphisms (located in *IL17A* and three SNPs in *IL12B*). Most extensive effects on T_H17 pathway expression were observed for the asthma-associated polymorphism *IL17F* rs7741835. In conclusion, genetic variants in *IL17F* and, to a smaller degree, *IL17A* and IL-23 signaling genes associated with asthma and IgE levels seem functional in influencing expression of T_H17 related molecules, indicating a contribution of these mechanisms to genetic susceptibility towards asthma and atopy.

KEYWORDS: T_H17 pathway, polymorphism, asthma, IgE, expression analysis

ABBREVIATIONS

CD	Cluster of differentiation
Ct	Cycle threshold
Derp1	<i>Dermatophagoides pteronyssinus</i> Allergen 1 (house dust mite)
DNA	Deoxyribonucleic acid
IgE	Immunoglobulin E
IL	Interleukin
iTreg	Induced regulatory T cell
LpA	lipid A
n	number of subjects
PBMC	Peripheral blood mononuclear cells
PHA	Phytohemagglutinin
Ppg	Peptidoglycan
qRT-PCR	Quantitative real-time polymerase chain reaction
RFC	Relative fold change (2^{-ddCt})
RNA	Ribonucleic acid
ROR γ t	RAR-related orphan receptor gamma T
SNP	Single nucleotide polymorphism

TGF- β Transforming growth factor β

T_H2 cell T helper 2 cell

T_H17 cell T helper 17 cell

unst. unstimulated

18S rRNA eukaryotic 18S ribosomal RNA

BRIEF COMMUNICATION

T helper 17 cells (T_H17 cells) have been identified as important actors in chronic inflammation and numerous chronic inflammatory diseases (1). Also in asthma, the discovery of this T cell subset, originating from a common naïve CD4⁺ T cell (Fig. 1-A), challenged the classical concept of T_H2 driven asthma pathogenesis (2). T_H17 cells, including their signature cytokines IL-17A, IL-17F and IL-22, were positively correlated with more severe asthma courses including airway obstruction, steroid resistance (3), neutrophilic inflammation (4), and enhanced lung remodeling (5) (Fig. 1-B).

Interestingly, plasticity in T cell differentiation seems also to be influenced by genetic predisposition and a recent study has linked classic concepts of IL-4 driven asthma pathogenesis to T_H17 dependent mechanisms, by showing that a rather common variant, rs1801275, in the IL-4 receptor gene leads to an increased skewing of T cell differentiation from immunosuppressive iTreg cells towards pro-inflammatory T_H17 cells (6). The same single nucleotide polymorphism (SNP) has been correlated to asthma exacerbations, thus suggesting that perturbation of T_H17 cell function may be linked to classical concepts of asthma and allergy more directly than appreciated so far (7). For this reason, we have previously systematically analyzed genetic variants located in genes involved in T_H17 cell development and function in a case-control cohort on childhood asthma in 1,303 children. That study identified tagging SNPs located in ten out of seventeen T_H17 pathway genes to be associated either with asthma (11 SNPs in 7 genes; Fig. 1 ‘*’) or with total serum IgE levels (14 SNPs in 4 genes; Fig. 1 ‘#’) (8). Interestingly, associations were not identical by large between asthma and serum IgE levels, underscoring that mechanisms of asthma and atopy development may differ as well as that high plasticity in the regulation of T_H17 cells exists (9–11).

We now systematically assessed these 25 SNPs associated with asthma or IgE levels for functional effects on gene and protein expression throughout the T_H17 pathway. PBMCs from 61 randomly selected young adults (mean age 32 years; Tab. E1) were stimulated with phytohemagglutinin (PHA), *Dermatophagoides pteronyssinus* (Derp1), lipid A (LpA) or peptidoglycan (Ppg) for 48 hours. Protein levels of cytokines IL-17A, IL-17F, IL-21, IL-22 and IL-23 in PBMC culture supernatants were measured with the Bio-Plex 100 system (Bio-Rad, Munich, Germany; Tab. E4). Transcriptional analysis of *IL1R1*, *IL12B*, *IL17A*, *IL17F*, *IL21*, *IL22*, *IL23A*, *IL23R*, *ROR γ* and *TGFB1* was conducted in PBMC total RNA and normalized to endogenous 18S rRNA expression and inter-run calibrators. The delta cycle threshold (dCt) method was applied to assess baseline expression levels and the relative fold change (RFC, 2^{-ddCt}) method was applied as a measure for the induction or reduction of gene expression upon allergen stimulation. Additional details on SNP genotyping, protein measurements, qRT-PCR assays and statistical models applied to analyze expression data are given in the online supplement (Tab. E2-E6). A *p*-value < 0.05 was regarded as statistically significant and all calculations were carried out with R software (Version 3.0.0) (12). Asthma status and IgE levels of participants showed no

confounding effects on data analysis (data not shown). In order to account for multiple testing and to minimize the risk of reporting false positive results, only polymorphisms for which the ratio between significant associations and tests conducted exceeded the stochastic expectation are highlighted in this study (method adapted from Esparza-Gordillo *et al.*; details in the online supplement) (13). Significant results of further pathway SNPs not exceeding the stochastic expectation are presented in the supplement only (Fig. E1).

A total of four polymorphisms previously associated with asthma (8), located in *IL23A*, *IL23R*, *IL17F*, and *IL22* demonstrated significant effects on protein and gene expression throughout the T_H17 pathway (Fig. 2-A, Tab. E7) with the most extensive impact found for *IL17F* rs7741835, including clear *cis* effects on *IL17F* gene expression after different allergen stimulations. As depicted in Fig. 3-A, subjects homozygous for the asthma risk allele 'C' in rs7741835 expressed significantly higher IL-17F protein levels in PBMCs stimulated with PHA ($p=0.0094$), LpA ($p=0.0277$) and above all Ppg ($p=0.0001$). At the mRNA level, these associations hold true for *IL17F* in samples stimulated with Ppg ($p=0.0004$) and trend-wise in Derp1 ($p=0.0628$). These *cis* effect might indicate a possible mechanism of genetic disease predisposition involving the pro-inflammatory cytokine IL-17F, which has a known role in allergic lung diseases (14) and induction of airway inflammation (15). The same *IL17F* SNP also showed *trans* effects on the expression of other molecules throughout the T_H17 pathway. The majority of *trans* effects was observed in samples stimulated with Ppg, an immune stimulant promoting cell-autonomous as well as whole-organism defense responses (16). Indeed, peptidoglycan recognition proteins, responsible for Ppg-dependent immune responses, have been found to promote T_H2 and T_H17 responses in an asthma mouse model (17). In our study, protein levels of IL-17A and IL-22 were significantly higher in Ppg stimulated samples homozygous for the asthma risk allele and these findings were supported on the mRNA level (Fig. 3-B). Upon Ppg stimulation the 'CC' genotype also exhibited significantly higher mRNA levels for *IL23A* and *IL23R* as well as a significantly weaker reduction of *RORY* and stronger induction of *IL22* levels (Fig. 3-B). Additional effects of *IL17F* rs7741835 in other stimulation conditions included elevated IL-22 protein levels (PHA), elevated mRNA expression of *IL23A* (unst.) and *IL1R1* (Derp1) as well as a further reduction of the *per se* lowly expressed *IL12B* (unst.) and *IL21* (Derp1, LpA) (Fig. 2-A).

In summary, our observation for *IL17F* rs7741835 *trans* effects are in accordance with the known capability of IL-17F to trigger inflammatory effector cytokines (15). Interestingly, the trio IL-17A, IL-17F and IL-22, for which we show uniform significant effects, was previously described to promote airway smooth muscle cell proliferation, potentially leading to airway remodeling, a hallmark of severe asthma (5). To date, however, the involvement of T_H17 cells in more severe phenotypes of asthma, including neutrophilic asthma, is a concept largely based on animal experiments (18–22). Our functional data now gives further support to this concept in a human context. Furthermore, the potential feedback mechanisms responsible for up regulated *trans* expression of *IL23R*, *RORY* and *IL23A* in presence of the *IL17F* rs7741835 asthma risk allele will need to be addressed as these molecules are part of IL-23 signaling and able to further promote T_H17 cell development and thus might trigger more severe asthma phenotypes.

In contrast to *IL17F* rs7741835, the asthma risk alleles of the other three identified SNPs *IL23A* rs2066808, *IL23R* rs790631 and *IL22* rs4144961 displayed in general rather suppressive *trans* effects on T_H17 associated mechanisms with either reduced IL-17A or IL-17F expression (Fig. 2-A). T cell plasticity needs to be acknowledged in this complex context, such that asthma associated SNPs in these genes assigned to the T_H17 pathway, may have suppressive effects on T_H17 cells and

stimulatory effects on other T cell subsets, which were not monitored in our study (23). Furthermore, in this study only one time point 48 hours after allergen stimulation was analyzed due to the extensive number of analytes and conditions, thereby limiting the understanding of regulatory effects taking place over time. Nonetheless, our observations point out potentially relevant mechanisms and feedback loops of disturbed T cell differentiation in asthma. In this context, *IL23R* rs790631 perhaps displayed the most interesting results with uniform effects on *IL1R1* and *RORγ* gene expression changes upon most of the allergen stimulations (RFC panel in Fig. 2-A). In animal models, IL-23R signals play a role in up regulation and maintenance of IL-1R1 expression (24), a key receptor molecule for T_H17 cell differentiation (25) and associated with asthma in humans (26). Our genetic study confirms this functional interaction with a weaker induction of *IL1R1* expression and a stronger reduction of *RORγ* expression in Derp1, LpA and Ppg stimulated samples in presence of the *IL23R* rs790631 asthma risk allele 'T'. This indicates that *IL23R* rs790631 might interfere with T cell differentiation towards a T_H17 character, which is further indicated by significantly reduced IL-17F levels. Indeed, the same genotype-specific decrease in *IL17F* and *RORγ* levels has been previously observed by Lluís *et al.* in cord blood mononuclear cells (27).

Regarding SNPs previously associated with serum IgE levels (8), we observed four polymorphisms located in the genes *IL17A* and *IL12B* to have significant effects on T_H17 pathway gene and protein expression. Unfortunately, functional relevance of *IL21* rs4295278 and rs4833838, showing highly significant associations with IgE levels previously (8), could not be explored due to their low minor allele frequency in our study population. The *IL17A* rs7747909 risk allele, related to higher IgE levels in our previous study (8), was associated with stronger induction of *IL23A* expression and weaker reduction of *IL23R* expression after allergen stimulations (Fig. 2-B, Tab. E8). This suggests a more active IL-23 signaling, which is crucial to T_H17 cell differentiation and is supported by previous observations that knockdown of IL-23 expression has led to decreased serum IgE levels in mice (28). In line with this, we observed that *TGFB1* expression, which is also necessary for T_H17 cell differentiation, was reduced upon allergen stimulation with a significant weaker reduction of *TGFB1* in the IgE risk allele. However, the correlation between T_H17 cells and IgE levels is still controversially discussed. For example, in atopic dermatitis a decrease in T_H17 circulating cells has been associated with increased IgE levels (29), whereas in mice, IgE has been suggested to contribute to the development of allergic asthma through C3a-driven IL-17 responses (30). These inconsistencies might also be reflected by our results for *IL12B* polymorphisms (Fig. 2-B). While one polymorphism associated with elevated IgE levels presented expression changes that in summary might favor T_H17 differentiation and function (*IL12B* rs2546892), the other two polymorphisms revealed effects that might rather oppose T_H17 differentiation and function (*IL12B* rs730691 and rs6868898). However and to conclude expression effects of IgE-associated SNPs, it becomes apparent that in total seven out of 15 significant observations relate to IL-23 signaling.

In summary, our study demonstrates that genetic variants in *IL17F* and, to a smaller degree, *IL17A* and IL-23 signaling genes (*IL23A*, *IL23R*, *IL12B*) associated with asthma and IgE levels seem indeed functional in influencing gene expression of T_H17 related genes. In both phenotypes altered gene expression of IL-23 signaling molecules appear overrepresented. This points to a highly relevant mechanism in T cell differentiation and its pivotal function in T_H1 versus T_H17 cell differentiation due to a shared subunit between IL-12 and IL-23 (31–34). Our study contributes first necessary insights to understand to which extent this delicate T_H17 balance is genetically determined and how it could

be influenced to potentially benefit asthma and allergy patients in a future system medicine approach.

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AUTHOR'S CONTRIBUTION

LW performed qRT-PCR and BioPlex measurements as well as RFLP genotyping, and contributed to data interpretation and drafting the manuscript; VG and SM performed statistical analyses and contributed to data interpretation, MK supervised the study, participated in data interpretation and wrote the final version of the manuscript with MS; MS designed the study, contributed to the EXACT study and data interpretation, performed BioPlex measurements and wrote the final version of the manuscript.

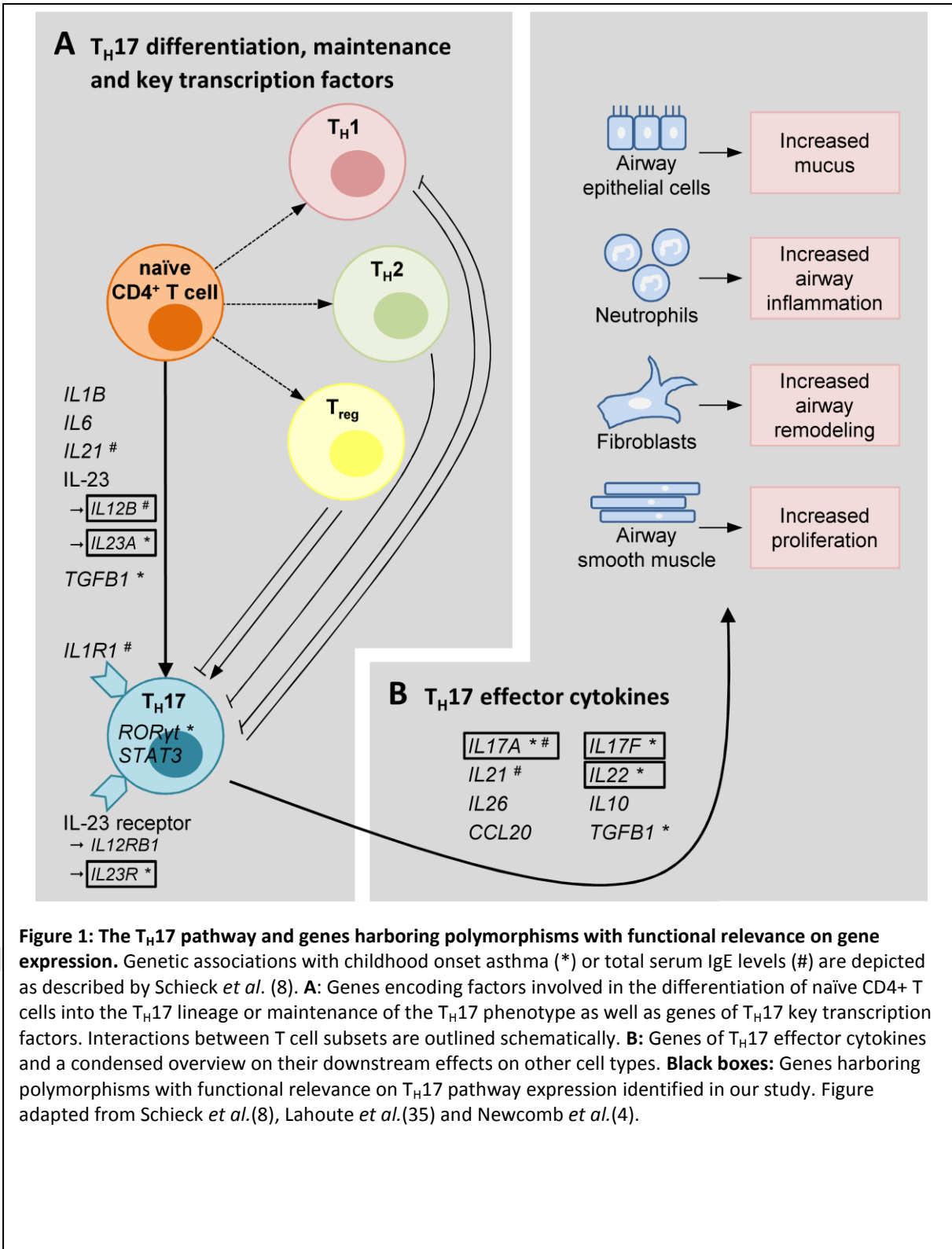
CONFLICT OF INTEREST STATEMENT

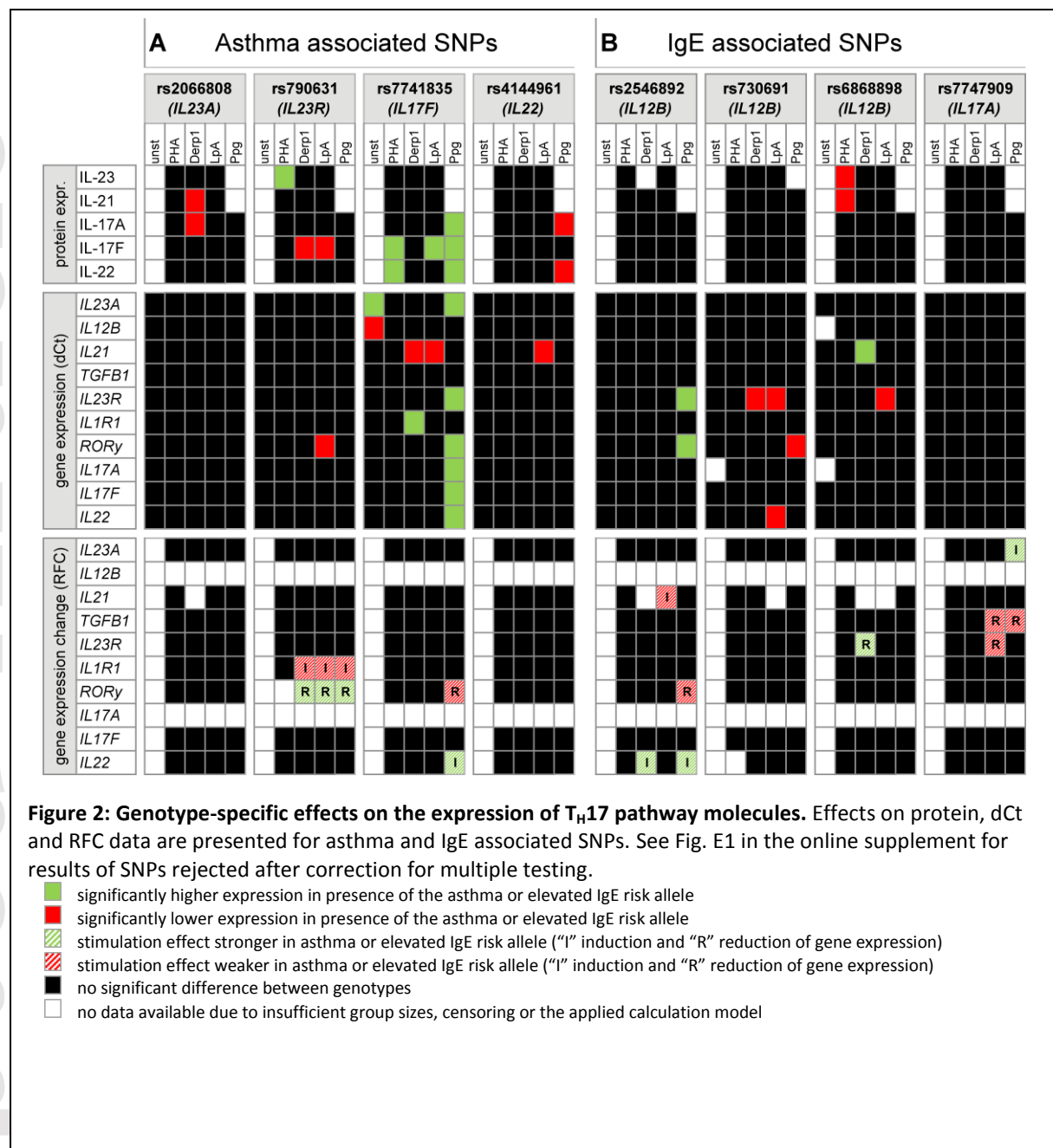
All authors declare that they have no competing financial or personal interests.

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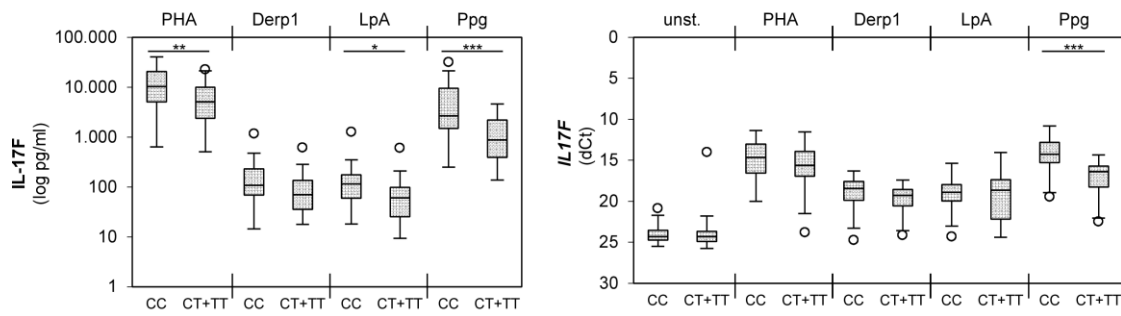
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A Effects of rs7741835 on IL-17F protein and mRNA levels from allergen stimulated PBMCs



B Effects of rs7741835 on T_H17 pathway protein and mRNA levels from Ppg stimulated PBMCs

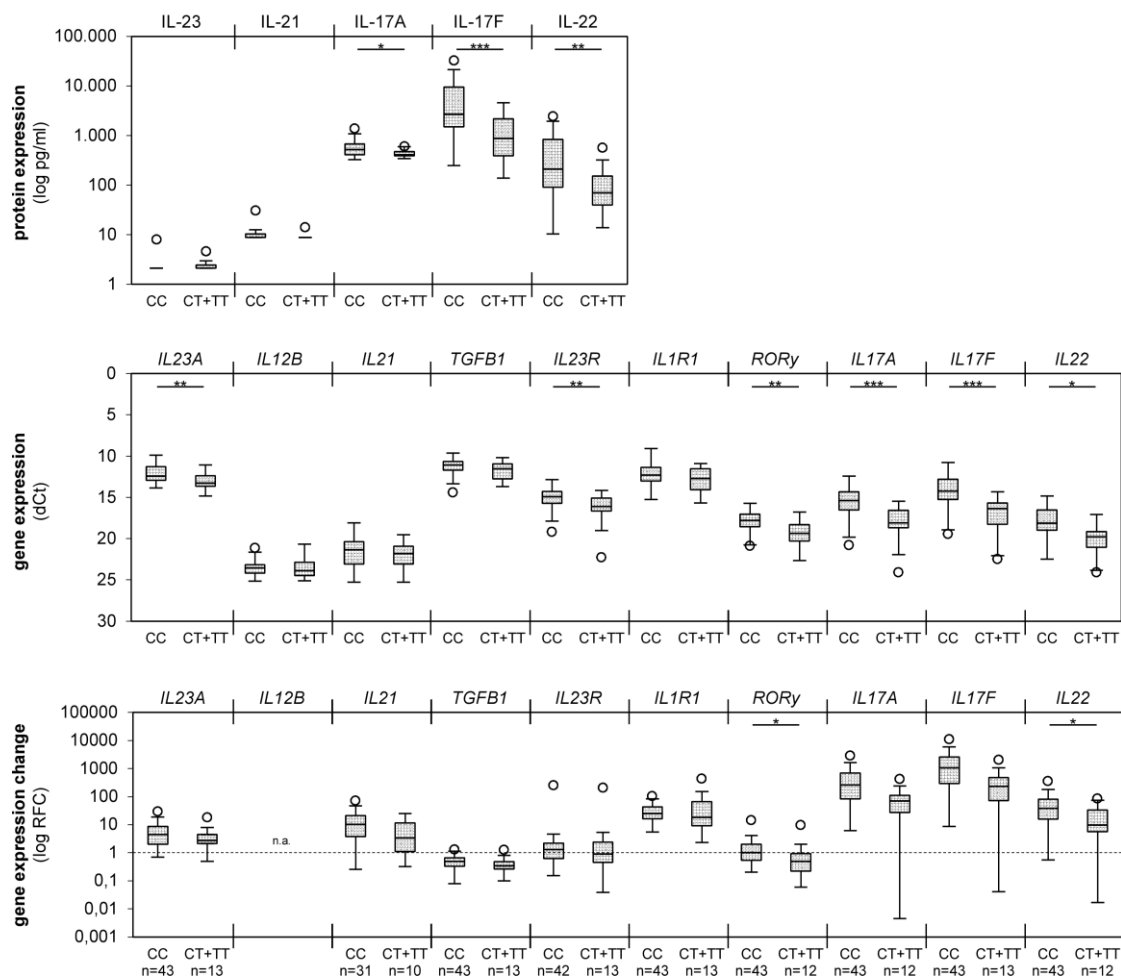


Figure 3. The *IL17F* polymorphism rs7741835 correlates with T_H17 pathway mRNA and protein expression. **A:** *Cis* effects of rs7741835 on IL-17F protein levels were significantly higher for homozygous carriers of the asthma risk C-allele in PHA, LpA and Ppg stimulated PBMC samples. In line with this, higher *IL17F* mRNA expression was observed as a trend in Derp1 samples and with a significant difference in Ppg samples. **B:** *Trans* effects of rs7741835 were observed throughout the pathway, especially in Ppg stimulated PBMCs. Significantly higher IL-17A and IL-22 protein levels were measured in individuals homozygous for the asthma risk C-allele. For the same genotype group, also in mRNA significantly higher levels of *IL23A*, *IL23R*, *RORy*, *IL17A*, and *IL22* mRNA were found. Regarding allergen induced changes in gene expression, significant relative fold changes were found for *RORy* (smaller reduction) and *IL22* (higher induction).

Genotype groups: CC=44 and CT+TT=16 for all protein data and unst. mRNA samples. CC=43 and CT+TT=13 for allergen stimulated mRNA samples.

* p<0.05; ** p<0.01; *** p<0.001.

ONLINE SUPPLEMENT

Asthma and IgE associated polymorphisms affect expression of T_H17 genes

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Study population

Genotype-specific gene and protein expression analyses were performed in a simple random selection of participants from a population of German origin (61 individuals; mean age 32.0 years; Tab. E1) (1). The study was approved by the ethic committee of the Hannover Medical School (Hannover, Germany) and written informed consent was obtained from all participants. From every subject 50 ml of venous blood were drawn and genomic DNA was isolated (FlexiGene DNA Kit Qiagen, Hilden, Germany). Density gradient centrifugation with Ficoll (GE Healthcare Europe GmbH, Freiburg, Germany) was applied for isolation of PBMCs as published previously (2). Isolated PBMCs (5×10^6 cells in 1 ml) were stimulated with phytohemagglutinin (PHA; 5 µg/ml), *Dermatophagoides pteronyssinus* (Derp1; 30 µg/ml), lipid A (LpA; 0.1 µg/µl) or peptidoglycan (Ppg; 10 µg/ml) for 48 hours. Unstimulated PBMCs were not cultured and qRT-PCR results for unstimulated PBMCs are based on cells frozen directly after isolation.

Subjects	61
Males	28
Females	33
Asthma symptoms during adulthood	6 (2 male, 4 female)
Mean age (SD) in years	32.0 (8.7)
Median (IQR) total serum IgE (kU/l)	29.3 (66.7)

Genotyping was performed using matrix-assisted laser desorption/ionization time-of-flight mass spectrometry (MALDI-TOF MS; n=23 SNPs) as described (3) or restriction fragment length polymorphism (rs3917285 and rs949969). The genotyping call rate was at least 96.7% (59 out of 61 subjects).

Gene	Chr.	SNP	Alleles	MAF discovery cohort	Asthma risk allele	elevated IgE risk allele	MAF study cohort	Calculation Model
<i>IL23A</i>	12	rs2066808	A>G	0.08	A	na	0.11	Dom
<i>TGFB1</i>	19	rs10417924	C>T	0.21	T	na	0.19	Dom
<i>IL23R</i>	1	rs790631	T>C	0.31	T	na	0.22	Dom
<i>IL23R</i>	1	rs7517847	T>G	0.42	G	na	0.48	Add
<i>IL23R</i>	1	rs10889675	C>A	0.11	A	na	0.13	Dom
<i>RORyt</i>	1	rs12045886	T>C	0.21	C	na	0.28	Dom
<i>RORyt</i>	1	rs6693413*	G>A	0.49	A	na	0.48	Add
<i>RORyt</i>	1	rs949969	G>A	0.24	G	na	0.27	Dom
<i>IL17A</i>	6	rs9395766	T>G	0.39	G	na	0.38	Add
<i>IL17F</i>	6	rs7741835	C>T	0.20	C	na	0.16	Dom
<i>IL22</i>	12	rs4144961	A>T	0.28	A	na	0.26	Dom
<i>IL12B</i>	5	rs3181225*	G>A	0.17	na	G	0.12	Dom
<i>IL12B</i>	5	rs3212227	T>G	0.20	na	G	0.19	Dom
<i>IL12B</i>	5	rs2569253	T>C	0.50	na	T	0.47	Add
<i>IL12B</i>	5	rs2546892	G>A	0.16	na	G	0.09	Dom
<i>IL12B</i>	5	rs2546893	G>A	0.50	na	G	0.48	Add
<i>IL12B</i>	5	rs730691	C>T	0.37	na	T	0.39	Add
<i>IL12B</i>	5	rs2546890	A>G	0.46	na	G	0.39	Add
<i>IL12B</i>	5	rs6868898	T>C	0.36	na	T	0.38	Add
<i>IL21</i>	4	rs4295278	T>C	0.06	na	T	0.04	Dom
<i>IL21</i>	4	rs4833838	A>G	0.04	na	A	0.01	Dom
<i>IL1R1</i>	2	rs3917285	T>A	0.11	na	T	0.10	Dom
<i>IL1R1</i>	2	rs1030021	A>C	0.29	na	A	0.35	Add
<i>IL17A</i>	6	rs3819025	G>A	0.05	na	A	0.10	Dom
<i>IL17A</i>	6	rs7747909*	G>A	0.23	na	G	0.20	Dom

Table E2. Information on analyzed polymorphisms

Asthma and IgE associated polymorphisms were defined according to a T_H17 pathway analysis by Schieck *et al.* (3). Depending on the MAF a dominant or additive model was applied for statistical calculations. Abbreviations: Chr., chromosome; SNP, single nucleotide polymorphism; MAF, minor allele frequency; na, not applicable; Dom, dominant, Add, additive. *rs6693413, rs3181225 and rs7747909 were genotyped as highly linked substitutions of rs7540530, rs2569254 and rs10484879, respectively.

A.		
SNP	Primer	
rs3917285 (<i>IL1R1</i>)	forward	5'-AATCTGCCGTGAATCCCATCCA-3'
	reverse	5'-TAAGAGGACAGGGACGAACATCA-3'
rs949969 (<i>RORyt</i>)	forward	5'-GGTTCCTGACCTTTGCTTGGC-3'
	reverse	5'-CCTGCACTCCCTTCAATGCC-3'

B.			
PCR conditions for rs3917285 (<i>IL1R1</i>)			
Step		Temperature	Time
1)	Initial denaturation	94°C	2 minutes
2)	Denaturation	94°C	20 seconds
	Annealing	65°C	20 seconds
	Extension	72°C	90 seconds
3)	Final extension	72°C	10 minutes
PCR was performed for 40 cycles			
PCR conditions for rs949969 (<i>RORyt</i>)			
Step		Temperature	Time
1)	Initial denaturation	94°C	2 minutes
2)	Denaturation	94°C	20 seconds
	Annealing	63°C	20 seconds
	Extension	72°C	90 seconds
3)	Final extension	72°C	10 minutes
PCR was performed for 40 cycles			

C.	
Reagent	Volume (µl)
10x ThermoPol Buffer *	3.00
Taq Polymerase *	0.10
Deoxynucleotide triphosphates (10mM) *	0.60
Forward primer (25 pmol/ µl)	0.36
Reverse primer (25 pmol/ µl)	0.36
Genomic DNA (20ng/ µl)	2.00
Water	20.58
Betain (5 mol/l) ‡	3.00
Total	30.00

D.					
<i>IL1R1</i> rs3917285			<i>RORyt</i> rs949969		
TT	TA	AA	GG	GA	AA
1146	1146	-	-	276	276
-	999	999	186	186	-
216	216	216	90	-	-
-	147	147	30	30	30

Table E3. Restriction Fragment Length Polymorphism (RFLP) assays for genotyping of rs3917285 (*IL1R1*) and rs949969 (*RORyt*)

A. Primer sequences. (purchased from Metabion International AG, Martinsried, Germany). **B. Cycling conditions.** **C. PCR mastermix.** Abbreviations: *New England Biolabs (Frankfurt, Germany); †dNTP-Set (PeqLab Biotechnologie GmbH, Erlangen, Germany); ‡Sigma-Aldrich Co. (Steinheim, Germany). **D. RFLP product sizes.** For genotyping of *IL1R1* rs3917285, the PCR product (1361bp) was digested with the restriction enzyme Taqα1. The PCR product (354bp) of the RFLP of *RORyt* rs949969 was digested with BST NI.

Cytokine measurements

Cytokines were measured in duplicates from 50 µl cell culture supernatants of stimulated PBMCs with the magnetic bead-based Bio-Plex 100 system (Bio-Rad, Munich, Germany) either using the Bio-Plex Pro Human Cytokine 17-Plex (IL-17A) or the T_H17 Cytokine panel (IL-23A, IL-21, IL-22 and IL-17F; Bio-Rad). Information on standard curves and detection limits can be accessed from Tab. E4.

Gene (Protein)	Stimulus	Protein					dCt			RFC			
		n	median (pg/ml)	IQR (pg/ml)	Detection limit (pg/ml)		n	median	IQR	n	median	IQR	p stimulus effect
					minimal	maximal							
IL23A (IL-23)	Unst	-	-	-	-	-	61	14.42	1.39	61	1.00	0.00	-
	PHA	60	26.55	17.21	7.09	176172.56	57	10.70	2.48	57	10.06	18.87	8.51E-11
	Derp1	60	8.00	0.00	6.89	153115.26	57	12.88	1.19	57	3.12	3.31	4.32E-09
	LpA	61	7.13	2.15	6.92	157755.62	57	12.16	1.49	57	5.87	9.40	1.17E-10
	Ppg	61	2.14	0.00	2.11	151239.61	57	12.48	1.39	57	3.57	6.49	2.07E-10
IL12B	Unst	-	-	-	-	-	61	23.48	0.91	61	1.00	0.00	-
	PHA	-	-	-	-	-	57	23.46	1.26	17	1.63	2.24	0.0003
	Derp1	-	-	-	-	-	57	23.61	1.16	6	1.39	1.83	1.00
	LpA	-	-	-	-	-	57	23.43	1.09	3	5.71	2.25	0.0145
	Ppg	-	-	-	-	-	57	23.60	1.18	4	1.71	1.42	0.29
IL21 (IL-21)	Unst	-	-	-	-	-	61	24.13	1.90	61	1.00	0.00	-
	PHA	60	70.68	28.36	4.26	229284.53	57	16.14	3.01	57	175.62	636.89	<2,20E-16
	Derp1	60	22.77	18.91	3.62	218821.57	57	23.76	1.70	21	1.59	3.17	6.24E-04
	LpA	61	3.06	2.05	2.42	245977.97	57	23.17	2.23	23	1.80	6.96	4.08E-05
	Ppg	61	8.89	1.48	4.23	233442.65	57	21.44	2.74	41	8.42	17.36	3.71E-13
TGFB1	Unst	-	-	-	-	-	61	10.11	0.82	61	1.00	0.00	-
	PHA	-	-	-	-	-	57	10.16	1.28	57	0.99	0.73	0.52
	Derp1	-	-	-	-	-	57	11.42	1.36	57	0.40	0.31	7.20E-10
	LpA	-	-	-	-	-	57	11.20	1.18	57	0.46	0.33	9.02E-10
	Ppg	-	-	-	-	-	57	11.18	1.28	57	0.46	0.29	1.36E-10
IL23R	Unst	-	-	-	-	-	61	15.49	1.69	61	1.00	0.00	-
	PHA	-	-	-	-	-	57	13.93	1.45	57	2.76	5.90	1.87E-12
	Derp1	-	-	-	-	-	57	16.48	2.13	55	0.42	0.77	0.0011
	LpA	-	-	-	-	-	57	16.36	2.93	56	0.69	1.12	0.0224
	Ppg	-	-	-	-	-	57	15.08	1.56	56	1.08	1.68	0.09
IL1R1	unst	-	-	-	-	-	61	16.91	1.73	61	1.00	0.00	-
	PHA	-	-	-	-	-	57	13.52	1.37	57	8.14	8.76	<2,20E-16
	Derp1	-	-	-	-	-	57	11.52	1.82	57	43.47	55.07	<2,20E-16
	LpA	-	-	-	-	-	57	11.26	1.89	57	46.69	56.16	<2,20E-16
	Ppg	-	-	-	-	-	57	12.38	2.16	57	24.91	33.42	<2,20E-16
RORγ	unst	-	-	-	-	-	61	18.06	1.69	61	1.00	0.00	-
	PHA	-	-	-	-	-	57	14.78	1.49	57	7.74	10.42	<2,20E-16
	Derp1	-	-	-	-	-	57	18.78	1.84	56	0.44	0.65	2.43E-04
	LpA	-	-	-	-	-	57	18.76	1.61	55	0.54	0.73	0.0134
	Ppg	-	-	-	-	-	57	18.23	1.97	56	0.85	1.15	0.74
IL17A (IL-17A)	unst	-	-	-	-	-	61	23.58	1.01	61	1.00	0.00	-
	PHA	60	1487.41	1191.99	6.82	29071.18	57	14.31	2.34	56	605.35	947.86	<2,20E-16
	Derp1	60	330.34	39.01	6.36	29867.00	57	21.20	4.33	29	18.44	28.10	1.79E-12
	LpA	61	246.41	27.17	6.85	29093.03	57	20.63	3.76	27	27.14	32.15	5.73E-13
	Ppg	61	477.59	235.48	5.48	29254.32	57	15.88	2.66	56	177.33	383.19	<2,20E-16
IL17F (IL-17F)	unst	-	-	-	-	-	61	24.33	1.18	61	1.00	0.00	-
	PHA	60	9503.78	13047.34	7.75	43155.52	57	14.88	3.76	56	530.76	2131.13	<2,20E-16
	Derp1	60	100.88	134.56	8.21	37066.12	57	18.84	2.68	55	45.22	80.99	<2,20E-16
	LpA	61	87.71	117.94	2.04	36925.47	57	18.77	2.25	52	39.28	96.37	<2,20E-16
	Ppg	61	2118.47	4252.09	6.48	33996.88	57	14.71	2.93	57	650.42	1370.93	<2,20E-16
IL22 (IL-22)	unst	-	-	-	-	-	61	23.31	1.03	61	1.00	0.00	-
	PHA	60	50.92	48.68	0.86	17697.09	57	22.23	2.78	41	2.92	7.23	2.61E-07
	Derp1	60	24.18	41.21	3.87	18519.33	57	21.22	3.16	48	7.37	12.96	2.36E-10
	LpA	61	16.85	27.65	0.81	18657.10	57	21.26	2.69	44	6.29	10.60	6.15E-11
	Ppg	61	157.12	487.19	0.86	18707.45	57	18.55	2.50	56	32.21	55.49	<2,20E-16

Table E4. Overview on median mRNA and protein expression of T_H17 related molecules

Median protein, dCt and RFC levels per target gene and stimulus as well stimulus effects of allergens. Protein data also includes the minimal and maximal detection limits of the applied standard curves. Duplicates of a four-fold serial dilution of reconstituted standard were used to generate of a nine-point standard curve. Abbreviations: IQR, interquartile range.

Real-time quantitative PCR gene expression analysis

Total RNA was extracted from PBMC pellets (NucleoSpin RNA II kit, Macherey-Nagel, Düren, Germany). Reverse transcription of 1 µg of RNA to complementary DNA (cDNA) was performed with the QuantiTect Reverse Transcription kit (Qiagen).

Pre-designed TaqMan gene expression assays (Thermo Fisher Scientific) were used for gene expression analysis of *IL23A*, *IL12B*, *IL21*, *TGFB1*, *RORy*, *IL23R*, *IL1R1*, *IL17A*, *IL17F* and *IL22* (please note that mRNA expression of total *RORy* was assessed and not the T_H17 cell type-specific transcript *RORyt*). All qRT-PCR reactions were carried out with mi-real-time Probe Master mix (ROX+) (Metabion, Martinsried, Germany) and measured in duplicates. An *18S rRNA* assay was used as endogenous control. Further information on assay numbers and primer sequences can be accessed from Tab. E5. An efficiency of 95% was obtained for the *IL12B* assay (as one example of the efficiency-guaranteed pre-designed TaqMan assays). Efficiency was tested using the cycle threshold (Ct) slope method covering a 6-log range (method adopted from Thermo Fisher Scientific). Efficiency of *18S rRNA* was tested for both cycling conditions (93% efficiency for the 60 seconds elongation condition and 90% efficiency for the 30 seconds elongation condition). To adjust for inter-plate variability, an inter-run calibrator was added in triplicates for each gene on each PCR plate. Relative quantification of PCR products was carried out using the cycle threshold (Ct) method (StepOnePlus Real Time PCR system with StepOne Software v2.2.2; Thermo Fisher Scientific). Baseline target gene mRNA expression levels were evaluated conducting the delta Ct (dCt) method as previously described (1). In brief, for each sample dCt values were calculated by subtracting the Ct value of the reference gene *18S rRNA* from the Ct value of the target gene. Higher dCt values represent lower mRNA expression levels. In order to evaluate effects on the induction or reduction of gene expression upon allergen stimulation, delta delta Ct (ddCt; difference between dCt's of the stimulated and the unstimulated sample) and accordingly relative fold change values (RFC, 2^{-ddCt}) were calculated.

A.		
Gene	TaqMan assay	
<i>IL23A</i>	Hs00372324_m1	
<i>IL12B</i>	Hs01011519_m1	
<i>IL21</i>	Hs00222327_m1	
<i>TGFB1</i>	Hs00171257_m1	
<i>RORγ</i>	Hs01076122_m1	
<i>IL23R</i>	Hs00332759_m1	
<i>IL1R1</i>	Hs00991002_m1	
<i>IL17A</i>	Hs00174383_m1	
<i>IL17F</i>	Hs00369400_m1	
<i>IL22</i>	Hs01574154_m1	

B.		
Forward primer*	5'-AGTCCCTGCCCTTTGTACACA-3'	
Reverse primer*	5'-GATCCGAGGGCCTCACTAAAC-3'	
Fluorescent Probe*	5'-6-Fam-CGCCCCTCGCTACTACCGATTGG-Tamra-3'	

C.			
qRT-PCR Protocol (<i>IL17F</i>, <i>TGFB1</i>, <i>RORγ</i>, <i>IL23R</i> and <i>IL21</i>)			
Step		Temp	Time
1)	Initial denaturation	95°C	2 minutes
2)	Denaturation	95°C	15 seconds
	Annealing and elongation	60°C	60 seconds
PCR was performed for 40 cycles.			
qRT-PCR Protocol (<i>IL17A</i>, <i>IL23A</i>, <i>IL1R1</i>, <i>IL12B</i> and <i>IL22</i>)			
Step		Temp	Time
1)	Initial denaturation	95°C	2 minutes
2)	Denaturation	95°C	15 seconds
	Annealing and elongation	60°C	30 seconds
PCR was performed for 40 cycles.			

Table E5. Details of qRT-PCR measurements.
A. TaqMan gene expression assays. TaqMan assays were purchased from Thermo Fisher Scientific (Darmstadt, Germany). **B. Primers and probe sequences for 18S rRNA measurements.** (purchased from Metabion International AG, Martinsried, Germany). **C. Cycling conditions.**

Statistical analysis

Genotype-specific effects on gene or protein expression of the SNP-harboring gene (*cis* effects) as well as genotype-specific effects on the expression of other T_H17 pathway genes (*trans* effects) were assessed with an additive model. The additive model distinguishes between all possible genotypes (e.g. AA vs. Aa vs. aa). If less than five homozygous minor allele carriers were present, a dominant model was used, which compared homozygous major allele carriers against the combined group of heterozygous allele carriers and homozygous minor allele carriers (e.g. AA vs. Aa+aa). In order to calculate accurate genotype-specific effects a minimum of at least five individuals per genotype group was set for analysis (e.g. Aa+aa $\geq$ 5).

Protein data below or above the detection limit were set to the minimal or maximal detectable concentration of the standard curve and marked as left or right censored, respectively. Lowly expressed and thus undetected mRNA samples were given a Ct value of 40 (the maximum PCR cycle) and marked as censored. In a conservative approach, RFC values obtained from two censored dCt values were excluded from further analysis because no information on a possible induction or reduction of gene expression can be derived. Depending on the presence of censored data different statistical models were applied as proposed by Ballenberger *et*

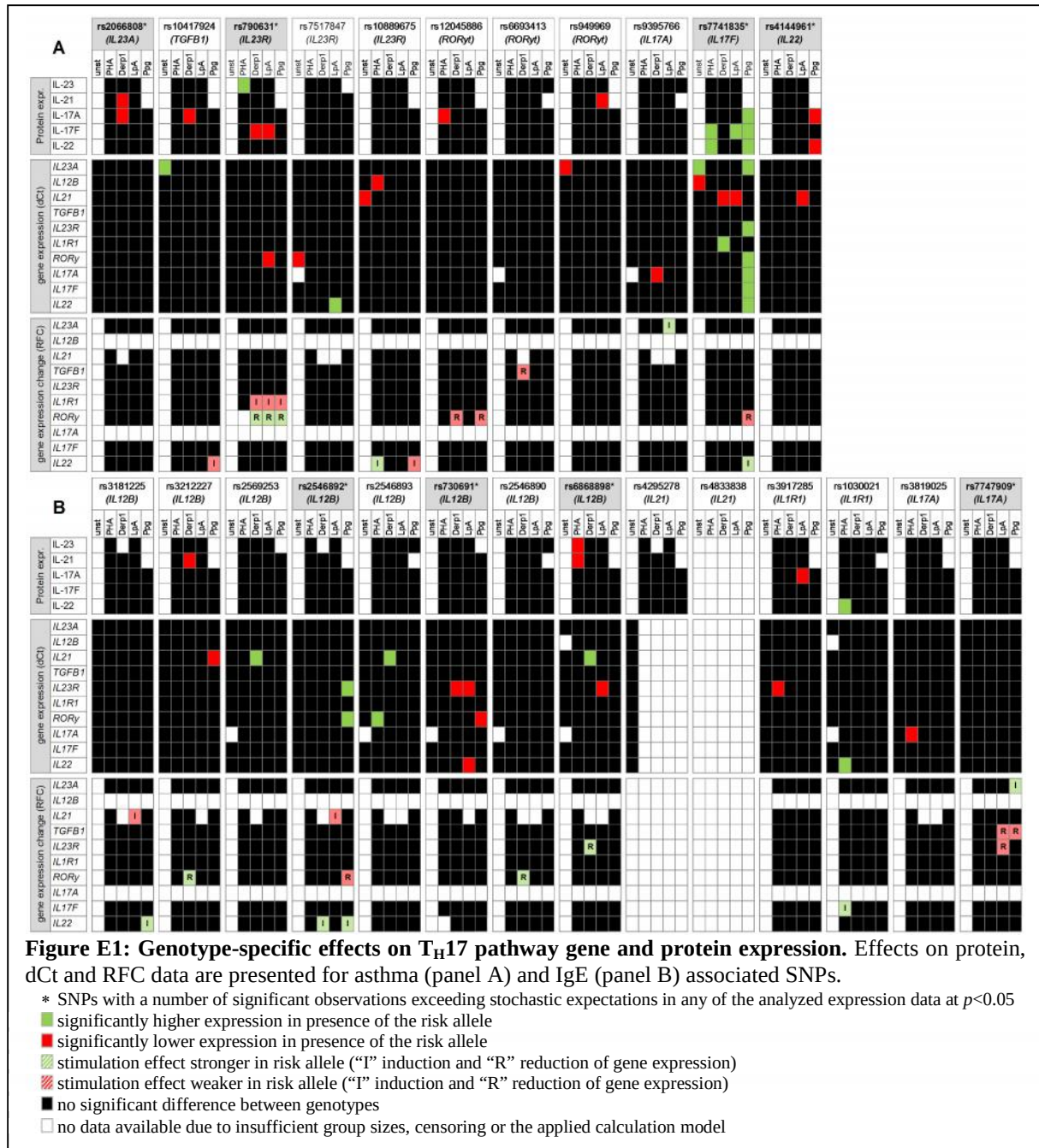
al.(4) and the respective models are listed in Tab. E6. As recommended by Schmittgen *et al.*, dCt values were log transformed to approximate a normal distribution (5). A *p*-value < 0.05 was regarded as statistically significant. All calculations were carried out with R software (Version 3.0.0) (6).

	Additive model		Dominant model	
	Uncensored	Censored	Uncensored	Censored
Protein	linear regression	Tobit regression	Wilcoxon test	Tobit regression
2^{-dCt}	linear regression	Tobit regression	Wilcoxon test	Generalized Wilcoxon
RFC	linear regression	Tobit regression	Wilcoxon test	Tobit regression

Table E6. Statistical calculation models applied to assess SNP effects on T_H17 pathway expression
Differing statistical models depending on the presence of censored data were applied to assess SNP effects. To approximate a normal distribution, dCt values were log transformed.

In order to account for multiple testing and to minimize the risk of reporting false positive results only polymorphisms for which the number of significant associations exceeded the stochastic expectation are highlighted in this study (method adapted from Esparza-Gordillo *et al.*) (7). More precisely, polymorphisms had to display at least two significant associations on the protein level (5 cytokines measured in 4 conditions = 20 tests: 20 x 0.05 = 1 expected false positive result) or at least four significant associations on the mRNA gene expression level (10 genes measured in 5 conditions = 50 tests: 50 x 0.05 ≈ 3 expected false positive results) or at least three significant associations with the induction of gene expression after allergen stimulation (8 genes measured in 4 conditions = 32 tests: 32 x 0.05 ≈ 2 expected false positive results). For completeness, significant results of further pathway SNPs, which did not exceed the stochastic expectation, are presented in this supplement only and these findings need to be interpreted accordingly. The induction of *IL12B* and *IL17A* gene expression could not be analyzed due to the low expression levels of these genes.

Overall, our expression analyses identified 85 significant genotype-specific effects within 2301 tests performed (Fig. E1). After correction for multiple testing, eight SNPs in six genes remained significant. Data for SNPs associated with asthma is presented in Tab. E7 and for SNPs associated with IgE levels in Tab. E8.



SNP	Alleles	Asthma risk allele	Gene (Protein)	Stimulus	Protein (pg/ml)		dCt		RFC		
					Expression stronger (↑)/weaker (↓) in risk allele	p	Expression stronger (↑)/weaker (↓) in risk allele	p	Effect of stimulation	fold change effect stronger (↑)/weaker (↓) in risk allele	p
rs7741835 (IL17F)	C>T	C	IL23A (IL-23)	Unst	-	-	↑	0.0215	-	-	-
				Ppg	-	-	↑	0.0047	↔	↔	0.27
			IL12B	Unst	-	-	↓	0.0339	-	-	-
			IL21 (IL-21)	Derp1	↔	0.87	↓	0.0130	↔	↔	0.28
				LpA	↔	0.31	↓	0.0482	↔	↔	0.61
			IL23R	Ppg	-	-	↑	0.0058	↔	↔	0.68
			IL1R1	Derp1	-	-	↑	0.0416	↔	↔	0.81
			RORγ	Ppg	-	-	↑	0.0068	Reduction	↓	0.0181
			IL17A (IL-17A)	Ppg	↑	0.0116	↑	0.0003	-	-	-
			IL17F (IL-17F)	PHA	↑	0.0094	na	0.71	↔	↔	0.52
				Derp1	↔	0.06	na	0.06	↔	↔	0.52
				LpA	↑	0.0277	na	0.85	↔	↔	0.56
				Ppg	↑	0.0001	↑	0.0004	↔	↔	0.15
			IL22 (IL-22)	PHA	↑	0.0338	na	0.33	↔	↔	0.34
				Ppg	↑	0.0030	↑	0.0212	Induction	↑	0.0122
rs4144961 (IL22)	A>T	A	IL21 (IL-21)	LpA	↔	0.28	↓	0.0346	↔	↔	0.57
			IL17A (IL-17A)	Ppg	↓	0.0448	na	0.64	-	-	-
			IL22 (IL-22)	Ppg	↓	0.0425	na	0.21	↔	↔	0.09
rs790631 (IL23R)	T>C	T	IL23A (IL-23)	PHA	↑	0.0137	na	0.16	↔	↔	0.20
			IL1R1	Derp1	-	-	na	0.85	Induction	↓	0.0264
				LpA	-	-	na	0.31	Induction	↓	0.0012
				Ppg	-	-	na	0.57	Induction	↓	0.0255
			RORγ	Derp1	-	-	na	0.25	Reduction	↑	0.0472
				LpA	-	-	↓	0.0346	Reduction	↑	0.0037
				Ppg	-	-	na	0.59	Reduction	↑	0.0196
			IL17F (IL-17F)	Derp1	↓	0.0264	na	0.24	↔	↔	0.32
				LpA	↓	0.0304	na	0.17	↔	↔	0.41
rs2066808 (IL23A)	A>G	A	IL21 (IL-21)	Derp1	↓	0.0036	na	0.13	-	-	-
			IL17A (IL-17A)	Derp1	↓	0.0392	na	0.33	-	-	-

Table E7. Result summary - asthma associated SNPs

Significant results of selected asthma associated SNPs for respective genes / cytokines and stimulations. The exact median differences can be accessed from Tab. E9. Abbreviations: ↔, no clear trend between respective genotypes.

SNP	Alleles	Risk allele for higher IgE	Gene (Protein)	Stimulus	Protein (pg/ml)		dCt		RFC		
					Expression stronger (↑)/weaker (↓) in risk allele	p	Expression stronger (↑)/weaker (↓) in risk allele	p	Effect of stimulation	fold change effect stronger (↑)/weaker(↓) in risk allele	p
rs7747909 (IL17A)	G>A	G	IL23A (IL-23)	Ppg	-	-	↔	0.16	Induction	↑	0.0405
			TGFB1	LpA	-	-	↔	0.08	Reduction	↓	0.0076
				Ppg	-	-	↔	0.08	Reduction	↓	0.0139
			IL23R	LpA	-	-	↔	0.70	Reduction	↓	0.0308
rs730691 (IL12B)	C>T	T	IL23R	Derp1	-	-	↓	0.0095	↔	↔	0.25
			LpA	-	-	↓	0.0068	↔	↔	0.24	
			RORy	Ppg	-	-	↓	0.0338	↔	↔	0.22
			IL22 (IL-22)	LpA	↔	0.21	↓	0.0170	↔	↔	0.74
rs2546892 (IL12B)	G>A	G	IL21 (IL-21)	LpA	↔	0.49	↔	0.83	Induction	↓	0.0189
			IL23R	Ppg	-	-	↑	0.0351	↔	↔	0.19
			RORy	Ppg	-	-	↑	0.0207	Reduction	↓	0.0297
			IL22 (IL-22)	Derp1	↔	0.09	↔	0.31	Induction	↑	0.0308
				Ppg	↔	0.15	↔	0.46	Induction	↑	0.0294
rs6868898 (IL12B)	T>C	T	IL23A (IL-23)	PHA	↓	0.0190	↔	0.42	↔	↔	0.19
			IL21 (IL-21)	PHA	↓	0.0392	↔	0.97	↔	↔	0.51
				Derp1	↔	0.96	↑	0.0466	-	-	-
			IL23R	Derp1	-	-	↔	0.57	Reduction	↑	0.0174
				LpA	-	-	↓	0.0434	↔	↔	0.07

Table E8: Result summary - IgE associated SNPs

Significant results of selected IgE associated SNPs for respective genes / cytokines and stimulations. Exact median differences can be accessed from Tab. E9. Abbreviations: ↔, no clear trend between respective genotypes.

Table E9. SNP effects on gene and protein expression

Median protein, dCt and RFC values for respective genotypes of T_H17 SNPs. Positive estimates and median differences resemble higher expression in presence of the minor allele. Please note, log-transformation of dCt values for linear regression analysis causes estimates and standard errors to become very small compared to other statistical models applied.

Abbreviations: IQR, interquartile range; Est, estimate; SE, standard error; -, no data available; na, data not available due to insufficient group sizes, censoring or applied calculation model. *, no *p*-value could be calculated as only one value was uncensored in the genotype groups for one of the stimulations.

SNP order: A: IL23A rs2066808; B: TGFB1 rs10417924; C: IL23R rs790631; D: IL23R rs7517847; E: IL23R rs10889675; F: RORy rs12045886; G: RORy rs6693413; H: RORy rs949969; I: IL17A rs9395766; J: IL17F rs7741835; K: IL22 rs4144961; L: IL12B rs3181225; M: IL12B rs3212227; N: IL12B rs2569253; O: IL12B rs2546892; P: IL12B rs2546893; Q: IL12B rs730691; R: IL12B rs2546890; S: IL12B rs6868898; T: IL21 rs4295278; U: IL21 rs4833838; V: IL1R1 rs3917285; W: IL1R1 rs1030021; X: IL17A rs3819025; Y: IL17A rs7747909.

SNP	Gene (Protein)	Stimulus	Protein (pg/ml)									dCt					RFC													
			AA			AG+GG			Difference of median (Minor- Major)			Est	SE	p	AA			AG+GG			Difference of median (Minor- Major)			Est	SE	p				
			n	median	IQR	n	median	IQR	n	median	IQR				n	median	IQR	n	median	IQR	n	median	IQR							
rs2066808 (IL23A) 'A>G' A=risk allele	IL23A (IL-23)	unst	-	-	-	-	-	-	-	-	-	48	14.46	1.42	12	14.41	0.61	0.05	0.28	-	-	-	-	-	-	-	-	-	-	-
		PHA	47	26.55	21.76	12	25.46	10.53	-1.09	2.07	6.8	0.76	44	10.70	2.96	12	10.61	1.62	0.09	0.83	44	10.91	24.47	12	7.13	13.82	-3.78	na	na	0.75
		Derp1	47	8.00	0.00	12	8.00	4.09	0.00	35.69	25.35	0.16	44	12.90	1.25	12	12.70	0.91	0.20	0.41	44	3.23	6.10	12	3.11	1.97	-0.12	na	na	0.68
		LpA	48	7.13	1.75	12	7.13	4.14	0.00	15.26	17.65	0.39	44	11.89	1.40	12	12.30	1.55	-0.41	0.67	44	6.68	11.32	12	3.95	2.86	-2.73	na	na	0.24
	Ppg	48	2.14	0.00	12	2.14	0.00	0.00	na	na	na	44	12.46	1.52	12	12.57	1.13	-0.10	0.80	44	4.32	7.82	12	3.27	2.55	-1.05	na	na	0.56	
	PHA	-	-	-	-	-	-	-	-	-	-	44	23.51	1.20	12	23.60	1.66	-0.09	0.12	na	na	na	na	na	na	na	na	na	na	
	Derp1	-	-	-	-	-	-	-	-	-	-	44	23.61	1.14	12	23.24	1.71	0.37	0.18	na	na	na	na	na	na	na	na	na	na	
	LpA	-	-	-	-	-	-	-	-	-	-	44	23.46	1.10	12	23.04	1.16	0.42	0.24	na	na	na	na	na	na	na	na	na	na	
	Ppg	-	-	-	-	-	-	-	-	-	-	44	23.71	1.23	12	23.25	0.53	0.47	0.54	na	na	na	na	na	na	na	na	na	na	
	PHA	47	70.68	28.88	12	67.58	23.72	-3.10	2.41	5.76	0.68	44	16.10	3.03	12	16.14	2.69	-0.04	0.61	44	199.78	659.89	12	161.30	566.16	-38.48	4.93	15.20	0.75	
	Derp1	47	18.95	16.61	12	32.62	16.84	13.67	18.22	6.27	0.0036	44	23.77	1.44	12	23.63	1.77	0.14	0.13	na	na	na	na	na	na	na	na	na	na	
	LpA	48	3.06	1.34	12	4.08	1.93	1.02	23.16	23.1	0.32	44	22.90	2.25	12	23.77	1.74	-0.87	0.61	18	1.96	6.32	5	1.19	7.69	-0.77	2.49	8.80	0.78	
	Ppg	48	8.89	1.48	12	9.63	3.07	0.74	na	na	na	44	21.40	2.77	12	21.40	2.00	0.00	0.36	31	8.42	16.66	10	8.20	17.11	-0.22	7.96	17.64	0.65	
	PHA	-	-	-	-	-	-	-	-	-	-	44	10.16	1.34	12	9.96	1.12	0.20	0.34	44	0.89	0.72	12	1.18	0.73	0.29	na	na	0.37	
	Derp1	-	-	-	-	-	-	-	-	-	-	44	11.43	1.37	12	11.05	1.14	0.38	0.52	44	0.37	0.28	12	0.43	0.22	0.06	na	na	0.42	
	LpA	-	-	-	-	-	-	-	-	-	-	44	11.27	1.19	12	10.98	1.21	0.28	0.44	44	0.43	0.32	12	0.50	0.25	0.07	na	na	0.37	
	Ppg	-	-	-	-	-	-	-	-	-	-	44	11.27	1.28	12	10.97	0.73	0.30	0.22	44	0.43	0.32	12	0.51	0.16	0.08	na	na	0.20	
	PHA	-	-	-	-	-	-	-	-	-	-	44	13.93	1.64	12	13.79	0.90	0.14	0.60	44	3.10	6.29	12	2.55	1.99	-0.55	-4.09	5.73	0.48	
	Derp1	-	-	-	-	-	-	-	-	-	-	44	16.40	1.83	12	17.31	2.04	-0.91	0.43	42	0.46	0.92	12	0.36	0.39	-0.10	-6.17	5.65	0.27	
	LpA	-	-	-	-	-	-	-	-	-	-	44	16.36	2.78	12	16.03	3.14	0.33	0.47	43	0.71	1.18	12	0.53	0.71	-0.18	-7.41	6.08	0.22	
	Ppg	-	-	-	-	-	-	-	-	-	-	44	15.09	1.52	12	14.94	1.58	0.15	0.84	43	1.30	1.84	12	0.95	1.22	-0.35	-4.70	5.57	0.40	
	PHA	-	-	-	-	-	-	-	-	-	-	44	13.58	1.36	12	13.30	1.20	0.28	0.97	44	7.29	7.79	12	11.67	14.75	4.37	7.99	5.47	0.14	
	Derp1	-	-	-	-	-	-	-	-	-	-	44	11.52	2.16	12	11.56	0.99	-0.04	0.83	44	44.42	47.45	12	54.38	77.22	9.96	6.16	5.57	0.27	
	LpA	-	-	-	-	-	-	-	-	-	-	44	11.13	2.53	12	11.54	1.33	-0.41	0.98	44	45.68	55.61	12	63.99	80.05	18.31	6.26	5.57	0.26	
	Ppg	-	-	-	-	-	-	-	-	-	-	44	12.34	2.33	12	12.25	1.34	0.09	0.80	44	25.22	29.47	12	22.78	34.93	-2.44	3.23	5.59	0.56	
	PHA	-	-	-	-	-	-	-	-	-	-	44	14.80	1.43	12	14.41	1.51	0.39	0.13	44	7.63	8.58	12	8.98	15.24	1.35	1.81	5.84	0.76	
	Derp1	-	-	-	-	-	-	-	-	-	-	44	18.84	1.92	12	18.72	1.51	0.12	0.77	43	0.46	0.62	12	0.44	0.74	-0.02	-0.26	6.21	0.97	
	LpA	-	-	-	-	-	-	-	-	-	-	44	18.78	1.74	12	17.97	1.65	0.81	0.08	43	0.50	0.73	11	0.69	0.92	0.18	0.18	6.33	0.98	
	Ppg	-	-	-	-	-	-	-	-	-	-	44	18.16	1.76	12	17.78	2.45	0.38	0.65	43	0.80	1.08	12	0.96	2.25	0.16	1.87	6.02	0.76	
	PHA	47	1506.28	1265.35	12	1469.04	930.71	-37.24	na	na	0.52	44	14.47	2.66	12	13.68	1.93	0.79	0.08	43	583.54	1053.73	12	775.79	1221.79	192.25	na	na	na*	
	Derp1	47	328.28	37.86	12	360.83	32.45	32.56	na	na	0.0392	44	21.21	4.05	12	20.80	3.76	0.41	0.33	23	18.44	28.55	6	21.28	15.94	2.84	na	na	na*	
	LpA	48	247.36	29.50	12	247.17	27.13	-0.19	na	na	0.24	44	20.66	3.46	12	20.02	3.58	0.65	0.72	20	27.31	32.54	6	22.13	16.41	-5.18	na	na	na*	
	Ppg	48	463.64	200.38	12	500.44	341.44	36.80	na	na	0.68	44	16.11	2.84	12	15.34	2.63	0.77	0.24	43	146.67	382.38	12	209.53	637.44	62.86	na	na	na*	
	PHA	47	9492.77	16527.34	12	9974.20	8377.70	481.42	0.56	6.22	0.93	44	14.83	3.78	12	14.92	4.23	-0.08	0.26	43	557.33	2802.39	12	604.34	1566.55	47.01	20.21	18.83	0.28	
	Derp1	47	103.11	126.94	12	118.49	183.89	15.38	6.21	5.66	0.27	44	18.85	2.61	12	18.53	1.71	0.31	0.66	42	45.58	97.58	12	49.43	33.81	3.86	21.12	20.53	0.30	
	LpA	48	90.46	106.56	12	104.70	123.56	14.25	2.74	5.8	0.64	44	18.83	2.34	12	19.03	2.63	-0.20	0.93	39	43.31	96.38	12	29.55	86.46	-13.76	16.77	17.59	0.34	
	Ppg	48	152.21	3877.29	12	3033.97	7371.80	1127.62	4.03	6.01	0.50	44	14.81	2.96	12	14.24	2.66	0.57	0.20	44	529.72	1528.78	12	871.90	2572.48	342.18	22.63	19.01	0.23	
	PHA	47	56.48	64.29	12	45.76	28.21	-10.72	na	na	0.46	44	22.20	2.62	12	22.82	4.03	-0.62	0.39	33	2.92	6.82	8	2.64	8.08	-0.27	11.89	15.42	0.44	
	Derp1	47	23.74	35.03	12	52.05	40.93	28.31	na	na	0.07	44	21.34	3.04	12	20.15	3.84	1.19	0.06	39	5.90	12.65	8	10.50	11.78	4.60	18.02	17.35	0.30	
	LpA	48	16.09	26.39	12	23.31	35.77	7.23	-0.26	5.84	0.96	44	21.30	2.72	12	20.90	2.15	0.40	0.33	35	6.14	11.03	8	7.65	10.01	1.51	14.35	13.06	0.27	
	Ppg	48	152.21	450.98	12	179.61	645.23</																							

SNP	Gene (Protein)	Stimulus	Protein (pg/ml)									dCt								RFC											
			CC			CT+TT			Difference of median (Minor- Major)	Est	SE	p	CC			CT+TT			Difference of median (Minor- Major)	p	CC			CT+TT			Difference of median (Minor- Major)	Est	SE	p	
			n	median	IQR	n	median	IQR					n	median	IQR	n	median	IQR			n	median	IQR	n	median	IQR					n
rs10417924 (TGFB1) 'C>T' T=risk allele	IL23A (IL-23)	unst	-	-	-	-	-	-	-	-	-	41	14.55	1.10	19	14.10	1.02	0.44	0.0203	-	-	-	-	-	-	-	-	-	-	-	
		PHA	40	26.55	11.47	19	26.01	30.41	-0.54	-3.98	5.95	0.50	38	10.70	2.18	18	10.58	3.75	0.12	0.64	38	10.91	19.77	18	8.28	17.18	-2.63	na	na	0.58	
		Derp1	40	8.00	0.09	19	8.00	0.00	0.00	-6.06	24.51	0.80	38	12.90	1.16	18	12.69	1.63	0.21	0.17	38	3.29	3.05	18	3.12	3.84	-0.17	na	na	0.97	
		LpA	41	7.13	2.15	19	7.13	0.81	0.00	-4.35	16.21	0.79	38	12.28	1.72	18	11.82	1.62	0.46	0.05	38	6.12	10.12	18	5.13	6.96	-0.98	na	na	0.77	
		Ppg	41	2.14	0.00	19	2.14	0.00	0.00	na	na	na	38	12.58	1.15	18	12.40	2.15	0.18	0.52	38	4.05	6.26	18	2.78	6.12	-1.27	na	na	0.55	
	IL12B	unst	-	-	-	-	-	-	-	-	-	-	41	23.61	0.88	19	23.27	0.86	0.34	0.36	-	-	-	-	-	-	-	-	-	-	-
		PHA	-	-	-	-	-	-	-	-	-	-	38	23.69	1.33	18	23.11	0.81	0.58	0.28	na	na	na	na	na	na	-1.57	na	na	na	
		Derp1	-	-	-	-	-	-	-	-	-	-	38	23.42	0.92	18	23.65	1.23	-0.23	0.11	na	na	na	na	na	na	na	na	na	na	
		LpA	-	-	-	-	-	-	-	-	-	-	38	23.46	1.10	18	23.39	1.14	0.07	0.85	na	na	na	na	na	na	na	na	na	na	
		Ppg	-	-	-	-	-	-	-	-	-	-	38	23.49	1.20	18	23.69	0.93	-0.20	0.29	na	na	na	na	na	na	na	na	na	na	
	IL21 (IL-21)	unst	-	-	-	-	-	-	-	-	-	-	41	24.22	1.50	19	23.93	1.81	0.29	0.97	-	-	-	-	-	-	-	-	-	-	-
		PHA	40	71.19	27.83	19	66.55	36.35	-4.64	-6.10	4.90	0.21	38	16.10	2.84	18	16.22	3.09	-0.12	0.85	38	228.82	670.26	18	159.53	445.01	-69.29	-5.39	12.80	0.67	
		Derp1	40	25.89	16.92	19	18.95	20.42	-6.94	-8.41	5.89	0.15	38	23.75	1.49	18	23.53	2.15	0.22	0.95	14	1.29	5.48	7	1.59	1.31	0.30	0.82	10.38	0.94	
		LpA	41	3.06	2.05	19	3.06	1.24	0.00	-41.89	28.31	0.14	38	23.21	2.21	18	22.89	2.28	0.32	0.78	15	1.80	7.58	8	1.58	5.58	-0.22	2.17	7.40	0.77	
		Ppg	41	8.89	1.48	19	8.89	0.00	0.00	na	na	na	38	21.32	2.31	18	22.00	3.13	-0.68	0.88	28	9.33	17.22	13	4.11	15.99	-5.22	-8.87	14.82	0.55	
	TGFB1	unst	-	-	-	-	-	-	-	-	-	-	41	10.15	0.75	19	10.03	0.84	0.13	0.46	-	-	-	-	-	-	-	-	-	-	-
		PHA	-	-	-	-	-	-	-	-	-	-	38	10.15	1.27	18	10.17	1.19	-0.02	0.81	38	1.00	0.87	18	0.83	0.48	-0.17	na	na	0.35	
		Derp1	-	-	-	-	-	-	-	-	-	-	38	11.43	1.39	18	11.10	1.11	0.33	0.31	38	0.39	0.29	18	0.42	0.28	0.03	na	na	0.90	
		LpA	-	-	-	-	-	-	-	-	-	-	38	11.18	1.41	18	11.18	0.78	0.00	0.90	38	0.48	0.31	18	0.35	0.25	-0.13	na	na	0.30	
		Ppg	-	-	-	-	-	-	-	-	-	-	38	11.14	1.39	18	11.34	1.12	-0.19	0.69	38	0.49	0.28	18	0.39	0.27	-0.10	na	na	0.34	
	IL23R	unst	-	-	-	-	-	-	-	-	-	-	41	15.66	1.85	19	15.31	0.86	0.36	0.50	-	-	-	-	-	-	-	-	-	-	-
		PHA	-	-	-	-	-	-	-	-	-	-	38	13.68	1.53	18	13.95	0.86	-0.27	0.40	38	4.10	5.86	18	2.27	2.07	-1.83	-9.32	4.91	0.06	
		Derp1	-	-	-	-	-	-	-	-	-	-	38	16.77	1.88	18	16.04	1.05	0.73	0.08	36	0.41	0.94	18	0.51	0.52	0.10	1.25	5.04	0.80	
		LpA	-	-	-	-	-	-	-	-	-	-	38	16.41	3.01	18	15.78	2.41	0.63	0.34	37	0.66	1.40	18	0.75	0.85	0.09	-2.79	5.39	0.60	
		Ppg	-	-	-	-	-	-	-	-	-	-	38	15.07	1.44	18	15.05	1.97	0.02	0.97	37	1.20	1.84	18	0.97	1.34	-0.23	-7.86	4.85	0.11	
	IL1R1	unst	-	-	-	-	-	-	-	-	-	-	41	16.97	1.45	19	16.42	1.94	0.55	0.47	-	-	-	-	-	-	-	-	-	-	-
		PHA	-	-	-	-	-	-	-	-	-	-	38	13.43	1.47	18	13.55	1.03	-0.12	0.99	38	10.03	13.12	18	6.54	6.75	-3.49	-8.33	4.75	0.08	
		Derp1	-	-	-	-	-	-	-	-	-	-	38	11.60	2.05	18	11.45	1.40	0.15	0.16	38	37.39	53.25	18	53.39	48.53	15.99	1.89	4.91	0.70	
		LpA	-	-	-	-	-	-	-	-	-	-	38	11.38	2.18	18	10.96	1.61	0.43	0.09	38	40.84	52.38	18	59.63	72.84	18.79	3.04	4.89	0.53	
		Ppg	-	-	-	-	-	-	-	-	-	-	38	12.40	2.03	18	11.92	1.97	0.48	0.25	38	23.26	29.42	18	26.50	32.03	3.24	-1.42	4.91	0.77	
	RORY	unst	-	-	-	-	-	-	-	-	-	-	41	18.06	1.48	19	18.30	2.22	-0.24	0.67	-	-	-	-	-	-	-	-	-	-	-
		PHA	-	-	-	-	-	-	-	-	-	-	38	14.72	1.52	18	15.05	1.12	-0.33	0.30	38	7.63	9.67	18	8.71	11.21	1.08	-1.25	5.14	0.81	
		Derp1	-	-	-	-	-	-	-	-	-	-	38	18.83	1.80	18	18.72	2.70	0.11	0.35	38	0.46	0.63	17	0.46	0.64	0.00	-3.16	5.57	0.57	
		LpA	-	-	-	-	-	-	-	-	-	-	38	18.78	1.87	18	18.31	1.46	0.47	0.51	36	0.47	0.71	18	0.82	1.13	0.34	8.47	5.29	0.11	
		Ppg	-	-	-	-	-	-	-	-	-	-	38	18.16	1.74	18	18.07	2.46	0.09	0.95	37	0.80	1.13	18	0.91	1.36	0.11	-1.80	5.33	0.74	
	IL17A (IL-17A)	unst	-	-	-	-	-	-	-	-	-	-	41	23.70	1.07	19	23.27	1.02	0.43	1.00	-	-	-	-	-	-	-	-	-	-	-
		PHA	40	1586.09	1315.99	19	1125.47	1004.73	-460.62	na	na	0.22	38	14.12	2.21	18	14.66	3.02	-0.54	0.26	37	802.25	994.27	18	398.81	1030.89	-403.44	na	na	na*	
		Derp1	40	334.63	42.91	19	320.30	32.82	-14.33	na	na	0.0410	38	20.77	3.96	18	21.58	4.57	-0.81	0.17	21	18.44	28.10	8	19.63	27.38	1.19	na	na	na*	
		LpA	41	246.41	25.66	19	251.35	29.35	4.94	na	na	0.41	38	21.22	3.48	18	19.73	2.51	1.49	0.90	15	29.28	29.75	11	18.40	23.54	-10.88	na	na	na*	
		Ppg	41	479.23	236.17	19	422.23	202.04	-57.01	na	na	0.39	38	15.62	3.18	18	16.19	3.35	-0.58	0.10	37	261.10	404.45	18	83.72	200.33	-177.38	na	na	na*	
	IL17F (IL-17F)	unst	-	-	-	-	-	-	-	-	-	-	41	24.35	1.29	19	24.18	0.97	0.17	0.92	-	-	-	-	-	-	-	-	-	-	-
		PHA	40	10355.13	14682.05	19	7777.16	12040.68	-2577.98	-6.55	5.29	0.22	38	14.60	3.36	18	15.72	3.48	-1.12	0.33	37	727.41	3065.51	18	418.40	1236.12	-309.00	-15.59	12.95	0.23	
		Derp1	40	100.88	176.28	19	140.37	110.04	39.48	2.41	4.92	0.62	38	18.85	2.04	18	18.26	2.92	0.60	0.98	36	47.66	93.18	18	38.14	63.15	-9.52	-11.15	13.87	0.42	
		LpA	41	71.63	141.13	19	97.39	69.64	25.76	5.32	4.95	0.28	38	18.84	2.63	18	18.83	2.38	0.01	0.46	35	36.10	110.71	16	39.28	31.65	3.18	-10.81	12.40	0.38	
		Ppg	41	2187.73	5394.40	19	1622.17	3353.51	-565.56	-1.94	5.13	0.71	38	14.43	2.99	18	14.78	3.04	-0.35	0.23	38	871.90	2392.49	18	395.11	1007.88	-476.78	-19.02	12.80	0.14	
	IL22 (IL-22)	unst	-	-	-	-	-	-	-	-	-	-	41	23.48	1.04	19	23.07	1.34	0.41	0.31	-	-	-	-	-	-	-	-	-	-	-
		PHA	40	58.50	62.09	19	33.02	48.00	-25.48	na	na	0.07	38	22.13	3.24	18	22.35	1.96	-0.23	0.35	29	3.53	6.73	12	1.98	6.49	-1.55	-19.69	11.84	0.10	
Derp1		40	24.51	41.32	19	23.85	32.65	-0.66	na	na	0.54	38	21.07	2.96	18	21.18	3.39	-0.11	0.38	30	8.10	14.02	17	5.93	12.04	-2.17	-23.11	13.17	0.08		
LpA		41	16.85	38.50	19	18.97	21.09	2.13	2.64	4.99	0.60	38	21.41	2.97	18	20.79	1.99	0.63	0.95	26	9.52</										

Asthma and IgE associated polymorphisms affect expression of T_H17 genes
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SNP	Gene (Protein)	Stimulus	Protein (pg/ml)									dCt						RFC															
			TT			TC+CC			Difference of median (Minor- Major)	Est	SE	p	TT			TC+CC			Difference of median (Minor- Major)	Est	SE	p	TT			TC+CC			Difference of median (Minor- Major)	Est	SE	p	
			n	median	IQR	n	median	IQR					n	median	IQR	n	median	IQR					n	median	IQR	n	median	IQR					n
rs790631 (IL23R) T>C T=risk allele	IL23A (IL-23)	unst	-	-	-	-	-	-	-	-	-	37	14.32	1.25	23	14.55	1.06	-0.22	0.46	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		PHA	36	31.39	14.38	23	22.20	18.19	-9.19	-13.24	5.37	0.0137	33	10.65	1.75	23	11.45	3.54	-0.79	0.16	33	11.64	18.46	23	6.97	18.79	-4.67	na	na	na	0.20		
		Derp1	36	8.00	0.09	23	8.00	0.00	0.00	-14.69	24.21	0.54	33	12.81	1.02	23	13.10	1.31	-0.29	0.69	33	3.47	3.72	23	3.12	2.92	-0.35	na	na	na	0.72		
		LpA	37	7.13	2.15	23	7.13	2.01	0.00	2.42	15.25	0.87	33	12.26	1.49	23	11.69	1.49	0.57	0.32	33	5.27	8.62	23	6.21	11.50	0.94	na	na	na	0.36		
	Ppg	37	2.14	0.00	23	2.14	0.00	0.00	na	na	na	33	12.67	1.36	23	12.41	1.47	0.26	0.52	33	3.57	5.29	23	4.21	6.74	0.64	na	na	na	0.43			
	IL12B	unst	-	-	-	-	-	-	-	-	-	-	37	23.60	0.73	23	23.27	1.12	0.33	0.36	-	-	-	-	-	-	-	-	-	-	-	-	
		PHA	-	-	-	-	-	-	-	-	-	-	33	23.61	1.11	23	23.18	1.11	0.43	0.78	na	na	na	na	na	na	na	na	na	na	na	na	
		Derp1	-	-	-	-	-	-	-	-	-	-	33	23.49	1.04	23	23.68	1.29	-0.19	0.97	na	na	na	na	na	na	na	na	na	na	na	na	
		LpA	-	-	-	-	-	-	-	-	-	-	33	23.48	1.02	23	23.06	1.24	0.42	0.32	na	na	na	na	na	na	na	na	na	na	na	na	
	Ppg	-	-	-	-	-	-	-	-	-	-	33	23.55	1.16	23	23.60	1.11	-0.06	0.72	na	na	na	na	na	na	na	na	na	na	na	na		
	IL21 (IL-21)	unst	-	-	-	-	-	-	-	-	-	-	37	24.32	1.16	23	23.93	1.89	0.39	0.27	-	-	-	-	-	-	-	-	-	-	-	-	
		PHA	36	70.68	26.55	23	66.55	37.72	-4.13	-4.16	4.75	0.38	33	15.85	2.80	23	16.66	3.46	-0.81	0.63	33	315.03	759.99	23	153.57	388.62	-161.46	-19.16	12.05	0.11			
		Derp1	36	22.14	19.21	23	24.02	15.76	1.89	-0.90	5.67	0.87	33	23.91	1.53	23	23.28	1.79	0.62	0.31	8	1.46	6.90	13	1.59	1.83	0.13	2.83	10.12	0.78			
		LpA	37	3.06	2.05	23	2.64	1.64	-0.42	-14.42	21.12	0.49	33	23.59	2.39	23	22.65	2.09	0.95	0.26	10	1.96	6.98	13	1.19	6.44	-0.77	-1.65	7.04	0.81			
	Ppg	37	8.89	1.48	23	8.89	1.48	0.00	na	na	na	33	21.87	2.64	23	21.26	2.51	0.61	0.61	23	10.25	17.02	18	6.77	17.29	-3.48	-10.28	14.31	0.47				
	TGFB1	unst	-	-	-	-	-	-	-	-	-	-	37	10.11	1.00	23	10.08	0.64	0.03	0.99	-	-	-	-	-	-	-	-	-	-	-	-	
		PHA	-	-	-	-	-	-	-	-	-	-	33	10.10	1.20	23	10.45	1.41	-0.35	0.14	33	1.04	0.72	23	0.86	0.69	-0.17	na	na	na	0.16		
		Derp1	-	-	-	-	-	-	-	-	-	-	33	11.42	1.25	23	11.07	1.47	0.35	0.45	33	0.41	0.16	23	0.40	0.37	-0.01	na	na	na	0.49		
		LpA	-	-	-	-	-	-	-	-	-	-	33	11.29	0.76	23	10.94	1.36	0.35	0.19	33	0.44	0.29	23	0.50	0.44	0.06	na	na	na	0.19		
	Ppg	-	-	-	-	-	-	-	-	-	-	33	11.17	1.14	23	11.18	1.35	-0.01	0.48	33	0.46	0.26	23	0.48	0.31	0.02	na	na	na	0.47			
	IL23R	unst	-	-	-	-	-	-	-	-	-	-	37	15.66	1.84	23	15.31	0.79	0.36	0.57	-	-	-	-	-	-	-	-	-	-	-	-	
		PHA	-	-	-	-	-	-	-	-	-	-	33	13.68	1.34	23	13.94	1.46	-0.26	0.42	33	3.93	6.38	23	2.70	2.83	-1.22	-2.78	4.80	0.56			
		Derp1	-	-	-	-	-	-	-	-	-	-	33	16.48	1.75	23	16.35	1.90	0.13	0.38	32	0.38	0.55	22	0.64	0.88	0.26	7.35	4.73	0.12			
		LpA	-	-	-	-	-	-	-	-	-	-	33	16.96	2.69	23	15.69	1.49	1.27	0.07	33	0.34	1.11	22	0.80	1.05	0.46	9.15	5.01	0.07			
	Ppg	-	-	-	-	-	-	-	-	-	-	33	15.22	1.33	23	14.96	1.58	0.26	0.43	32	0.99	1.47	23	1.41	1.86	0.42	6.23	4.64	0.18				
	IL1R1	unst	-	-	-	-	-	-	-	-	-	-	37	16.77	1.44	23	17.09	1.99	-0.32	0.51	-	-	-	-	-	-	-	-	-	-	-	-	
		PHA	-	-	-	-	-	-	-	-	-	-	33	13.20	1.11	23	13.83	2.07	-0.63	0.43	33	9.31	6.32	23	6.98	17.01	-2.32	0.73	4.64	0.88			
		Derp1	-	-	-	-	-	-	-	-	-	-	33	11.51	1.47	23	11.52	1.83	-0.01	0.85	33	29.10	43.91	23	57.48	56.85	28.39	9.96	4.49	0.0264			
		LpA	-	-	-	-	-	-	-	-	-	-	33	11.41	1.48	23	11.01	1.85	0.41	0.31	33	31.66	43.71	23	82.82	104.87	51.16	13.91	4.28	0.0012			
	Ppg	-	-	-	-	-	-	-	-	-	-	33	12.38	1.90	23	12.02	2.05	0.36	0.57	33	22.60	23.73	23	37.09	48.54	14.49	9.99	4.48	0.0255				
	RORy	unst	-	-	-	-	-	-	-	-	-	-	37	17.87	1.57	23	18.27	1.69	-0.39	0.97	-	-	-	-	-	-	-	-	-	-	-	-	
		PHA	-	-	-	-	-	-	-	-	-	-	33	14.73	1.23	23	15.48	1.83	-0.76	0.12	33	8.49	13.72	23	7.52	6.47	-0.96	-0.80	4.89	0.87			
		Derp1	-	-	-	-	-	-	-	-	-	-	33	18.93	1.93	23	18.53	1.46	0.40	0.25	33	0.41	0.54	22	0.51	0.97	0.09	10.00	5.04	0.0472			
		LpA	-	-	-	-	-	-	-	-	-	-	33	18.79	1.58	23	18.06	1.36	0.73	0.0346	32	0.43	0.44	22	0.94	1.06	0.51	13.94	4.80	0.0037			
	Ppg	-	-	-	-	-	-	-	-	-	-	33	18.07	1.74	23	18.23	1.96	-0.16	0.59	33	0.62	1.09	22	1.23	1.92	0.61	11.35	4.86	0.0196				
	IL17A (IL-17A)	unst	-	-	-	-	-	-	-	-	-	-	37	23.60	0.79	23	23.27	1.30	0.33	1.00	-	-	-	-	-	-	-	-	-	-	-	-	
		PHA	36	1655.72	1345.74	23	1125.47	1122.41	-530.25	na	na	0.15	33	14.05	2.11	23	14.84	2.99	-0.79	0.23	33	802.25	994.27	22	398.81	997.47	-403.44	na	na	na	na*		
		Derp1	36	329.58	46.60	23	332.87	35.87	3.29	na	na	0.38	33	21.20	3.94	23	20.62	4.22	0.58	0.97	16	18.30	27.87	13	24.40	26.27	6.09	na	na	na	na*		
		LpA	37	246.41	26.03	23	250.59	31.06	4.18	na	na	0.74	33	20.64	3.26	23	19.59	3.99	1.05	0.26	13	27.14	31.20	13	25.85	28.61	-1.29	na	na	na	na*		
	Ppg	37	474.31	245.56	23	479.23	198.15	4.92	na	na	0.69	33	16.10	3.32	23	15.74	1.50	0.36	0.19	33	142.81	318.54	22	189.18	704.38	46.37	na	na	na	na*			
	IL17F (IL-17F)	unst	-	-	-	-	-	-	-	-	-	-	37	24.33	1.15	23	24.28	1.27	0.05	0.95	-	-	-	-	-	-	-	-	-	-	-	-	
		PHA	36	9925.27	12191.45	23	8170.08	15638.71	-1755.19	-3.32	5.12	0.52	33	14.55	2.76	23	15.61	4.06	-1.06	0.32	33	872.72	2559.80	22	461.45	1796.97	-411.27	-16.62	12.68	0.19			
		Derp1	36	80.49	95.78	23	170.80	179.58	90.31	10.07	4.53	0.0264	33	19.01	2.47	23	18.43	2.04	0.58	0.24	32	43.23	55.45	22	56.28	100.62	13.06	-13.77	13.71	0.32			
		LpA	37	71.63	85.12	23	135.76	159.12	64.13	9.98	4.61	0.0304	33	19.40	2.50	23	18.42	2.36	0.98	0.17	30	31.35	106.78	21	43.31	83.00	11.95	-9.97	11.98	0.41			
	Ppg	37	1893.08	4735.50	23	2187.73	3463.94	294.65	6.55	4.85	0.18	33	15.03	3.10	23	14.27	2.50	0.75	0.22	33	547.46	1373.83	23	861.43	1520.58	313.97	-5.47	13.37	0.68				
	IL22 (IL-22)	unst	-	-	-	-	-	-	-	-	-	-	37	23.44	1.01	23	23.06	1.18	0.38	0.88	-	-	-	-	-	-	-	-	-	-	-	-	
		PHA	36	52.12	38.18	23	54.09	68.20	1.97	na	na	0.91	33	22.06	3.26	23	22.68	3.03	-0.63	0.44	27	2.92	8.22	14	3.42	4.79	0.50	-15.62	11.84	0.19			
Derp1		36	22.54	17.81	23	48.01	47.31	25.48	na	na	0.18	33	21.22	3.10																			

Asthma and IgE associated polymorphisms affect expression of T_H17 genes
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SNP	Gene (Protein)	Stimulus	Protein (pg/ml)										dCt										RFC																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
			TT			TG			GG			Est	SE	p	TT			TG			GG			Est	SE	p	TT			TG			GG			Est	SE	p																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
			n	median	IQR	n	median	IQR	n	median	IQR				n	median	IQR	n	median	IQR	n	median	IQR				n	median	IQR	n	median	IQR	n	median	IQR				n	median	IQR	n	median	IQR																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
rs7517847 (IL23R) "T>G" G=risk allele	IL23A (IL-23)	unst	-	-	-	-	-	-	-	-	-	-	15	14.55	0.71	32	14.36	1.80	13	14.39	1.09	-1.08E-05	1.09E-05	0.33	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Asthma and IgE associated polymorphisms affect expression of T_H17 genes
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SNP	Gene (Protein)	Stimulus	Protein (pg/ml)									dCt						RFC													
			CC			AC			Difference of median (Minor-Major)	Est	SE	p	CC			AC			Difference of median (Minor-Major)	p	CC			AC			Difference of median (Minor-Major)	Est	SE	p	
			n	median	IQR	n	median	IQR					n	median	IQR	n	median	IQR			n	median	IQR	n	median	IQR					n
rs10889675 (IL23R) 'C>A' A=risk allele	IL23A (IL-23)	unst	-	-	-	-	-	-	-	-	-	-	45	14.33	1.04	16	14.99	1.23	-0.66	0.13	-	-	-	-	-	-	-	-	-	-	-
		PHA	44	25.46	19.20	16	30.05	8.99	4.59	6.60	6.02	0.27	41	10.70	2.51	16	11.07	2.43	-0.38	0.39	41	10.18	18.82	16	9.20	21.59	-0.98	na	na	0.83	
		Derp1	44	8.00	0.00	16	8.00	0.92	0.00	23.86	24.13	0.32	41	13.04	1.15	16	12.67	1.17	0.37	0.63	41	3.12	2.61	16	3.48	5.97	0.36	na	na	0.56	
		LpA	45	7.13	1.62	16	7.13	4.03	0.00	21.49	16.34	0.19	41	12.16	1.36	16	11.96	1.89	0.20	0.72	41	5.87	8.70	16	6.01	10.03	0.14	na	na	0.83	
	Ppg	45	2.14	0.00	16	2.14	0.28	0.00	na	na	na	41	12.48	1.21	16	12.56	1.50	-0.08	0.93	41	3.57	6.26	16	3.42	8.98	-0.15	na	na	0.38		
	IL12B	unst	-	-	-	-	-	-	-	-	-	-	45	23.46	1.03	16	23.68	0.78	-0.22	0.54	-	-	-	-	-	-	-	-	-	-	-
		PHA	-	-	-	-	-	-	-	-	-	-	41	23.38	1.46	16	23.65	0.42	-0.27	0.0410	na	na	na	na	na	na	na	na	na	na	
		Derp1	-	-	-	-	-	-	-	-	-	-	41	23.61	1.10	16	23.42	1.31	0.20	0.73	na	na	na	na	na	na	na	na	na	na	
		LpA	-	-	-	-	-	-	-	-	-	-	41	23.44	0.88	16	22.99	1.31	0.45	0.20	na	na	na	na	na	na	na	na	na	na	
	Ppg	-	-	-	-	-	-	-	-	-	-	41	23.60	1.11	16	23.56	1.40	0.05	0.12	na	na	na	na	na	na	na	na	na	na	na	
	IL21 (IL-21)	unst	-	-	-	-	-	-	-	-	-	-	45	24.13	1.94	16	24.16	1.39	-0.03	0.0041	-	-	-	-	-	-	-	-	-	-	-
		PHA	44	69.64	21.69	16	73.25	35.02	3.61	4.52	5.18	0.38	41	16.14	3.21	16	16.21	2.69	-0.07	0.95	41	169.03	495.61	16	196.62	792.74	27.59	9.56	13.64	0.48	
		Derp1	44	21.50	20.71	16	26.49	13.97	4.99	7.48	6.00	0.21	41	23.78	1.68	16	23.71	1.57	0.08	0.88	16	1.31	2.19	5	1.89	6.75	0.59	5.08	11.16	0.65	
		LpA	45	3.06	1.64	16	3.47	3.04	0.41	35.35	21.25	0.10	41	22.92	2.32	16	23.57	1.50	-0.65	0.90	17	2.12	7.33	6	1.26	5.37	-0.85	-3.29	8.12	0.69	
	Ppg	45	8.89	0.00	16	10.37	4.25	1.48	na	na	na	41	21.87	2.70	16	20.74	2.68	1.13	0.52	28	5.55	18.14	13	11.91	12.25	6.37	19.14	15.30	0.21		
	TGFB1	unst	-	-	-	-	-	-	-	-	-	-	45	10.11	0.80	16	10.11	0.78	0.00	0.66	-	-	-	-	-	-	-	-	-	-	-
		PHA	-	-	-	-	-	-	-	-	-	-	41	10.16	1.37	16	10.13	0.96	0.03	0.82	41	0.99	0.87	16	0.92	0.62	-0.07	na	na	0.83	
		Derp1	-	-	-	-	-	-	-	-	-	-	41	11.47	1.35	16	11.25	1.40	0.22	0.53	41	0.38	0.32	16	0.42	0.24	0.04	na	na	0.51	
		LpA	-	-	-	-	-	-	-	-	-	-	41	11.29	1.34	16	11.12	1.20	0.17	0.70	41	0.44	0.29	16	0.50	0.40	0.06	na	na	0.47	
	Ppg	-	-	-	-	-	-	-	-	-	-	41	11.25	1.23	16	10.87	1.33	0.38	0.38	41	0.45	0.27	16	0.49	0.30	0.03	na	na	0.46		
	IL23R	unst	-	-	-	-	-	-	-	-	-	-	45	15.49	1.74	16	15.42	1.49	0.07	0.83	-	-	-	-	-	-	-	-	-	-	-
		PHA	-	-	-	-	-	-	-	-	-	-	41	13.93	1.47	16	13.81	1.16	0.13	0.72	41	2.75	6.24	16	3.38	4.60	0.63	3.36	5.17	0.52	
		Derp1	-	-	-	-	-	-	-	-	-	-	41	16.45	1.82	16	17.68	2.92	-1.23	0.48	40	0.45	0.95	15	0.39	0.49	-0.06	-6.42	5.40	0.23	
		LpA	-	-	-	-	-	-	-	-	-	-	41	16.26	2.51	16	16.41	3.01	-0.15	0.83	41	0.71	1.38	15	0.58	0.99	-0.14	-3.15	5.63	0.58	
	Ppg	-	-	-	-	-	-	-	-	-	-	41	15.08	1.51	16	15.11	1.45	-0.03	0.92	40	1.12	1.45	16	1.08	1.98	-0.04	4.67	5.08	0.36		
	IL1R1	unst	-	-	-	-	-	-	-	-	-	-	45	17.01	1.82	16	16.64	1.08	0.37	0.23	-	-	-	-	-	-	-	-	-	-	-
		PHA	-	-	-	-	-	-	-	-	-	-	41	13.64	1.32	16	13.23	1.50	0.41	0.32	41	8.14	8.29	16	8.60	12.74	0.46	2.27	5.09	0.66	
		Derp1	-	-	-	-	-	-	-	-	-	-	41	11.61	2.05	16	11.48	1.04	0.13	0.70	41	46.67	55.45	16	35.67	29.57	-11.00	-2.04	5.09	0.69	
		LpA	-	-	-	-	-	-	-	-	-	-	41	11.36	2.55	16	11.22	1.61	0.14	0.56	41	46.69	60.75	16	40.34	39.44	-6.35	-2.49	5.08	0.62	
	Ppg	-	-	-	-	-	-	-	-	-	-	41	12.38	2.17	16	12.31	2.01	0.07	0.72	41	25.15	33.59	16	20.66	24.57	-4.50	-1.22	5.10	0.81		
	RORy	unst	-	-	-	-	-	-	-	-	-	-	45	18.14	1.77	16	17.85	1.41	0.29	0.67	-	-	-	-	-	-	-	-	-	-	-
		PHA	-	-	-	-	-	-	-	-	-	-	41	14.78	1.65	16	14.80	1.06	-0.02	0.96	41	7.32	14.56	16	8.11	4.28	0.79	1.19	5.38	0.82	
		Derp1	-	-	-	-	-	-	-	-	-	-	41	18.78	1.94	16	18.79	1.73	-0.01	0.60	40	0.44	0.56	16	0.58	0.78	0.13	3.36	5.60	0.55	
		LpA	-	-	-	-	-	-	-	-	-	-	41	18.40	1.61	16	19.01	1.80	-0.61	0.77	41	0.54	0.79	14	0.59	0.67	0.05	-3.34	5.69	0.56	
	Ppg	-	-	-	-	-	-	-	-	-	-	41	18.29	1.88	16	17.42	1.74	0.87	0.09	41	0.64	0.89	15	1.55	1.19	0.91	10.09	5.41	0.06		
	IL17A (IL-17A)	unst	-	-	-	-	-	-	-	-	-	-	45	23.46	1.09	16	23.81	0.81	-0.35	1.00	-	-	-	-	-	-	-	-	-	-	-
		PHA	44	1352.73	1433.07	16	1531.38	610.14	178.65	na	na	0.70	41	14.45	2.13	16	14.07	2.55	0.38	0.85	40	583.24	921.29	16	688.25	1077.64	105.01	na	na	na*	
		Derp1	44	329.58	37.90	16	336.70	47.16	7.12	na	na	0.32	41	21.22	4.26	16	20.88	3.96	0.35	0.47	22	17.19	27.86	7	24.40	19.45	7.21	na	na	na*	
		LpA	45	243.75	28.69	16	249.45	24.85	5.70	na	na	0.26	41	20.63	3.81	16	20.59	3.72	0.05	0.95	20	27.31	30.41	7	21.38	34.18	-5.93	na	na	na*	
	Ppg	45	452.97	164.34	16	586.74	313.11	133.77	na	na	0.29	41	16.06	3.28	16	15.34	1.64	0.71	0.20	41	139.12	382.97	15	321.94	647.57	182.82	na	na	na*		
	IL17F (IL-17F)	unst	-	-	-	-	-	-	-	-	-	-	45	24.23	1.17	16	24.40	1.22	-0.17	0.91	-	-	-	-	-	-	-	-	-	-	-
		PHA	44	8714.77	9868.07	16	17389.16	16653.01	8674.39	9.39	5.49	0.09	41	15.28	3.53	16	14.32	3.82	0.96	0.56	40	499.06	1386.15	16	1308.42	3404.30	809.36	13.10	14.93	0.38	
		Derp1	44	103.70	119.72	16	80.25	204.93	-23.45	0.51	5.13	0.92	41	18.56	2.52	16	19.04	2.63	-0.48	0.98	40	41.92	96.34	15	53.64	42.20	11.72	14.46	16.43	0.38	
		LpA	45	97.39	115.88	16	78.87	122.97	-18.52	-0.17	5.20	0.97	41	18.77	2.41	16	18.85	1.95	-0.08	0.74	37	32.80	110.33	15	42.10	67.22	9.29	11.16	14.44	0.44	
	Ppg	45	1893.08	3650.32	16	3624.96	10789.51	1731.88	6.47	5.31	0.22	41	14.77	2.94	16	14.32	2.27	0.45	0.55	41	511.98	1377.25	16	951.20	2935.68	439.22	13.66	15.28	0.37		
	IL22 (IL-22)	unst	-	-	-	-	-	-	-	-	-	-	45	23.27	0.92	16	23.45	1.10	-0.19	0.12	-	-	-	-	-	-	-	-	-	-	-
		PHA	44	41.56	39.43	16	75.69	60.42	34.14	na	na	0.07	41	22.20	2.60	16	23.00	3.35	-0.80	0.27	32	2.05	4.36	9	7.91	5.53	5.86	35.50	16.59	0.0324	
Derp1		44	23.80	32.33	16	41.20	46.21	17.41	na	na	0.33	41	21.14	3.03	16	21.46	3.44	-0.32	0.68	37	6.79	13.16	11	8.00	12.54	1.21	32.97	20.02	0.10		
LpA		45	18.97	27.01	16	14.71	26.65	-4.27	-1.87	5.21	0.72	41	21.35	2.69	16	20.82															

Asthma and IgE associated polymorphisms affect expression of T_H17 genes
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SNP	Gene (Protein)	Stimulus	Protein (pg/ml)									dCt							RFC											
			TT			TC+CC			Difference of median (Minor-Major)	Est	SE	p	TT			TC+CC			Difference of median (Minor-Major)	p	TT			TC+CC			Difference of median (Minor-Major)	Est	SE	p
			n	median	IQR	n	median	IQR					n	median	IQR	n	median	IQR			n	median	IQR	n	median	IQR				
rs12045886 (RORy) 'T>C' C=risk allele	IL23A (IL-23)	unst	-	-	-	-	-	-	-	-	-	30	14.46	1.22	31	14.39	1.34	0.07	0.72	-	-	-	-	-	-	-	-	-	-	-
		PHA	30	28.44	12.13	30	25.46	24.51	-2.98	-6.89	5.36	0.20	26	11.25	2.92	31	10.70	1.98	0.55	0.43	26	9.81	15.54	31	11.64	28.43	1.83	na	na	0.44
		Derp1	30	8.00	0.65	30	8.00	0.00	0.00	-11.36	22.56	0.61	26	12.90	1.01	31	12.81	1.34	0.09	0.87	26	3.40	2.94	31	3.08	3.74	-0.32	na	na	0.99
		LpA	30	7.13	1.82	31	7.13	2.15	0.00	-1.20	14.99	0.94	26	12.25	1.33	31	11.93	1.77	0.32	0.84	26	6.23	7.40	31	5.27	10.81	-0.96	na	na	0.91
		Ppg	30	2.14	0.00	31	2.14	0.00	0.00	na	na	na	26	12.75	1.28	31	12.41	1.70	0.34	0.65	26	3.46	6.52	31	4.43	6.20	0.97	na	na	0.72
	IL12B	unst	-	-	-	-	-	-	-	-	-	-	30	23.59	0.90	31	23.46	1.00	0.13	0.10	-	-	-	-	-	-	-	-	-	-
		PHA	-	-	-	-	-	-	-	-	-	-	26	23.65	0.72	31	23.18	1.50	0.47	0.63	na	na	na	na	na	na	na	na	na	na
		Derp1	-	-	-	-	-	-	-	-	-	-	26	23.63	1.42	31	23.55	0.95	0.08	0.09	na	na	na	na	na	na	na	na	na	na
		LpA	-	-	-	-	-	-	-	-	-	-	26	23.43	1.27	31	23.43	1.00	0.00	0.37	na	na	na	na	na	na	na	na	na	na
		Ppg	-	-	-	-	-	-	-	-	-	-	26	23.78	1.49	31	23.55	0.84	0.24	0.49	na	na	na	na	na	na	na	na	na	na
	IL21 (IL-21)	unst	-	-	-	-	-	-	-	-	-	-	30	24.26	0.90	31	23.76	2.29	0.49	0.15	-	-	-	-	-	-	-	-	-	-
		PHA	30	71.70	27.05	30	69.64	29.77	-2.06	-5.25	4.57	0.25	26	16.51	2.44	31	15.57	3.18	0.94	0.23	26	178.78	390.49	31	165.50	985.74	-13.28	-10.91	12.64	0.39
		Derp1	30	24.02	15.96	30	20.87	20.64	-3.16	-3.62	5.40	0.50	26	23.85	1.29	31	23.28	1.70	0.56	0.77	7	1.92	3.36	14	0.85	2.84	-1.07	-2.89	10.27	0.78
		LpA	30	3.47	2.05	31	2.64	1.44	-0.83	-5.53	19.82	0.78	26	23.86	2.49	31	22.88	1.67	0.97	0.70	10	1.65	5.71	13	1.80	7.83	0.15	-5.05	7.37	0.49
		Ppg	30	8.89	1.48	31	8.89	1.48	0.00	na	na	na	26	21.62	2.62	31	21.28	2.82	0.34	0.28	19	8.42	12.53	22	8.37	19.66	-0.05	-18.71	15.17	0.22
	TGFB1	unst	-	-	-	-	-	-	-	-	-	-	30	10.05	0.78	31	10.15	1.11	-0.11	0.91	-	-	-	-	-	-	-	-	-	-
		PHA	-	-	-	-	-	-	-	-	-	-	26	10.17	1.19	31	10.14	1.42	0.04	0.67	26	0.89	0.67	31	1.05	0.70	0.16	na	na	0.27
		Derp1	-	-	-	-	-	-	-	-	-	-	26	11.35	1.37	31	11.45	1.32	-0.09	0.71	26	0.34	0.40	31	0.42	0.22	0.09	na	na	0.23
		LpA	-	-	-	-	-	-	-	-	-	-	26	11.30	1.03	31	11.16	1.16	0.14	0.86	26	0.34	0.40	31	0.48	0.19	0.14	na	na	0.26
		Ppg	-	-	-	-	-	-	-	-	-	-	26	11.30	1.15	31	11.09	1.30	0.22	0.51	26	0.37	0.35	31	0.48	0.32	0.11	na	na	0.17
	IL23R	unst	-	-	-	-	-	-	-	-	-	-	30	15.51	1.66	31	15.39	1.29	0.12	0.15	-	-	-	-	-	-	-	-	-	-
		PHA	-	-	-	-	-	-	-	-	-	-	26	13.97	1.18	31	13.68	1.60	0.29	0.54	26	2.73	5.28	31	2.92	5.81	0.19	1.68	4.68	0.72
		Derp1	-	-	-	-	-	-	-	-	-	-	26	16.51	1.80	31	16.32	2.13	0.20	0.46	25	0.38	0.56	30	0.51	0.89	0.12	7.95	4.79	0.10
		LpA	-	-	-	-	-	-	-	-	-	-	26	16.49	2.68	31	15.89	2.99	0.60	0.11	26	0.35	0.67	30	0.88	1.14	0.53	3.91	4.97	0.43
		Ppg	-	-	-	-	-	-	-	-	-	-	26	15.61	1.20	31	14.93	1.60	0.68	0.44	25	0.95	1.43	31	1.42	1.89	0.47	5.01	4.62	0.28
	IL1R1	unst	-	-	-	-	-	-	-	-	-	-	30	16.99	1.56	31	16.87	2.23	0.12	0.50	-	-	-	-	-	-	-	-	-	-
		PHA	-	-	-	-	-	-	-	-	-	-	26	13.28	1.85	31	13.73	1.16	-0.46	0.88	26	7.68	8.10	31	9.31	14.02	1.62	3.44	4.58	0.45
		Derp1	-	-	-	-	-	-	-	-	-	-	26	11.51	1.37	31	11.59	2.39	-0.08	0.93	26	30.21	43.12	31	46.67	63.37	16.47	7.65	4.49	0.09
		LpA	-	-	-	-	-	-	-	-	-	-	26	11.09	1.88	31	11.48	1.69	-0.39	0.55	26	39.83	50.29	31	60.28	55.88	20.45	5.26	4.55	0.25
		Ppg	-	-	-	-	-	-	-	-	-	-	26	12.36	2.03	31	12.38	2.34	-0.02	0.80	26	22.33	22.66	31	27.72	48.32	5.38	6.12	4.54	0.18
	RORy	unst	-	-	-	-	-	-	-	-	-	-	30	18.09	1.53	31	18.04	1.90	0.05	0.38	-	-	-	-	-	-	-	-	-	-
		PHA	-	-	-	-	-	-	-	-	-	-	26	14.74	1.40	31	14.81	1.49	-0.07	0.94	26	7.76	4.37	31	7.52	26.78	-0.24	7.25	4.78	0.13
		Derp1	-	-	-	-	-	-	-	-	-	-	26	18.84	1.48	31	18.77	2.10	0.06	0.46	26	0.39	0.51	30	0.51	1.00	0.11	9.86	4.91	0.0448
		LpA	-	-	-	-	-	-	-	-	-	-	26	18.38	1.65	31	18.77	1.70	-0.38	0.66	26	0.50	0.50	29	0.61	1.24	0.11	5.59	4.98	0.26
		Ppg	-	-	-	-	-	-	-	-	-	-	26	18.25	2.25	31	17.79	2.09	0.46	0.75	26	0.63	0.99	30	1.18	1.84	0.55	12.00	4.78	0.0121
	IL17A (IL-17A)	unst	-	-	-	-	-	-	-	-	-	-	30	23.62	0.94	31	23.46	1.08	0.16	1.00	-	-	-	-	-	-	-	-	-	-
		PHA	30	1724.68	1468.98	30	1278.17	985.34	-446.51	na	na	0.0149	26	13.79	2.44	31	14.66	2.50	-0.88	0.23	26	688.25	1299.36	30	490.94	928.15	-197.31	na	na	na*
		Derp1	30	330.34	35.18	30	331.19	53.08	0.84	na	na	0.68	26	21.47	3.50	31	20.62	4.20	0.85	0.75	11	18.16	19.13	18	24.08	28.58	5.91	na	na	na*
		LpA	30	249.54	22.42	31	243.18	30.30	-6.36	na	na	0.43	26	21.59	4.52	31	19.92	2.90	1.68	0.67	10	33.62	27.22	17	21.38	32.06	-12.24	na	na	na*
		Ppg	30	475.95	186.17	31	477.59	233.00	1.64	na	na	0.99	26	15.45	1.87	31	16.22	3.31	-0.77	0.45	26	251.44	397.97	30	131.94	356.86	-119.50	na	na	na*
	IL17F (IL-17F)	unst	-	-	-	-	-	-	-	-	-	-	30	24.51	0.69	31	24.13	1.16	0.37	0.84	-	-	-	-	-	-	-	-	-	-
		PHA	30	11328.12	15571.39	30	8634.96	11682.24	-2693.16	-7.95	4.82	0.10	26	14.67	3.71	31	15.13	3.75	-0.46	0.99	26	715.03	2399.55	30	499.06	1586.99	-215.96	-18.50	13.51	0.17
		Derp1	30	87.46	141.45	30	130.46	125.72	43.00	3.35	4.52	0.46	26	19.03	2.90	31	18.50	1.73	0.52	0.47	25	53.64	102.62	30	43.23	49.61	-10.41	-18.30	14.17	0.20
		LpA	30	74.70	82.59	31	113.03	196.89	38.33	7.21	4.49	0.11	26	19.17	2.08	31	18.47	2.67	0.71	0.12	24	39.10	86.28	28	39.88	93.59	0.79	-11.72	12.84	0.36
		Ppg	30	2014.25	3301.75	31	2185.87	5005.01	171.63	-0.93	4.72	0.84	26	14.45	1.56	31	14.85	3.73	-0.40	0.38	26	869.97	1163.63	31	443.40	1638.38	-426.57	-20.39	13.53	0.13
	IL22 (IL-22)	unst	-	-	-	-	-	-	-	-	-	-	30	23.22	1.08	31	23.42	0.94	-0.20	0.30	-	-	-	-	-	-	-	-	-	-
		PHA	30	61.82	66.29	30	40.18	40.37	-21.64	na	na	0.08	26	22.34	2.90	31	22.23	2.53	0.11	0.89	19	1.82	6.22	22	4.35	6.77	2.54	18.41	11.49	0.11
Derp1		30	23.91	31.06	30	24.67	45.73	0.76	na	na	0.38	26	21.86	3.16	31	20.66	2.91	1.20	0.91	20	4.10	17.50	28	8.10	11.47	4.01	22.55	13.30	0.09	
LpA		30	12.78	17.69	31	23.98	40.72	11.21	8.48	4.44	0.06	26	22.12	2																

SNP	Gene (Protein)	Stimulus	Protein (pg/ml)											dCt											RFC																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
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rs6693413 (RORy) 'G>A' A=risk allele	IL23A (IL-23)	unst	-	-	-	-	-	-	-	-	-	-	-	-	12	14.19	1.43	39	14.40	1.13	10	15.01	1.41	1.06E-06	1.24E-05	0.93	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Asthma and IgE associated polymorphisms affect expression of T_H17 genes
Worth *et al.* - Online Supplement

SNP	Gene (Protein)	Stimulus	Protein (pg/ml)									dCt							RFC													
			GG			GA+AA			Difference of median (Minor-Major)	Est	SE	p	GG			GA+AA			Difference of median (Minor-Major)	p	GG			GA+AA			Difference of median (Minor-Major)	Est	SE	p		
			n	median	IQR	n	median	IQR					n	median	IQR	n	median	IQR			n	median	IQR	n	median	IQR					n	median
rs949969 (RORy) 'G>A' G=risk allele	IL23A (IL-23)	unst	-	-	-	-	-	-	-	-	-	32	14.82	1.37	29	14.23	0.86	0.59	0.0447	-	-	-	-	-	-	-	-	-	-	-	-	-
		PHA	31	25.46	18.17	29	28.17	12.40	2.71	2.75	5.39	0.61	29	10.83	2.57	28	10.67	2.70	0.16	0.57	29	10.06	20.90	28	10.60	15.48	0.54	na	na	0.93		
		Derp1	31	8.00	0.00	29	8.00	1.48	0.00	29.85	24.33	0.22	29	13.04	0.92	28	12.78	1.47	0.26	0.30	29	3.47	5.52	28	2.55	2.79	-0.92	na	na	0.28		
		LpA	32	7.13	0.54	29	7.13	2.15	0.00	6.46	14.91	0.66	29	11.93	1.09	28	12.25	2.27	-0.32	0.62	29	7.56	11.84	28	4.07	4.83	-3.49	na	na	0.14		
	Ppg	32	2.14	0.00	29	2.14	0.00	0.00	na	na	na	29	12.41	1.43	28	12.68	1.36	-0.27	0.72	29	5.75	7.16	28	2.72	3.29	-3.04	na	na	0.10			
	IL12B	unst	-	-	-	-	-	-	-	-	-	-	32	23.60	1.12	29	23.44	0.62	0.16	0.45	-	-	-	-	-	-	-	-	-	-	-	-
		PHA	-	-	-	-	-	-	-	-	-	-	29	22.92	1.11	28	23.69	0.75	-0.77	0.96	na	na	na	na	na	na	na	na	na	na	na	na
		Derp1	-	-	-	-	-	-	-	-	-	-	29	23.67	1.22	28	23.42	1.02	0.25	0.69	na	na	na	na	na	na	na	na	na	na	na	na
		LpA	-	-	-	-	-	-	-	-	-	-	29	23.56	1.09	28	23.32	0.89	0.23	0.18	na	na	na	na	na	na	na	na	na	na	na	na
	Ppg	-	-	-	-	-	-	-	-	-	-	29	23.66	1.22	28	23.50	1.18	0.16	0.77	na	na	na	na	na	na	na	na	na	na	na	na	na
	IL21 (IL-21)	unst	-	-	-	-	-	-	-	-	-	-	32	24.03	1.98	29	24.23	1.97	-0.20	0.69	-	-	-	-	-	-	-	-	-	-	-	-
		PHA	31	68.61	23.28	29	70.68	29.90	2.07	4.30	4.58	0.35	29	15.83	3.37	28	16.59	2.54	-0.76	0.39	29	219.21	933.38	28	161.80	344.22	-57.40	5.25	12.25	0.67		
		Derp1	31	20.23	18.30	29	25.27	18.91	5.04	-0.42	5.42	0.94	29	23.10	1.69	28	24.04	1.23	-0.95	0.40	13	1.59	2.83	8	1.11	2.95	-0.47	-7.96	10.56	0.45		
		LpA	32	3.06	1.24	29	3.88	2.85	0.82	45.08	22.76	0.0477	29	22.78	1.66	28	23.79	2.36	-1.01	0.34	13	6.08	7.66	10	0.95	4.77	-5.13	-3.53	6.86	0.61		
	Ppg	32	8.89	1.48	29	8.89	1.48	0.00	na	na	na	29	21.01	1.94	28	22.03	3.09	-1.02	0.73	23	12.85	17.93	18	7.01	11.87	-5.84	-1.32	14.18	0.93			
	TGFB1	unst	-	-	-	-	-	-	-	-	-	-	32	10.07	0.64	29	10.21	1.09	-0.14	0.79	-	-	-	-	-	-	-	-	-	-	-	-
		PHA	-	-	-	-	-	-	-	-	-	-	29	10.16	1.10	28	10.08	1.34	0.08	0.87	29	0.91	0.44	28	1.00	0.98	0.09	na	na	0.80		
		Derp1	-	-	-	-	-	-	-	-	-	-	29	11.45	1.32	28	11.30	1.44	0.15	0.78	29	0.34	0.15	28	0.42	0.36	0.08	na	na	0.42		
		LpA	-	-	-	-	-	-	-	-	-	-	29	11.24	0.84	28	11.18	1.27	0.06	0.82	29	0.42	0.21	28	0.50	0.38	0.08	na	na	0.32		
	Ppg	-	-	-	-	-	-	-	-	-	-	29	11.25	1.30	28	11.15	1.18	0.10	0.76	29	0.46	0.27	28	0.47	0.36	0.01	na	na	0.89			
	IL23R	unst	-	-	-	-	-	-	-	-	-	-	32	15.61	1.56	29	15.34	1.40	0.28	0.17	-	-	-	-	-	-	-	-	-	-	-	-
		PHA	-	-	-	-	-	-	-	-	-	-	29	13.93	1.47	28	13.81	1.25	0.13	1.00	29	3.28	6.76	28	2.65	2.75	-0.63	-1.62	4.66	0.73		
		Derp1	-	-	-	-	-	-	-	-	-	-	29	16.49	2.30	28	16.46	1.88	0.02	0.50	28	0.51	0.63	27	0.35	0.78	-0.15	-3.03	4.83	0.53		
		LpA	-	-	-	-	-	-	-	-	-	-	29	16.26	2.95	28	16.45	2.89	-0.19	0.78	29	0.78	1.15	27	0.58	0.93	-0.21	-3.96	4.96	0.42		
	Ppg	-	-	-	-	-	-	-	-	-	-	29	15.04	1.32	28	15.09	1.65	-0.06	0.42	28	1.36	1.93	28	1.02	1.45	-0.34	-1.54	4.62	0.74			
	IL1R1	unst	-	-	-	-	-	-	-	-	-	-	32	16.98	1.87	29	16.89	1.60	0.10	0.88	-	-	-	-	-	-	-	-	-	-	-	-
		PHA	-	-	-	-	-	-	-	-	-	-	29	13.64	1.16	28	13.36	1.58	0.28	0.62	29	9.31	13.75	28	7.20	6.21	-2.11	-2.19	4.57	0.63		
		Derp1	-	-	-	-	-	-	-	-	-	-	29	11.59	1.35	28	11.44	2.16	0.15	0.60	29	46.67	53.09	28	36.85	54.09	-9.82	0.41	4.58	0.93		
		LpA	-	-	-	-	-	-	-	-	-	-	29	11.36	1.25	28	11.11	2.15	0.24	0.68	29	44.67	64.85	28	49.45	52.97	4.78	0.32	4.58	0.94		
	Ppg	-	-	-	-	-	-	-	-	-	-	29	12.42	2.11	28	12.27	2.30	0.15	0.68	29	25.15	23.48	28	22.78	34.82	-2.37	-1.67	4.58	0.71			
	RORy	unst	-	-	-	-	-	-	-	-	-	-	32	18.09	1.24	29	17.99	1.95	0.10	0.25	-	-	-	-	-	-	-	-	-	-	-	-
		PHA	-	-	-	-	-	-	-	-	-	-	29	14.82	1.43	28	14.72	1.41	0.09	0.99	29	7.52	11.80	28	8.17	10.45	0.64	-0.76	4.83	0.87		
		Derp1	-	-	-	-	-	-	-	-	-	-	29	19.23	1.93	28	18.65	1.57	0.58	0.46	28	0.44	0.61	28	0.45	0.67	0.01	3.80	5.04	0.45		
		LpA	-	-	-	-	-	-	-	-	-	-	29	18.77	1.60	28	18.38	1.68	0.38	0.90	28	0.63	0.69	27	0.48	0.81	-0.15	-2.57	5.00	0.61		
	Ppg	-	-	-	-	-	-	-	-	-	-	29	18.03	2.22	28	18.25	1.75	-0.22	0.59	29	0.91	1.14	27	0.79	1.14	-0.13	0.08	4.98	0.99			
	IL17A (IL-17A)	unst	-	-	-	-	-	-	-	-	-	-	32	23.60	1.12	29	23.48	0.89	0.13	1.00	-	-	-	-	-	-	-	-	-	-	-	-
		PHA	31	1532.33	998.71	29	1457.12	1464.96	-75.21	na	na	0.71	29	14.45	2.06	28	14.10	2.37	0.34	0.72	29	627.16	922.07	27	582.93	1293.27	-44.23	na	na	na*		
		Derp1	31	328.28	35.56	29	330.73	47.52	2.45	na	na	0.91	29	21.22	4.06	28	20.97	3.93	0.26	0.59	14	13.90	29.34	15	24.40	20.04	10.50	na	na	na*		
		LpA	32	248.41	28.45	29	243.75	22.42	-4.66	na	na	0.55	29	20.63	3.32	28	20.61	4.11	0.03	0.64	14	19.89	27.48	13	29.28	29.10	9.39	na	na	na*		
	Ppg	32	478.41	235.82	29	435.84	160.12	-42.57	na	na	0.53	29	16.06	2.46	28	15.45	3.02	0.61	0.77	29	142.81	346.43	27	234.74	388.23	91.93	na	na	na*			
	IL17F (IL-17F)	unst	-	-	-	-	-	-	-	-	-	-	32	24.34	1.12	29	24.28	1.31	0.06	0.82	-	-	-	-	-	-	-	-	-	-	-	-
		PHA	31	8506.15	15606.75	29	10306.21	10412.61	1800.06	-0.02	4.93	1.00	29	14.10	4.08	28	15.45	2.95	-1.35	0.63	29	647.33	3005.91	27	481.27	1183.98	-166.05	8.23	13.11	0.53		
		Derp1	31	104.30	175.53	29	98.66	112.32	-5.63	-1.22	4.54	0.79	29	18.83	2.49	28	18.85	2.74	-0.02	0.42	29	44.02	57.41	26	51.18	97.77	7.16	14.71	13.38	0.27		
		LpA	32	115.06	148.03	29	73.65	76.47	-41.41	-3.59	4.56	0.43	29	18.50	2.51	28	18.91	1.76	-0.40	0.68	27	43.31	98.00	25	36.46	97.65	-6.85	8.62	12.09	0.48		
	Ppg	32	219.80	5224.19	29	1575.59	2744.97	-611.21	-2.95	4.71	0.53	29	14.71	2.84	28	14.68	2.94	0.03	0.84	29	618.78	1161.65	28	869.97	1572.61	251.19	9.15	13.29	0.49			
	IL22 (IL-22)	unst	-	-	-	-	-	-	-	-	-	-	32	23.29	1.23	29	23.42	0.80	-0.13	0.08	-	-	-	-	-	-	-	-	-	-	-	-
		PHA	31	42.38	62.27	29	57.14	42.24	14.76	na	na	0.63	29	22.06	2.90	28	22.61	2.25	-0.55	0.92	23	3.53	8.50	18	2.84	4.87	-0.68	12.76	12.39	0.30		
Derp1		31	27.21	44.88	29	21.00	31.26	-6.21	na	na	0.20	29	21.22	3.24	28	21.21	3.00	0.01	0.93	26	7.40	13.10	22	7.05	10.53	-0.35	22.29	13.96	0.11			
LpA		32	20.73	32.95	29	15.33	26.21	-5.40	-1.81	4.58	0.69	29																				

SNP	Gene (Protein)	Stimulus	Protein (pg/ml)											dCt											RFC																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
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Asthma and IgE associated polymorphisms affect expression of T_H17 genes
Worth *et al.* - Online Supplement

SNP	Gene (Protein)	Stimulus	Protein (pg/ml)										dCt						RFC													
			CC			CT+TT			Difference of median (Minor-Major)	Est	SE	p	CC			CT+TT			Difference of median (Minor-Major)	p	CC			CT+TT			Difference of median (Minor-Major)	Est	SE	p		
			n	median	IQR	n	median	IQR					n	median	IQR	n	median	IQR			n	median	IQR	n	median	IQR					n	median
rs7741835 (IL17F) C>T C-risk allele	IL23A (IL-23)	unst	-	-	-	-	-	-	-	-	-	-	44	14.29	1.10	16	15.07	0.98	-0.78	0.0215	-	-	-	-	-	-	-	-	-	-	-	-
		PHA	43	28.17	16.16	16	23.56	18.54	-4.60	-10.74	6.06	0.08	43	10.68	2.66	13	10.83	1.64	-0.15	0.58	43	8.83	18.73	13	13.83	20.22	4.99	na	na	0.72		
		Derp1	43	8.00	0.00	16	8.00	0.74	0.00	4.72	24.99	0.85	43	12.77	1.30	13	13.22	0.66	-0.46	0.08	43	3.08	3.71	13	4.00	2.35	0.93	na	na	0.78		
		LpA	44	7.13	1.75	16	7.13	4.29	0.00	14.42	16.18	0.37	43	12.03	1.35	13	12.24	1.96	-0.20	0.71	43	5.87	9.27	13	6.36	11.97	0.50	na	na	0.60		
		Ppg	44	2.14	0.00	16	2.14	0.33	0.00	na	na	na	43	12.41	1.67	13	13.26	1.25	-0.85	0.0047	43	4.49	6.64	13	2.78	2.29	-1.71	na	na	0.27		
	PHA	-	-	-	-	-	-	-	-	-	-	43	23.61	1.10	13	23.18	1.30	0.43	0.86	na	na	na	na	na	na	na	na	na	na	na		
	Derp1	-	-	-	-	-	-	-	-	-	-	43	23.61	1.15	13	23.27	1.21	0.34	0.72	na	na	na	na	na	na	na	na	na	na	na		
	LpA	-	-	-	-	-	-	-	-	-	-	43	23.44	0.93	13	23.06	1.42	0.38	0.56	na	na	na	na	na	na	na	na	na	na	na		
	Ppg	-	-	-	-	-	-	-	-	-	-	43	23.55	1.01	13	23.89	1.60	-0.34	0.29	na	na	na	na	na	na	na	na	na	na	na		
	PHA	43	71.70	26.79	16	58.28	19.91	-13.42	-8.52	5.12	0.10	43	16.36	2.98	13	15.83	1.71	0.53	0.66	43	181.94	663.80	13	122.96	494.68	-58.97	-18.12	12.93	0.16			
	Derp1	43	22.77	18.91	16	22.76	20.71	-0.01	-1.01	6.21	0.87	43	23.85	2.23	13	23.50	1.16	0.35	0.0130	15	1.92	4.73	6	0.50	0.37	-1.42	-11.60	10.70	0.28			
	LpA	44	3.06	1.64	16	3.47	2.25	0.41	21.66	21.47	0.31	43	23.59	2.13	13	22.65	1.63	0.95	0.0482	16	1.49	6.10	7	6.20	15.53	4.71	-4.06	7.94	0.61			
	Ppg	44	8.89	1.48	16	8.89	0.00	0.00	na	na	na	43	21.36	2.68	13	21.80	2.14	-0.43	0.34	31	10.25	17.29	10	3.36	10.30	-6.89	-19.01	15.58	0.22			
	PHA	-	-	-	-	-	-	-	-	-	-	43	10.10	1.25	13	10.53	0.85	-0.43	0.30	43	1.04	0.82	13	0.85	0.51	-0.19	na	na	0.21			
	Derp1	-	-	-	-	-	-	-	-	-	-	43	11.29	1.28	13	11.63	1.57	-0.34	0.58	43	0.42	0.36	13	0.34	0.12	-0.08	na	na	0.37			
	LpA	-	-	-	-	-	-	-	-	-	-	43	11.16	1.06	13	11.34	1.87	-0.18	0.83	43	0.47	0.33	13	0.43	0.22	-0.04	na	na	0.96			
	Ppg	-	-	-	-	-	-	-	-	-	-	43	11.09	1.09	13	11.56	1.80	-0.47	0.13	43	0.49	0.32	13	0.34	0.22	-0.16	na	na	0.06			
	PHA	-	-	-	-	-	-	-	-	-	-	43	13.93	1.44	13	13.93	1.63	0.00	0.39	43	2.70	5.50	13	4.22	6.80	1.52	6.93	5.58	0.21			
	Derp1	-	-	-	-	-	-	-	-	-	-	43	16.48	2.20	13	16.33	1.31	0.15	0.78	42	0.41	0.85	12	0.60	0.65	0.19	6.04	5.68	0.29			
	LpA	-	-	-	-	-	-	-	-	-	-	43	16.15	2.79	13	16.55	3.70	-0.40	0.93	43	0.58	1.09	12	0.89	1.49	0.31	4.54	6.10	0.46			
	Ppg	-	-	-	-	-	-	-	-	-	-	43	14.93	1.42	13	16.11	1.56	-1.18	0.0058	42	1.31	1.60	13	0.90	1.93	-0.40	-2.28	5.50	0.68			
	PHA	-	-	-	-	-	-	-	-	-	-	43	13.35	1.36	13	13.64	1.20	-0.29	0.97	43	9.31	6.98	13	7.17	24.13	-2.14	-0.06	5.43	0.99			
	Derp1	-	-	-	-	-	-	-	-	-	-	43	11.46	1.40	13	11.70	2.51	-0.24	0.0416	43	46.67	45.21	13	29.10	112.74	-17.57	-1.35	5.47	0.81			
	LpA	-	-	-	-	-	-	-	-	-	-	43	11.08	1.62	13	11.63	2.24	-0.54	0.17	43	49.46	52.81	13	32.90	145.75	-16.56	-1.01	5.48	0.85			
	Ppg	-	-	-	-	-	-	-	-	-	-	43	12.30	1.65	13	12.72	2.54	-0.43	0.22	43	25.29	26.88	13	18.39	57.46	-6.90	-2.51	5.45	0.65			
	PHA	-	-	-	-	-	-	-	-	-	-	43	14.76	1.41	13	15.44	1.59	-0.68	0.15	43	7.79	9.19	13	7.52	11.42	-0.26	1.06	5.71	0.85			
	Derp1	-	-	-	-	-	-	-	-	-	-	43	18.67	1.42	13	19.96	2.63	-1.29	0.15	42	0.47	0.62	13	0.38	0.64	-0.09	-1.16	6.04	0.85			
	LpA	-	-	-	-	-	-	-	-	-	-	43	18.53	1.78	13	18.77	1.57	-0.24	0.85	42	0.51	0.63	12	0.57	2.29	0.06	3.35	6.13	0.58			
	Ppg	-	-	-	-	-	-	-	-	-	-	43	17.79	1.48	13	19.36	1.99	-1.57	0.0068	43	1.02	1.45	12	0.50	0.71	-0.52	-13.66	5.78	0.0181			
	PHA	43	1506.28	1193.05	16	1265.12	1106.79	-241.17	na	na	0.61	43	14.05	2.35	13	14.66	1.46	-0.62	0.56	43	627.16	997.55	12	603.41	838.17	-23.74	na	na	na*			
	Derp1	43	329.96	48.98	16	331.26	32.76	1.30	na	na	0.44	43	20.99	4.41	13	21.22	3.09	-0.24	0.21	22	20.17	28.87	7	18.44	20.08	-1.73	na	na	na*			
	LpA	44	243.27	27.27	16	252.02	21.61	8.74	na	na	0.42	43	20.64	3.31	13	20.63	4.15	0.01	0.28	19	21.38	22.86	7	40.82	29.79	19.44	na	na	na*			
	Ppg	44	527.39	269.40	16	412.01	81.56	-115.37	na	na	0.0116	43	15.39	2.20	13	18.08	2.15	-2.69	0.0003	43	261.10	618.55	12	70.63	84.05	-190.47	na	na	na*			
	PHA	43	10404.06	15465.80	16	5053.32	7577.51	-5350.74	-13.80	5.31	0.0094	43	14.66	3.53	13	15.61	3.03	-0.95	0.71	43	557.33	2477.61	12	570.63	1349.11	13.30	-9.52	14.62	0.52			
	Derp1	43	109.00	161.61	16	69.48	100.27	-39.53	-9.31	5.02	0.06	43	18.42	2.28	13	19.30	2.01	-0.87	0.06	42	49.40	93.85	12	33.92	43.59	-15.49	-9.88	15.42	0.52			
	LpA	44	115.06	116.26	16	60.74	73.77	-54.32	-11.20	5.09	0.0277	43	18.90	2.04	13	18.64	4.79	0.26	0.85	40	42.70	101.80	11	27.68	87.17	-15.02	-8.17	13.95	0.56			
	Ppg	44	2678.66	8014.05	16	884.63	1792.58	-1794.03	-18.76	4.79	0.0001	43	14.27	2.45	13	16.37	2.55	-2.10	0.0004	43	1053.74	2258.40	13	236.76	400.45	-816.98	-19.87	13.65	0.15			
	PHA	43	62.90	58.98	16	35.11	36.09	-27.79	na	na	0.0338	43	22.23	3.49	13	22.20	1.54	0.03	0.33	31	3.53	7.08	10	1.89	3.35	-1.64	-11.85	12.40	0.34			
	Derp1	43	24.73	46.33	16	22.15	30.15	-2.58	na	na	0.63	43	20.86	3.29	13	21.29	2.23	-0.43	0.81	37	6.79	12.92	10	8.04	11.78	1.25	-23.46	15.06	0.12			
	LpA	44	19.37	29.05	16	13.90	24.30	-5.47	-2.16	5.2																						

Asthma and IgE associated polymorphisms affect expression of T_H17 genes
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SNP	Gene (Protein)	Stimulus	Protein (pg/ml)									dCt						RFC														
			AA			AT+TT			Difference of median (Minor-Major)	Est	SE	p	AA			AT+TT			Difference of median (Minor-Major)	p	AA			AT+TT			Difference of median (Minor-Major)	Est	SE	p		
			n	median	IQR	n	median	IQR					n	median	IQR	n	median	IQR			n	median	IQR	n	median	IQR						
rs4144961 (IL22) 'A>T' A=risk allele	IL23A (IL-23)	unst	-	-	-	-	-	-	-	-	-	34	14.41	1.54	26	14.48	1.03	-0.08	0.22	-	-	-	-	-	-	-	-	-	-	-	-	-
		PHA	33	26.55	12.40	26	25.46	22.24	-1.09	-2.37	5.54	0.67	30	10.70	2.65	26	10.69	2.55	0.01	0.86	30	8.90	16.89	26	10.91	38.48	2.01	na	na	na	0.27	
		Derp1	33	8.00	0.00	26	8.00	0.00	0.00	32.51	24.94	0.19	30	12.82	1.30	26	12.88	1.10	-0.06	0.62	30	2.83	2.97	26	3.78	5.19	0.95	na	na	na	0.11	
		LpA	34	7.13	0.00	26	7.13	3.56	0.00	11.41	14.87	0.44	30	11.80	1.43	26	12.23	1.12	-0.43	0.65	30	4.92	8.63	26	6.29	8.52	1.37	na	na	na	0.35	
		Ppg	34	2.14	0.00	26	2.14	0.00	0.00	na	na	na	30	12.45	1.39	26	12.70	1.29	-0.25	0.99	30	3.17	6.12	26	5.01	6.17	1.83	na	na	na	0.25	
	IL12B	unst	-	-	-	-	-	-	-	-	-	-	34	23.59	1.06	26	23.45	0.77	0.14	0.36	-	-	-	-	-	-	-	-	-	-	-	-
		PHA	-	-	-	-	-	-	-	-	-	-	30	23.65	1.14	26	23.41	1.28	0.24	0.13	na	na	na	na	na	na	na	na	na	na	na	na
		Derp1	-	-	-	-	-	-	-	-	-	-	30	23.68	1.15	26	23.38	0.99	0.30	0.30	na	na	na	na	na	na	na	na	na	na	na	na
		LpA	-	-	-	-	-	-	-	-	-	-	30	23.46	1.06	26	23.18	1.79	0.28	0.27	na	na	na	na	na	na	na	na	na	na	na	na
		Ppg	-	-	-	-	-	-	-	-	-	-	30	23.83	1.13	26	23.49	1.38	0.34	0.43	na	na	na	na	na	na	na	na	na	na	na	na
	IL21 (IL-21)	unst	-	-	-	-	-	-	-	-	-	-	34	24.19	2.07	26	24.03	1.64	0.16	0.38	-	-	-	-	-	-	-	-	-	-	-	-
		PHA	33	70.68	20.67	26	70.68	29.12	0.00	1.10	4.68	0.81	30	16.10	2.92	26	16.18	3.21	-0.08	0.61	30	172.32	482.76	26	275.58	972.59	103.26	16.37	12.19	0.18		
		Derp1	33	21.50	20.41	26	25.89	14.57	4.39	7.16	5.48	0.19	30	23.93	1.47	26	23.39	1.97	0.54	0.74	10	0.85	1.73	11	1.92	3.43	1.07	13.90	10.59	0.19		
		LpA	34	3.06	1.24	26	3.26	2.05	0.21	22.18	20.42	0.28	30	23.34	1.98	26	23.03	2.20	0.32	0.0346	14	1.11	6.17	9	6.20	7.48	5.09	4.04	7.21	0.57		
		Ppg	34	8.89	1.48	26	8.89	1.48	0.00	na	na	na	30	21.35	2.55	26	21.58	2.85	-0.23	0.62	22	7.77	13.25	19	9.61	18.56	1.84	11.71	14.58	0.42		
	TGFB1	unst	-	-	-	-	-	-	-	-	-	-	34	10.08	0.93	26	10.12	0.82	-0.03	0.99	-	-	-	-	-	-	-	-	-	-	-	-
		PHA	-	-	-	-	-	-	-	-	-	-	30	10.15	1.20	26	10.20	1.41	-0.06	0.99	30	0.95	0.61	26	0.99	1.00	0.04	na	na	na	0.56	
		Derp1	-	-	-	-	-	-	-	-	-	-	30	11.31	1.29	26	11.36	1.30	-0.05	0.89	30	0.39	0.29	26	0.42	0.28	0.03	na	na	na	0.53	
		LpA	-	-	-	-	-	-	-	-	-	-	30	11.01	1.25	26	11.27	0.81	-0.26	0.53	30	0.45	0.36	26	0.47	0.27	0.02	na	na	na	0.69	
		Ppg	-	-	-	-	-	-	-	-	-	-	30	11.17	1.28	26	11.13	1.15	0.04	0.93	30	0.45	0.26	26	0.51	0.30	0.06	na	na	na	0.30	
	IL23R	unst	-	-	-	-	-	-	-	-	-	-	34	15.44	1.59	26	15.49	1.75	-0.06	0.71	-	-	-	-	-	-	-	-	-	-	-	-
		PHA	-	-	-	-	-	-	-	-	-	-	30	13.64	1.40	26	13.98	1.30	-0.33	0.95	30	2.61	2.85	26	4.18	6.66	1.57	5.38	4.69	0.25		
		Derp1	-	-	-	-	-	-	-	-	-	-	30	16.30	2.33	26	16.49	1.91	-0.20	0.29	29	0.45	0.99	25	0.42	0.55	-0.04	-3.75	4.75	0.43		
		LpA	-	-	-	-	-	-	-	-	-	-	30	16.26	2.28	26	16.61	3.00	-0.35	0.31	29	0.57	0.81	26	0.78	1.20	0.21	-0.18	5.07	0.97		
		Ppg	-	-	-	-	-	-	-	-	-	-	30	15.24	1.64	26	15.06	1.39	0.19	0.28	30	0.93	1.30	25	1.74	1.91	0.82	4.46	4.61	0.33		
	IL1R1	unst	-	-	-	-	-	-	-	-	-	-	34	16.93	1.85	26	16.89	1.56	0.04	0.34	-	-	-	-	-	-	-	-	-	-	-	-
		PHA	-	-	-	-	-	-	-	-	-	-	30	13.19	1.20	26	13.82	1.37	-0.64	0.60	30	6.87	12.24	26	9.65	7.09	2.78	4.99	4.52	0.27		
		Derp1	-	-	-	-	-	-	-	-	-	-	30	11.51	1.87	26	11.55	1.80	-0.04	0.63	30	31.05	43.16	26	53.39	54.53	22.34	8.51	4.45	0.06		
		LpA	-	-	-	-	-	-	-	-	-	-	30	11.03	2.07	26	11.45	1.74	-0.41	0.83	30	36.65	52.69	26	65.61	52.25	28.95	5.70	4.54	0.21		
		Ppg	-	-	-	-	-	-	-	-	-	-	30	11.91	1.56	26	12.60	2.33	-0.69	0.55	30	22.78	29.26	26	26.64	29.90	3.85	3.17	4.58	0.49		
	RORy	unst	-	-	-	-	-	-	-	-	-	-	34	17.97	1.75	26	18.30	1.82	-0.33	0.25	-	-	-	-	-	-	-	-	-	-	-	-
		PHA	-	-	-	-	-	-	-	-	-	-	30	14.71	1.34	26	14.83	1.77	-0.12	0.68	30	7.63	5.59	26	9.33	13.86	1.70	4.52	4.78	0.34		
		Derp1	-	-	-	-	-	-	-	-	-	-	30	18.65	1.78	26	18.92	1.99	-0.27	0.77	30	0.44	0.72	25	0.47	0.57	0.03	0.37	5.14	0.94		
		LpA	-	-	-	-	-	-	-	-	-	-	30	18.37	1.57	26	18.98	1.93	-0.61	0.21	28	0.50	1.06	26	0.58	0.65	0.09	-0.41	5.12	0.94		
		Ppg	-	-	-	-	-	-	-	-	-	-	30	18.07	1.72	26	18.26	2.18	-0.19	0.99	29	0.77	1.09	26	1.02	1.40	0.25	3.48	4.97	0.48		
	IL17A (IL-17A)	unst	-	-	-	-	-	-	-	-	-	-	34	23.60	1.20	26	23.45	0.95	0.15	1.00	-	-	-	-	-	-	-	-	-	-	-	-
		PHA	33	1678.89	1520.84	26	1283.04	867.64	-395.85	na	na	0.43	30	14.00	2.44	26	14.47	2.34	-0.46	0.25	29	815.89	1169.02	26	398.81	841.70	-417.07	na	na	na	na*	
		Derp1	33	329.96	37.71	26	330.27	49.01	0.31	na	na	0.86	30	21.27	4.39	26	20.80	3.54	0.47	0.59	15	18.44	23.03	14	23.94	28.81	5.50	na	na	na	na*	
		LpA	34	246.03	25.08	26	247.45	30.44	1.42	na	na	1.00	30	21.59	3.61	26	19.91	2.80	1.68	0.96	13	18.64	34.91	13	27.14	22.42	8.50	na	na	na	na*	
		Ppg	34	437.84	154.94	26	585.10	277.50	147.27	na	na	0.0448	30	16.01	3.00	26	15.81	2.19	0.20	0.64	29	142.81	416.00	26	189.18	351.93	46.37	na	na	na	na*	
	IL17F (IL-17F)	unst	-	-	-	-	-	-	-	-	-	-	34	24.34	1.16	26	24.28	1.13	0.06	0.73	-	-	-	-	-	-	-	-	-	-	-	-
		PHA	33	9492.77	11456.53	26	9842.63	16051.14	349.86	0.14	5.06	0.98	30	14.55	3.65	26	15.21	3.86	-0.66	0.67	29	988.76	2566.23	26	485.54	1128.39	-503.22	1.92	12.87	0.88		
		Derp1	33	75.92	147.45	26	134.36	157.74	58.44	6.68	4.55	0.14	30	18.84	2.95	26	18.65	1.69	0.19	0.75	29	50.09	69.69	25	45.22	92.50	-4.87	1.93	13.46	0.89		
		LpA	34	85.88	89.38	26	102.40	119.86	16.52	4.88	4.66	0.29	30	18.84	2.05	26	18.83	2.52	0.01	0.79	28	34.89	99.50	23	43.31	93.30	8.41	0.07	11.85	1.00		
		Ppg	34	1552.79	1998.17	26	3881.80	7337.91	2329.02	8.00	4.68	0.09	30	14.74	2.92	26	14.31	2.51	0.43	0.39	30	634.60	1352.70	26	686.70	1934.22	52.10	1.92	13.02	0.88		
	IL22 (IL-22)	unst	-	-	-	-	-	-	-	-	-	-	34	23.11	1.33	26	23.43	0.84	-0.32	0.69	-	-	-	-	-	-	-	-	-	-	-	-
		PHA	33	62.90	54.96	26	40.18	42.99	-22.72	na	na	0.38	30	22.11	2.86	26	22.43	2.92	-0.32	0.73	24	2.18	4.90	17	4.56	6.87	2.38	10.96	11.51	0.34		
Derp1		33	24.07	31.49	26	27.79	48.26	3.72	na	na	0.17	30	21.26	3.59	26	21.04	2.81	0.22	0.28	24	8.00	11.37	23	6.79								

Asthma and IgE associated polymorphisms affect expression of T_H17 genes
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SNP	Gene (Protein)	Stimulus	Protein (pg/ml)									dCt							RFC												
			GG			GA			Difference of median (Minor-Major)	Est	SE	p	GG			GA			Difference of median (Minor-Major)	p	GG			GA			Difference of median (Minor-Major)	Est	SE	p	
			n	median	IQR	n	median	IQR					n	median	IQR	n	median	IQR			n	median	IQR	n	median	IQR					n
rs3181225 (IL12B) 'G>A' G=higher IgE levels	IL23A (IL-23)	unst	-	-	-	-	-	-	-	-	-	46	14.52	1.21	15	14.25	1.77	0.27	0.79	-	-	-	-	-	-	-	-	-	-	-	-
		PHA	45	27.63	14.59	15	23.84	15.27	-3.80	-3.92	6.23	0.53	43	10.70	2.30	14	10.69	3.65	0.01	0.52	43	8.83	17.11	14	10.94	41.54	2.11	na	na	0.72	
		Derp1	45	8.00	0.00	15	8.00	0.00	0.00	na	na	na	43	12.88	1.03	14	12.76	1.74	0.11	0.44	43	3.08	2.89	14	3.51	6.23	0.44	na	na	0.90	
		LpA	46	7.13	3.56	15	7.13	1.48	0.00	-19.16	19.59	0.33	43	12.24	1.69	14	11.75	2.30	0.48	0.21	43	6.09	8.81	14	4.38	11.16	-1.70	na	na	0.61	
		Ppg	46	2.14	0.00	15	2.14	0.00	0.00	na	na	na	43	12.71	1.33	14	12.29	1.56	0.42	0.13	43	3.36	5.87	14	5.01	7.50	1.64	na	na	0.83	
	IL12B	unst	-	-	-	-	-	-	-	-	-	-	46	23.47	0.91	15	23.70	0.91	-0.23	0.54	-	-	-	-	-	-	-	-	-	-	-
		PHA	-	-	-	-	-	-	-	-	-	-	43	23.62	1.11	14	23.06	1.00	0.56	0.41	na	na	na	na	na	na	na	na	na	na	na
		Derp1	-	-	-	-	-	-	-	-	-	-	43	23.55	1.18	14	23.63	0.78	-0.08	0.94	na	na	na	na	na	na	na	na	na	na	na
		LpA	-	-	-	-	-	-	-	-	-	-	43	23.14	1.26	14	23.55	0.62	-0.41	0.82	na	na	na	na	na	na	na	na	na	na	na
		Ppg	-	-	-	-	-	-	-	-	-	-	43	23.50	1.21	14	23.75	1.22	-0.24	0.43	na	na	na	na	na	na	na	na	na	na	na
	IL21 (IL-21)	unst	-	-	-	-	-	-	-	-	-	-	46	24.14	1.97	15	23.76	1.65	0.38	0.33	-	-	-	-	-	-	-	-	-	-	-
		PHA	45	71.70	28.87	15	67.59	24.27	-4.12	-2.69	5.3	0.61	43	16.14	2.86	14	16.22	2.97	-0.08	0.82	43	175.62	728.60	14	173.72	281.19	-1.90	2.39	14.83	0.87	
		Derp1	45	22.77	17.70	15	25.27	18.07	2.50	-0.99	6.28	0.87	43	23.75	1.50	14	23.97	1.85	-0.22	0.74	na	na	na	na	na	na	na	na	na	na	na
		LpA	46	3.06	1.64	15	3.47	2.05	0.41	-31.64	28.84	0.27	43	23.17	2.09	14	23.14	2.46	0.03	0.49	15	1.03	6.36	8	6.14	6.37	5.11	16.10	7.96	0.0432	
		Ppg	46	8.89	1.48	15	8.89	2.13	0.00	na	na	na	43	21.28	2.74	14	22.03	2.55	-0.75	0.26	32	9.02	15.47	9	5.49	20.65	-3.52	4.86	17.68	0.78	
	TGFB1	unst	-	-	-	-	-	-	-	-	-	-	46	10.22	0.73	15	10.04	0.98	0.18	0.49	-	-	-	-	-	-	-	-	-	-	-
		PHA	-	-	-	-	-	-	-	-	-	-	43	10.16	1.26	14	9.86	1.41	0.30	0.75	43	0.91	0.67	14	1.17	0.87	0.26	na	na	0.84	
		Derp1	-	-	-	-	-	-	-	-	-	-	43	11.42	1.39	14	11.36	1.37	0.06	0.69	43	0.40	0.34	14	0.40	0.13	0.00	na	na	0.71	
		LpA	-	-	-	-	-	-	-	-	-	-	43	11.16	1.40	14	11.30	0.78	-0.14	0.93	43	0.47	0.34	14	0.40	0.22	-0.07	na	na	0.33	
		Ppg	-	-	-	-	-	-	-	-	-	-	43	11.12	1.38	14	11.21	0.80	-0.09	0.87	43	0.49	0.31	14	0.38	0.18	-0.11	na	na	0.31	
	IL23R	unst	-	-	-	-	-	-	-	-	-	-	46	15.44	1.64	15	15.56	1.36	-0.12	0.96	-	-	-	-	-	-	-	-	-	-	-
		PHA	-	-	-	-	-	-	-	-	-	-	43	13.93	1.39	14	13.87	0.97	0.07	0.36	43	3.28	5.27	14	2.28	5.48	-1.00	-5.65	5.36	0.29	
		Derp1	-	-	-	-	-	-	-	-	-	-	43	16.49	2.21	14	16.39	1.50	0.10	0.29	42	0.43	0.95	13	0.42	0.53	-0.01	-1.84	5.74	0.75	
		LpA	-	-	-	-	-	-	-	-	-	-	43	16.36	2.86	14	16.40	2.78	-0.03	0.66	42	0.70	1.10	14	0.64	1.30	-0.06	-0.72	5.76	0.90	
		Ppg	-	-	-	-	-	-	-	-	-	-	43	14.96	1.77	14	15.62	1.29	-0.66	0.14	43	1.20	1.93	13	0.83	1.19	-0.37	-9.35	5.30	0.08	
	IL1R1	unst	-	-	-	-	-	-	-	-	-	-	46	16.90	1.80	15	17.05	1.81	-0.15	0.72	-	-	-	-	-	-	-	-	-	-	-
		PHA	-	-	-	-	-	-	-	-	-	-	43	13.52	1.44	14	13.60	1.18	-0.08	0.75	43	8.14	13.72	14	7.93	6.46	-0.20	0.51	5.33	0.92	
		Derp1	-	-	-	-	-	-	-	-	-	-	43	11.50	1.85	14	11.68	1.62	-0.17	0.72	43	40.04	47.42	14	57.84	59.49	17.81	2.57	5.32	0.63	
		LpA	-	-	-	-	-	-	-	-	-	-	43	11.18	1.83	14	11.38	1.92	-0.21	0.80	43	46.69	54.74	14	46.99	73.07	0.30	1.03	5.33	0.85	
		Ppg	-	-	-	-	-	-	-	-	-	-	43	12.42	2.37	14	12.27	1.31	0.15	0.44	43	22.97	29.02	14	27.85	36.51	4.88	3.36	5.31	0.53	
	RORY	unst	-	-	-	-	-	-	-	-	-	-	46	18.05	1.83	15	18.27	1.27	-0.22	0.24	-	-	-	-	-	-	-	-	-	-	-
		PHA	-	-	-	-	-	-	-	-	-	-	43	14.73	1.42	14	15.43	1.64	-0.71	0.31	43	7.74	12.76	14	7.28	6.47	-0.45	-7.93	5.49	0.15	
		Derp1	-	-	-	-	-	-	-	-	-	-	43	18.91	1.99	14	18.78	1.17	0.13	0.96	42	0.41	0.67	14	0.50	0.44	0.08	1.20	5.81	0.84	
		LpA	-	-	-	-	-	-	-	-	-	-	43	18.92	1.78	14	18.15	0.75	0.77	0.35	41	0.50	0.66	14	0.61	0.78	0.11	1.97	5.70	0.73	
		Ppg	-	-	-	-	-	-	-	-	-	-	43	18.07	2.02	14	18.41	2.33	-0.34	0.16	42	1.02	1.36	14	0.52	0.54	-0.50	-10.45	5.57	0.06	
	IL17A (IL-17A)	unst	-	-	-	-	-	-	-	-	-	-	46	23.59	1.00	15	23.44	0.92	0.14	1.00	-	-	-	-	-	-	-	-	-	-	-
		PHA	45	9514.79	12256.06	15	8170.08	15217.17	-1344.71	0.35	5.71	0.95	43	14.45	2.31	14	14.01	2.78	0.44	0.69	42	583.24	1069.64	14	777.01	907.79	193.78	na	na	na*	
		Derp1	45	332.26	37.25	15	328.28	37.95	-3.99	na	na	0.41	43	21.22	3.59	14	20.20	5.05	1.02	0.30	20	18.30	29.06	9	24.40	24.86	6.09	na	na	na*	
		LpA	46	249.45	24.80	15	241.66	24.69	-7.79	na	na	0.32	43	20.95	3.23	14	18.78	2.86	2.16	0.45	16	26.66	23.72	11	27.14	38.16	0.48	na	na	na*	
		Ppg	46	478.41	243.04	15	422.23	139.97	-56.19	na	na	0.63	43	15.88	2.71	14	15.81	3.10	0.07	0.86	42	189.18	415.53	14	131.47	302.38	-57.71	na	na	na*	
	IL17F (IL-17F)	unst	-	-	-	-	-	-	-	-	-	-	46	24.38	0.98	15	23.66	1.87	0.72	0.66	-	-	-	-	-	-	-	-	-	-	-
		PHA	45	9514.79	12256.06	15	8170.08	15217.17	-1344.71	0.35	5.71	0.95	43	14.88	3.54	14	14.81	4.70	0.07	0.46	42	530.76	1300.56	14	683.33	3029.46	152.57	-8.69	14.09	0.54	
		Derp1	45	98.66	114.94	15	142.39	159.13	43.73	1.08	5.25	0.84	43	19.01	2.47	14	18.36	2.83	0.65	0.86	42	46.26	87.19	13	45.22	50.65	-1.04	-12.10	14.86	0.42	
		LpA	46	75.65	126.37	15	117.10	78.43	41.45	4.58	5.28	0.39	43	19.20	2.31	14	18.27	1.47	0.93	0.06	39	36.46	90.75	13	42.10	106.78	5.64	-6.90	13.16	0.60	
		Ppg	46	2307.50	4500.59	15	1821.62	3342.07	-485.88	-3.12	5.47	0.57	43	14.29	2.63	14	14.84	2.46	-0.56	0.32	43	844.93	1559.01	14	442.90	1282.11	-402.03	-19.67	13.32	0.14	
	IL22 (IL-22)	unst	-	-	-	-	-	-	-	-	-	-	46	23.29	1.03	15	23.42	1.33	-0.13	0.44	-	-	-	-	-	-	-	-	-	-	-
		PHA	45	56.48	50.81	15	37.44	46.48	-19.05	na	na	0.65	43	22.61	2.67	14	22.12	3.04	0.48	0.52	30	2.60	6.35	11	3.53	8.61	0.93	-12.90	12.73	0.31	
Derp1		45	27.21	45.92	15	21.33	11.85	-5.88	na	na	0.15	43	21.14	3.19	14	21.41	3.22	-0.27	0.98	35	8.00	16.87	13	6.15	5.91	-1.85	-22.89	13.64	0.09		
LpA		46	17.15	35.29	15	16.85	16.85	-0.31	-0.10	5.31	0.98	43	21.47	2.65	14	20.74	2.65	0.73	0.54	32	6.29</										

Asthma and IgE associated polymorphisms affect expression of T_H17 genes
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SNP	Gene (Protein)	Stimulus	Protein (pg/ml)										dCt						RFC													
			TT			TG+GG			Difference of median (Minor-Major)	Est	SE	p	TT			TG+GG			Difference of median (Minor-Major)	p	TT			TG+GG			Difference of median (Minor-Major)	Est	SE	p		
			n	median	IQR	n	median	IQR					n	median	IQR	n	median	IQR			n	median	IQR	n	median	IQR						
rs3212227 (IL12B) T>G' G=higher IgE levels	IL23A (IL-23)	unst	-	-	-	-	-	-	-	-	-	-	39	14.42	1.28	20	14.33	0.98	0.09	0.62	-	-	-	-	-	-	-	-	-	-	-	-
		PHA	38	26.55	16.29	20	24.65	19.78	-1.90	-6.87	5.86	0.24	36	10.69	2.54	19	10.70	2.79	-0.01	0.79	36	10.91	19.75	19	10.06	26.68	-0.85	na	na	0.79		
		Derp1	38	8.00	0.28	20	8.00	0.00	0.00	8.88	23.2	0.70	36	12.98	1.31	19	12.77	1.28	0.22	0.16	36	3.21	3.57	19	3.12	2.99	-0.09	na	na	0.34		
		LpA	39	7.13	2.55	20	7.13	0.41	0.00	-9.51	15.98	0.55	36	11.98	1.60	19	12.23	1.65	-0.24	0.62	36	5.87	9.00	19	5.87	9.28	0.00	na	na	0.68		
	Ppg	39	2.14	0.00	20	2.14	0.00	0.00	na	na	na	36	12.58	1.16	19	12.44	2.05	0.13	0.76	36	3.51	6.51	19	3.57	5.92	0.05	na	na	0.63			
	IL12B	unst	-	-	-	-	-	-	-	-	-	-	39	23.42	1.00	20	23.67	0.80	-0.25	0.74	-	-	-	-	-	-	-	-	-	-	-	
		PHA	-	-	-	-	-	-	-	-	-	-	36	23.62	1.16	19	23.36	1.20	0.26	0.96	na	na	na	na	na	na	na	na	na	na	na	
		Derp1	-	-	-	-	-	-	-	-	-	-	36	23.61	1.24	19	23.55	0.79	0.06	0.42	na	na	na	na	na	na	na	na	na	na	na	
		LpA	-	-	-	-	-	-	-	-	-	-	36	23.53	1.51	19	23.14	0.55	0.39	0.50	na	na	na	na	na	na	na	na	na	na	na	
		Ppg	-	-	-	-	-	-	-	-	-	-	36	23.63	1.01	19	23.55	1.47	0.09	0.24	na	na	na	na	na	na	na	na	na	na	na	
	IL21 (IL-21)	unst	-	-	-	-	-	-	-	-	-	-	39	24.04	1.95	20	24.43	1.15	-0.40	0.19	-	-	-	-	-	-	-	-	-	-	-	
		PHA	38	69.64	26.55	20	71.19	37.11	1.55	-0.40	4.97	0.94	36	16.10	2.96	19	15.83	2.75	0.27	0.70	36	153.88	445.53	19	352.18	748.28	198.31	23.00	14.10	0.10		
		Derp1	38	25.89	13.67	20	16.36	18.41	-9.53	-12.07	5.82	0.0381	36	23.77	1.77	19	23.59	1.70	0.18	0.64	15	1.03	1.88	6	2.98	5.03	1.95	14.72	11.86	0.21		
		LpA	39	3.06	2.05	20	3.88	1.34	0.82	-40.94	28.85	0.16	36	22.71	2.21	19	23.89	1.45	-1.18	0.58	na	na	na	na	na	na	na	na	na	na	na	
	Ppg	39	8.89	1.48	20	8.89	3.35	0.00	na	na	na	36	21.31	2.78	19	21.80	2.46	-0.48	0.0372	26	9.02	18.27	15	5.60	12.84	-3.41	26.32	18.14	0.15			
	TGFB1	unst	-	-	-	-	-	-	-	-	-	-	39	10.21	1.14	20	10.01	0.59	0.19	0.27	-	-	-	-	-	-	-	-	-	-	-	
		PHA	-	-	-	-	-	-	-	-	-	-	36	10.12	1.35	19	10.16	1.02	-0.04	0.99	36	1.04	0.78	19	0.86	0.58	-0.18	na	na	0.27		
		Derp1	-	-	-	-	-	-	-	-	-	-	36	11.21	1.54	19	11.42	1.16	-0.21	0.55	36	0.42	0.36	19	0.38	0.21	-0.04	na	na	0.30		
		LpA	-	-	-	-	-	-	-	-	-	-	36	11.16	1.30	19	11.16	0.90	0.00	0.45	36	0.47	0.35	19	0.42	0.27	-0.05	na	na	0.22		
		Ppg	-	-	-	-	-	-	-	-	-	-	36	11.04	1.30	19	11.46	1.17	-0.42	0.41	36	0.49	0.28	19	0.34	0.35	-0.15	na	na	0.16		
	IL23R	unst	-	-	-	-	-	-	-	-	-	-	39	15.34	1.86	20	15.49	1.25	-0.16	0.84	-	-	-	-	-	-	-	-	-	-	-	
		PHA	-	-	-	-	-	-	-	-	-	-	36	13.96	1.59	19	13.67	1.15	0.29	0.99	36	3.22	6.52	19	2.37	3.07	-0.85	-3.68	5.05	0.47		
		Derp1	-	-	-	-	-	-	-	-	-	-	36	16.41	2.26	19	16.49	1.57	-0.07	0.97	34	0.45	0.92	19	0.40	0.45	-0.04	-2.32	4.99	0.64		
		LpA	-	-	-	-	-	-	-	-	-	-	36	16.01	2.61	19	16.94	2.75	-0.93	0.06	35	0.74	1.37	19	0.30	0.73	-0.44	-6.27	5.27	0.23		
	Ppg	-	-	-	-	-	-	-	-	-	-	36	15.02	1.63	19	15.63	1.25	-0.61	0.29	35	1.11	1.88	19	0.99	1.02	-0.12	-2.94	4.88	0.55			
	IL1R1	unst	-	-	-	-	-	-	-	-	-	-	39	17.05	2.02	20	16.58	1.19	0.47	0.35	-	-	-	-	-	-	-	-	-	-	-	
		PHA	-	-	-	-	-	-	-	-	-	-	36	13.45	1.54	19	13.23	0.88	0.22	0.89	36	8.91	9.25	19	8.14	10.77	-0.78	1.29	4.87	0.79		
		Derp1	-	-	-	-	-	-	-	-	-	-	36	11.60	2.01	19	11.50	1.42	0.10	0.50	36	44.42	61.78	19	33.66	38.74	-10.76	1.43	4.92	0.77		
		LpA	-	-	-	-	-	-	-	-	-	-	36	11.38	2.26	19	11.01	1.78	0.38	0.65	36	48.06	84.51	19	44.67	48.26	-3.39	0.86	4.92	0.86		
	Ppg	-	-	-	-	-	-	-	-	-	-	36	12.42	2.27	19	11.68	1.52	0.74	0.48	36	25.22	43.89	19	24.91	21.52	-0.31	1.41	4.91	0.77			
	RORy	unst	-	-	-	-	-	-	-	-	-	-	39	18.18	1.57	20	17.68	1.74	0.50	0.30	-	-	-	-	-	-	-	-	-	-	-	
		PHA	-	-	-	-	-	-	-	-	-	-	36	14.91	1.41	19	14.72	0.85	0.20	0.33	36	7.66	9.89	19	9.28	12.07	1.62	0.70	5.13	0.89		
		Derp1	-	-	-	-	-	-	-	-	-	-	36	18.65	1.73	19	19.27	1.78	-0.62	0.18	36	0.51	0.74	18	0.32	0.29	-0.19	-10.27	5.23	0.0496		
		LpA	-	-	-	-	-	-	-	-	-	-	36	18.85	2.09	19	18.36	1.13	0.48	0.69	34	0.51	1.07	19	0.50	0.54	0.00	3.37	5.41	0.53		
	Ppg	-	-	-	-	-	-	-	-	-	-	36	17.87	2.27	19	18.35	1.54	-0.49	0.07	35	1.03	1.31	19	0.57	0.71	-0.46	-8.29	5.09	0.10			
	IL17A (IL-17A)	unst	-	-	-	-	-	-	-	-	-	-	39	23.46	1.06	20	23.62	0.83	-0.16	1.00	-	-	-	-	-	-	-	-	-	-	-	
		PHA	38	1493.77	1318.29	20	1456.97	1149.27	-36.81	na	na	0.84	36	14.45	2.44	19	13.68	2.20	0.77	0.35	36	583.24	827.80	18	1103.43	1140.54	520.19	na	na	na*		
		Derp1	38	329.81	40.51	20	329.04	45.02	-0.77	na	na	0.92	36	20.83	4.50	19	21.20	2.54	-0.37	0.13	20	29.53	23.00	8	9.44	10.96	-20.09	na	na	na*		
		LpA	39	251.73	26.03	20	239.29	22.85	-12.45	na	na	0.22	36	20.56	3.38	19	21.09	3.46	-0.53	0.29	16	28.38	36.19	9	18.64	22.85	-9.74	na	na	na*		
	Ppg	39	419.17	248.28	20	501.26	146.58	82.09	na	na	0.18	36	16.01	3.77	19	15.74	1.61	0.27	0.81	35	170.35	373.30	19	184.31	361.56	13.96	na	na	na*			
	IL17F (IL-17F)	unst	-	-	-	-	-	-	-	-	-	-	39	24.33	1.31	20	24.27	1.05	0.06	0.18	-	-	-	-	-	-	-	-	-	-	-	
		PHA	38	10223.56	15568.25	20	8338.12	9710.26	-1885.45	-6.35	5.27	0.23	36	14.60	4.28	19	14.88	2.73	-0.28	0.65	36	499.06	3030.44	18	923.03	1235.89	423.97	-5.36	13.28	0.69		
		Derp1	38	94.08	153.15	20	101.78	107.35	7.69	2.96	4.8	0.54	36	18.94	3.20	19	18.83	1.08	0.10	0.63	34	48.91	99.45	19	45.22	47.59	-3.68	1.50	14.04	0.91		
		LpA	39	87.71	126.69	20	84.47	86.09	-3.23	1.14	4.91	0.82	36	19.02	2.97	19	18.77	1.41	0.25	0.62	33	33.69	110.48	17	50.84	64.77	17.15	-4.24	12.21	0.73		
	Ppg	39	1622.17	5741.67	20	2531.36	2253.86	909.19	5.52	5.01	0.27	36	14.57	3.66	19	14.71	1.48	-0.15	0.78	36	581.20	1915.96	19	618.78	1285.53	37.58	0.25	13.60	0.99			
	IL22 (IL-22)	unst	-	-	-	-	-	-	-	-	-	-	39	23.31	1.39	20	23.45	0.72	-0.14	0.53	-	-	-	-	-	-	-	-	-	-	-	
PHA		38	56.81	58.97	20	32.79	42.94	-24.02	na	na	0.17	36	22.00	3.29	19	22.48	2.52	-0.48	0.76	29	3.53	7.06	12	2.24	6.48	-1.29	-5.76	12.30	0.64			
Derp1		38	26.13	46.79	20	23.80	23.47	-2.34	na	na	0.68	36	21.26	3.32	19	21.14	2.50	0.12	0.79	30	7.10	15.58	16	7.37	8.18	0.26	1.75	13.53	0.90			
LpA		39	16.85	26.61	20	16.62	25.83	-0.23	-0.95	4.92	0.85	36	20.78	2.62																		

SNP	Gene (Protein)	Stimulus	Protein (pg/ml)										dCI										RFC																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
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rs2569253 (IL12B) T>C T=higher IgE levels	IL23A (IL-23)	unst	-	-	-	-	-	-	-	-	-	-	18	14.46	0.90	28	14.36	1.26	14	14.56	1.75	-8.09E-07	1.03E-05	0.94	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

N: *IL12B* rs2569253

Asthma and IgE associated polymorphisms affect expression of T_H17 genes
Worth *et al.* - Online Supplement

SNP	Gene (Protein)	Stimulus	Protein (pg/ml)										dCt						RFC											
			GG			GA			Difference of median (Minor-Major)	Est	SE	p	GG			GA			Difference of median (Minor-Major)	P	GG			GA			Difference of median (Minor-Major)	Est	SE	p
			n	median	IQR	n	median	IQR					n	median	IQR	n	median	IQR			n	median	IQR	n	median	IQR				
rs2546892 (IL12B) 'G>A' G=higher IgE levels	IL23A (IL-23)	unst	-	-	-	-	-	-	-	-	-	49	14.42	1.25	11	14.39	1.43	0.03	0.72	-	-	-	-	-	-	-	-	-	-	-
		PHA	48	27.09	16.37	11	23.84	13.92	-3.25	-4.06	7.05	0.56	46	10.67	2.29	10	10.76	2.97	-0.09	0.78	46	9.45	18.63	10	10.94	19.99	1.49	na	na	0.89
		Derp1	48	8.00	0.09	11	8.00	0.00	0.00	na	na	na	46	12.86	1.14	10	12.76	1.73	0.10	0.66	46	3.10	3.02	10	3.78	6.11	0.69	na	na	0.74
		LpA	49	7.13	2.96	11	7.13	1.48	0.00	-27.00	24.43	0.27	46	12.23	1.63	10	11.45	2.22	0.78	0.10	46	5.98	9.08	10	6.07	10.13	0.09	na	na	0.28
		Ppg	49	2.14	0.00	11	2.14	0.00	0.00	na	na	na	46	12.68	1.41	10	12.29	0.93	0.40	0.27	46	3.46	6.17	10	5.01	6.53	1.54	na	na	0.76
	IL12B	unst	-	-	-	-	-	-	-	-	-	-	49	23.46	0.89	11	23.74	0.95	-0.28	0.64	-	-	-	-	-	-	-	-	-	-
		PHA	-	-	-	-	-	-	-	-	-	-	46	23.61	1.11	10	23.06	0.99	0.55	0.97	na	na	na	na	na	na	na	na	na	na
		Derp1	-	-	-	-	-	-	-	-	-	-	46	23.52	1.14	10	23.63	0.71	-0.11	0.69	na	na	na	na	na	na	na	na	na	na
		LpA	-	-	-	-	-	-	-	-	-	-	46	23.12	1.23	10	23.62	0.52	-0.50	1.00	na	na	na	na	na	na	na	na	na	na
		Ppg	-	-	-	-	-	-	-	-	-	-	46	23.52	1.10	10	23.75	1.33	-0.22	0.50	na	na	na	na	na	na	na	na	na	na
	IL21 (IL-21)	unst	-	-	-	-	-	-	-	-	-	-	49	24.13	2.02	11	23.76	1.04	0.36	0.23	-	-	-	-	-	-	-	-	-	-
		PHA	48	71.19	29.13	11	67.59	24.74	-3.60	0.67	5.96	0.91	46	16.10	2.82	10	16.55	2.23	-0.46	0.64	46	196.62	674.73	10	168.26	300.20	-28.36	6.24	17.92	0.73
		Derp1	48	22.14	18.00	11	26.51	18.07	4.38	0.02	7.13	1.00	46	23.70	1.78	10	23.97	1.06	-0.26	0.97	na	na	na	na	na	na	na	na	na	na
		LpA	49	3.06	1.64	11	3.47	2.05	0.41	-20.57	30.12	0.49	46	23.21	1.94	10	22.46	3.13	0.75	0.83	16	0.89	6.22	7	6.20	4.13	5.31	21.75	9.27	0.0189
		Ppg	49	8.89	1.48	11	8.89	3.37	0.00	na	na	na	46	21.32	2.72	10	21.90	1.71	-0.58	0.20	34	9.02	16.24	7	5.49	19.83	-3.52	19.84	22.22	0.37
	TGFB1	unst	-	-	-	-	-	-	-	-	-	-	49	10.11	0.78	11	10.04	1.62	0.07	0.95	-	-	-	-	-	-	-	-	-	-
		PHA	-	-	-	-	-	-	-	-	-	-	46	10.16	1.28	10	10.34	1.19	-0.18	0.75	46	0.99	0.63	10	1.00	1.07	0.01	na	na	0.98
		Derp1	-	-	-	-	-	-	-	-	-	-	46	11.36	1.36	10	11.36	1.27	0.00	0.72	46	0.41	0.31	10	0.40	0.12	-0.01	na	na	0.99
		LpA	-	-	-	-	-	-	-	-	-	-	46	11.18	1.31	10	11.21	0.68	-0.03	0.54	46	0.46	0.34	10	0.47	0.21	0.01	na	na	0.96
		Ppg	-	-	-	-	-	-	-	-	-	-	46	11.10	1.37	10	11.35	0.62	-0.25	0.62	46	0.49	0.29	10	0.35	0.16	-0.13	na	na	0.39
	IL23R	unst	-	-	-	-	-	-	-	-	-	-	49	15.39	1.82	11	15.56	1.59	-0.17	0.45	-	-	-	-	-	-	-	-	-	-
		PHA	-	-	-	-	-	-	-	-	-	-	46	13.80	1.32	10	14.31	1.08	-0.51	0.11	46	3.10	5.63	10	2.49	5.33	-0.61	-3.51	6.17	0.57
		Derp1	-	-	-	-	-	-	-	-	-	-	46	16.41	2.28	10	16.69	1.32	-0.27	1.00	45	0.44	0.95	9	0.42	0.53	-0.03	-0.76	6.39	0.91
		LpA	-	-	-	-	-	-	-	-	-	-	46	16.26	2.81	10	16.40	3.13	-0.14	0.34	45	0.66	1.12	10	0.74	1.27	0.08	0.13	6.59	0.98
		Ppg	-	-	-	-	-	-	-	-	-	-	46	14.95	1.67	10	15.89	1.14	-0.95	0.0351	46	1.16	1.96	9	0.90	1.24	-0.25	-7.98	6.15	0.19
	IL1R1	unst	-	-	-	-	-	-	-	-	-	-	49	16.89	1.92	11	17.05	1.50	-0.16	0.37	-	-	-	-	-	-	-	-	-	-
		PHA	-	-	-	-	-	-	-	-	-	-	46	13.45	1.33	10	13.60	1.23	-0.15	1.00	46	7.68	13.96	10	9.37	5.65	1.69	2.11	5.93	0.72
		Derp1	-	-	-	-	-	-	-	-	-	-	46	11.48	2.00	10	11.68	1.11	-0.20	0.59	46	41.75	50.17	10	57.84	59.04	16.09	1.74	5.98	0.77
		LpA	-	-	-	-	-	-	-	-	-	-	46	11.22	1.87	10	11.18	1.01	0.04	0.97	46	48.06	55.53	10	56.36	71.23	8.29	2.46	5.97	0.68
		Ppg	-	-	-	-	-	-	-	-	-	-	46	12.40	2.41	10	12.27	0.78	0.13	0.59	46	25.03	28.27	10	25.77	36.51	0.74	0.74	5.98	0.90
	RORy	unst	-	-	-	-	-	-	-	-	-	-	49	18.04	1.77	11	18.30	1.31	-0.26	0.18	-	-	-	-	-	-	-	-	-	-
		PHA	-	-	-	-	-	-	-	-	-	-	46	14.74	1.36	10	15.67	1.64	-0.92	0.28	46	7.63	13.24	10	8.71	6.25	1.08	-6.33	6.18	0.31
		Derp1	-	-	-	-	-	-	-	-	-	-	46	18.77	1.91	10	18.84	1.12	-0.07	0.89	45	0.42	0.66	10	0.50	0.39	0.08	0.71	6.60	0.91
		LpA	-	-	-	-	-	-	-	-	-	-	46	18.78	1.65	10	18.13	1.52	0.65	0.58	44	0.52	0.69	10	0.58	0.79	0.06	0.50	6.53	0.94
		Ppg	-	-	-	-	-	-	-	-	-	-	46	18.04	1.92	10	18.89	1.60	-0.85	0.0207	45	1.02	1.42	10	0.47	0.30	-0.55	-13.51	6.21	0.0297
	IL17A (IL-17A)	unst	-	-	-	-	-	-	-	-	-	-	49	23.58	0.97	11	23.44	1.08	0.13	1.00	-	-	-	-	-	-	-	-	-	-
		PHA	48	1493.77	1460.27	11	1506.28	920.90	12.51	na	na	0.72	46	14.21	2.33	10	14.39	2.49	-0.18	0.57	45	627.16	1077.67	10	658.78	843.72	31.63	na	na	na*
		Derp1	48	331.11	40.16	11	328.28	30.51	-2.84	na	na	0.71	46	20.97	4.10	10	21.46	4.15	-0.50	0.82	23	18.44	28.77	6	17.70	20.59	-0.74	na	na	na*
		LpA	49	248.31	26.41	11	246.41	22.42	-1.91	na	na	0.63	46	20.66	3.25	10	18.78	4.53	1.88	0.41	19	25.85	28.39	7	27.14	28.37	1.29	na	na	na*
		Ppg	49	477.59	245.56	11	415.65	104.84	-61.94	na	na	0.52	46	15.83	2.83	10	16.61	2.75	-0.78	0.63	45	184.31	387.56	10	94.75	204.30	-89.56	na	na	na*
	IL17F (IL-17F)	unst	-	-	-	-	-	-	-	-	-	-	49	24.33	1.09	11	24.22	2.11	0.11	0.15	-	-	-	-	-	-	-	-	-	-
		PHA	48	9827.86	13047.34	11	8170.08	15217.17	-1657.78	0.81	6.48	0.90	46	14.83	3.77	10	14.81	3.39	0.02	0.59	45	557.33	1602.78	10	683.33	3197.26	126.00	0.52	16.38	0.97
		Derp1	48	103.70	120.58	11	74.74	162.36	-28.97	-2.87	5.93	0.63	46	18.84	2.35	10	18.65	3.42	0.19	0.57	45	48.72	68.59	9	45.22	104.94	-3.50	-5.60	17.28	0.75
		LpA	49	75.74	131.18	11	119.52	82.72	43.78	3.25	6.00	0.59	46	19.09	2.19	10	18.37	2.34	0.72	0.19	42	36.28	89.44	9	42.10	106.78	5.82	-1.76	14.99	0.91
		Ppg	49	2185.87	4632.58	11	1821.62	1895.08	-364.26	-6.55	6.11	0.28	46	14.41	2.73	10	15.03	2.46	-0.62	0.39	46	747.68	1316.22	10	384.74	1774.84	-362.94	-7.81	16.23	0.63
	IL22 (IL-22)	unst	-	-	-	-	-	-	-	-	-	-	49	23.27	0.96	11	23.44	1.45	-0.18	0.32	-	-	-	-	-	-	-	-	-	-
		PHA	48	55.28	52.43	11	40.73	44.59	-14.55	na	na	0.91	46	22.35	2.73	10	22.12	2.56	0.23	0.93	33	2.92	6.55	8	2.98	8.82	0.07	-20.41	13.66	0.14
Derp1		48	28.87	46.27	11	21.33	7.92	-7.54	na	na	0.09	46	20.77	3.19	10	22.18	2.13	-1.41	0.31	38	8.78	15.32	9	5.30	5.82	-3.49	-31.79	14.72	0.0308	
LpA		49	18.97	36.09	11	16.85	13.30	-2.13	-2.07	6.00	0.73	46	21.35	2.69	10	20.74	2.71	0.61	1.00	35	6.44	9.74	8	6.10	13.80					

Asthma and IgE associated polymorphisms affect expression of T_H17 genes
Worth *et al.* - Online Supplement

SNP	Gene (Protein)	Stimulus	Protein (pg/ml)											dCt											RFC																	
			GG			GA			AA			Est	SE	P	GG			GA			AA			Est	SE	P	GG			GA			AA									
			n	median	IQR	n	median	IQR	n	median	IQR				n	median	IQR	n	median	IQR	n	median	IQR				n	median	IQR	n	median	IQR	n	median	IQR	n	median	IQR				
rs2546893 (IL12B) 'G>A' G=higher IgE levels	IL23A (IL-23)	unst	-	-	-	-	-	-	-	-	-	-	-	17	14.44	0.68	29	14.33	1.27	15	14.70	1.87	-1.77E-06	1.03E-05	0.86	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
		PHA	17	25.46	8.15	29	26.55	20.12	14	31.66	13.29	5.72	3.69	0.12	17	10.70	1.63	27	10.70	2.86	13	10.70	2.98	-9.81E-05	2.73E-04	0.72	17	8.02	12.84	27	13.83	29.76	13	7.15	16.73	-0.23	5.95	0.97				
		Derp1	17	8.00	0.00	29	8.00	0.00	14	8.18	1.89	4.99	14.79	0.74	17	13.10	0.72	27	12.81	1.59	13	12.92	1.26	-3.35E-05	5.11E-05	0.51	17	3.01	1.71	27	3.34	5.34	13	3.46	2.84	0.39	0.85	0.65				
		LpA	17	7.13	2.15	29	7.13	0.82	15	7.13	18.19	6.39	10.14	0.53	17	12.23	0.87	27	11.93	1.83	13	12.24	1.49	-4.82E-06	7.98E-05	0.95	17	5.27	6.77	27	4.58	10.18	13	6.45	9.28	1.64	1.88	0.39				
	Ppg	17	2.14	0.00	29	2.14	0.00	15	2.14	0.00	4.70	47.46	0.92	17	12.48	1.40	27	12.46	1.93	13	12.67	0.91	-9.11E-06	4.22E-05	0.83	17	4.49	5.39	27	3.57	6.96	13	3.36	5.98	0.84	1.12	0.46					
	PHA	-	-	-	-	-	-	-	-	-	-	-	-	17	23.61	1.10	27	23.44	1.10	13	23.60	1.17	-2.66	2.70	0.32	na	na	na	na	na	na	na	na	na	na	na	na	na	na			
	Derp1	-	-	-	-	-	-	-	-	-	-	-	-	17	23.61	0.94	27	23.61	0.85	13	23.31	1.25	-15.74	11.95	0.19	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na		
	LpA	-	-	-	-	-	-	-	-	-	-	-	-	17	23.14	0.61	27	23.40	1.22	13	23.55	1.22	5.39	3.45	0.12	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na		
	Ppg	-	-	-	-	-	-	-	-	-	-	-	-	17	23.32	1.19	27	23.77	1.26	13	23.96	1.31	9.06	10.52	0.39	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
	PHA	17	72.73	54.85	29	67.59	19.64	14	72.73	20.61	0.95	3.21	0.77	17	14.95	3.78	27	15.92	2.83	13	17.09	2.60	-4.99	2.89	0.08	17	350.83	679.20	27	181.94	547.92	13	154.58	446.48	8.75	9.09	0.34					
	Derp1	17	26.51	17.46	29	21.50	19.19	14	25.87	13.37	-1.60	3.75	0.67	17	22.97	2.71	27	23.75	1.53	13	24.06	0.54	-5.05	2.27	0.0259	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	
	LpA	17	3.06	1.64	29	3.06	1.24	15	3.88	2.84	15.62	13.95	0.26	17	22.64	2.08	27	23.10	1.58	13	24.35	2.21	0.91	3.50	0.80	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na		
	Ppg	17	8.89	1.48	29	8.89	1.48	15	8.89	1.48	na	na	na	na	17	21.28	1.85	27	21.26	3.25	13	22.00	2.32	-1.16	2.56	0.65	13	4.11	14.00	20	11.23	17.19	8	9.33	11.94	13.03	10.47	0.21				
	PHA	-	-	-	-	-	-	-	-	-	-	-	-	17	10.14	1.15	27	10.09	1.28	13	10.22	1.47	-9.35E-05	9.61E-05	0.34	17	0.99	0.97	27	0.85	0.72	13	1.05	0.51	-0.05	0.10	0.64					
	Derp1	-	-	-	-	-	-	-	-	-	-	-	-	17	11.20	1.27	27	11.29	1.18	13	12.05	1.15	-6.72E-05	4.30E-05	0.12	17	0.38	0.44	27	0.41	0.19	13	0.38	0.29	-0.07	0.08	0.42					
	LpA	-	-	-	-	-	-	-	-	-	-	-	-	17	11.04	1.11	27	11.20	1.07	13	11.73	1.98	-4.90E-05	4.91E-05	0.32	17	0.48	0.29	27	0.43	0.24	13	0.46	0.46	-0.03	0.10	0.76					
	Ppg	-	-	-	-	-	-	-	-	-	-	-	-	17	10.98	1.56	27	11.18	0.99	13	11.69	1.98	-6.65E-05	4.83E-05	0.17	17	0.54	0.24	27	0.43	0.22	13	0.38	0.18	-0.07	0.05	0.17					
	PHA	-	-	-	-	-	-	-	-	-	-	-	-	17	13.51	1.43	27	13.68	1.40	13	14.00	0.52	-9.56E-06	1.14E-05	0.41	17	2.76	5.90	27	2.75	3.32	13	3.61	12.01	1.74	3.23	0.59					
	Derp1	-	-	-	-	-	-	-	-	-	-	-	-	17	16.93	1.59	27	16.33	1.96	13	16.45	1.89	1.66	2.84	0.56	17	0.38	0.49	27	0.47	0.55	11	0.49	1.39	4.97	3.38	0.14					
	LpA	-	-	-	-	-	-	-	-	-	-	-	-	17	16.94	2.34	27	16.13	3.04	13	16.45	3.75	1.96	2.85	0.49	17	0.30	0.63	27	0.74	1.03	12	1.10	2.29	3.57	3.45	0.30					
	Ppg	-	-	-	-	-	-	-	-	-	-	-	-	17	14.90	1.06	27	15.22	1.90	13	15.04	1.65	-2.62	2.97	0.38	17	1.20	1.40	27	1.04	1.42	12	1.58	2.59	1.96	3.24	0.55					
	PHA	-	-	-	-	-	-	-	-	-	-	-	-	17	13.23	1.57	27	13.38	1.16	13	13.86	1.72	-1.35E-05	1.67E-05	0.42	17	10.85	15.37	27	6.76	5.31	13	11.60	12.61	-1.82	3.16	0.56					
	Derp1	-	-	-	-	-	-	-	-	-	-	-	-	17	11.50	1.40	27	11.52	1.37	13	11.61	1.95	-5.93E-05	5.41E-05	0.28	17	57.48	48.56	27	30.78	57.69	13	45.37	32.80	-3.56	3.13	0.26					
	LpA	-	-	-	-	-	-	-	-	-	-	-	-	17	11.51	1.92	27	11.01	1.43	13	11.26	2.09	-3.49E-05	7.87E-05	0.66	17	58.59	52.91	27	34.04	67.13	13	46.69	47.37	-1.60	3.16	0.61					
Ppg	-	-	-	-	-	-	-	-	-	-	-	-	17	11.97	2.37	27	12.24	2.20	13	12.82	1.19	-2.42E-05	5.84E-05	0.68	17	34.18	23.80	27	22.06	37.94	13	22.60	11.83	-3.04	3.15	0.33						
PHA	-	-	-	-	-	-	-	-	-	-	-	-	17	14.71	0.68	27	14.85	1.38	13	15.67	1.91	-1.55E-05	6.86E-06	0.0274	17	7.74	15.30	27	8.55	6.90	13	6.09	8.81	-4.21	3.29	0.20						
Derp1	-	-	-	-	-	-	-	-	-	-	-	-	17	19.31	2.13	27	18.67	1.71	13	18.93	2.33	-4.02	2.95	0.17	16	0.30	0.29	27	0.51	0.55	13	0.41	0.88	3.88	3.51	0.27						
LpA	-	-	-	-	-	-	-	-	-	-	-	-	17	18.28	1.69	27	18.76	1.14	13	19.50	1.44	-2.07	2.78	0.46	17	0.61	0.62	26	0.71	0.88	12	0.42	0.47	-5.93	3.41	0.08						
Ppg	-	-	-	-	-	-	-	-	-	-	-	-	17	18.28	1.38	27	18.07	2.63	13	18.23	1.53	1.95	2.98	0.51	17	0.77	1.15	27	1.03	1.31	12	0.78	1.12	-1.18	3.50	0.74						
PHA	17	1671.59	1581.13	29	1506.28	961.01	14	1432.39	779.94	-61.23	162.38	0.71	17	14.05	1.71	27	14.45	2.17	13	14.87	2.27	-2.35	2.94	0.42	17	815.89	1783.05	26	574.32	860.08	13	568.23	482.10	na	na	na*						
Derp1	17	336.40	43.22	29	323.52	27.46	14	346.05	27.08	1.82	4.51	0.69	17	20.99	2.93	27	21.20	4.62	13	21.23	3.94	0.91	2.19	0.68	8	12.00	22.90	14	27.06	26.01	7	18.16	23.31	na	na	na*						
LpA	17	241.66	24.89	29	246.41	32.29	15	248.31	13.50	2.53	3.44	0.46	17	20.69	2.18	27	20.48	3.46	13	19.48	3.33	1.80	2.41	0.46	6	25.12	20.06	15	15.23	36.12	6	28.38	16.14	na	na	na*						
Ppg	17																																									

SNP	Gene (Protein)	Stimulus	Protein (pg/ml)										dCt										RFC																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
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SNP	Gene (Protein)	Stimulus	Protein (pg/ml)											dCt											RFC																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
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rs2546890 (IL12B) 'A>G' G=higher IgE levels	IL23A (IL-23)	unst	-	-	-	-	-	-	-	-	-	-	-	-	23	14.65	1.33	27	14.23	1.47	10	14.41	0.86	-2.07E-06	1.06E-05	0.85	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Asthma and IgE associated polymorphisms affect expression of T_H17 genes
Worth *et al.* - Online Supplement

SNP	Gene (Protein)	Stimulus	Protein (pg/ml)										dCt										RFC															
			TT		TC		CC		IQR	Est	SE	p	TT		TC		CC		IQR	Est	SE	p	TT		TC		CC		IQR	Est	SE	p						
			n	median	n	median	n	median					n	median	n	median	n	median					n	median	n	median	n	median					n	median	n	median	n	median
rs6868898 (IL12B) T>C T=higher IgE levels	IL23A (IL-23)	unst	-	-	-	-	-	-	-	-	-	-	27	14.39	0.88	22	14.84	1.35	12	14.22	1.39	-9.46E-06	9.69E-06	0.33	-	-	-	-	-	-	-	-	-	-				
		PHA	27	22.20	20.79	22	31.66	14.63	11	29.24	9.13	8.09	3.45	0.0190	27	10.70	2.40	19	10.70	2.81	11	10.70	2.83	2.07E-04	2.56E-04	0.42	27	6.12	14.20	19	19.00	35.66	11	7.15	19.89	7.25	5.52	0.19
		Derp1	27	8.00	0.00	22	8.00	0.00	11	8.00	1.75	7.83	14.67	0.59	27	13.18	1.21	19	12.62	0.66	11	13.40	1.09	-4.53E-05	4.79E-05	0.35	27	2.66	2.74	19	4.79	4.71	11	2.11	2.23	-0.71	0.80	0.38
		LpA	27	7.13	2.55	22	7.13	1.22	12	7.13	11.11	1.83	9.50	0.85	27	12.16	2.19	19	11.93	0.97	11	12.40	1.67	-4.60E-05	7.49E-05	0.54	27	3.96	10.03	19	7.16	8.09	11	5.66	7.76	-0.45	1.78	0.80
		Ppg	27	2.14	0.00	22	2.14	0.00	12	2.14	0.00	na	na	na	27	12.70	1.41	19	12.33	1.61	11	13.02	1.11	1.28E-05	3.97E-05	0.75	27	2.62	4.86	19	5.87	6.12	11	2.46	3.87	0.23	1.06	0.83
	IL12B	unst	-	-	-	-	-	-	-	-	-	-	-	27	23.46	1.21	22	23.56	0.73	12	23.60	0.80	na	na	na	-	-	-	-	-	-	-	-	-	-	-		
		PHA	-	-	-	-	-	-	-	-	-	-	-	27	23.38	0.91	19	23.70	1.40	11	23.18	0.98	-1.99	2.46	0.42	na	na	na	na	na	na	na	na	na	na	na	na	
		Derp1	-	-	-	-	-	-	-	-	-	-	-	27	23.49	1.12	19	23.67	0.73	11	23.27	1.27	-7.71	10.56	0.47	na	na	na	na	na	na	na	na	na	na	na	na	
		LpA	-	-	-	-	-	-	-	-	-	-	-	27	23.14	0.65	19	23.68	0.74	11	23.43	1.68	8.04	5.19	0.12	na	na	na	na	na	na	na	na	na	na	na	na	
		Ppg	-	-	-	-	-	-	-	-	-	-	-	27	23.55	1.31	19	23.50	0.92	11	24.07	1.08	6.56	9.85	0.51	na	na	na	na	na	na	na	na	na	na	na	na	
	IL21 (IL-21)	unst	-	-	-	-	-	-	-	-	-	-	-	27	24.22	1.98	22	23.97	1.52	12	24.40	0.87	-2.25	2.37	0.34	-	-	-	-	-	-	-	-	-	-	-		
		PHA	27	63.45	36.23	22	71.70	23.98	11	73.77	14.92	6.14	2.98	0.0392	27	16.52	2.85	19	15.83	3.00	11	16.06	2.71	-0.09	2.81	0.97	27	181.94	340.17	19	165.50	989.17	11	175.62	664.46	5.38	8.24	0.51
		Derp1	27	25.27	21.68	22	22.76	16.39	11	22.77	12.64	-0.19	3.62	0.96	27	23.59	1.80	19	23.66	2.18	11	24.06	0.59	-4.41	2.22	0.0466	na	na	na	na	na	na	na	na	na	na	na	
		LpA	27	3.88	2.25	22	3.06	1.24	12	2.64	1.24	-11.52	12.89	0.37	27	23.75	1.88	19	22.82	1.92	11	23.60	2.44	3.02	3.21	0.35	na	na	na	na	na	na	na	na	na	na	na	
		Ppg	27	8.89	1.48	22	8.89	0.00	12	8.89	1.48	na	na	na	27	22.00	2.30	19	20.34	2.06	11	21.44	2.40	4.61	2.38	0.05	18	4.01	9.36	16	14.29	17.38	7	16.42	12.98	8.90	9.81	0.36
	TGFB1	unst	-	-	-	-	-	-	-	-	-	-	-	27	10.01	1.01	22	10.17	0.92	12	10.29	0.53	-1.09E-04	7.25E-05	0.14	-	-	-	-	-	-	-	-	-	-	-	-	
		PHA	-	-	-	-	-	-	-	-	-	-	-	27	10.18	1.16	19	9.89	1.32	11	10.40	1.05	-5.05E-05	9.11E-05	0.58	27	0.86	0.68	19	1.18	0.81	11	0.91	0.61	-0.03	0.09	0.77	
		Derp1	-	-	-	-	-	-	-	-	-	-	-	27	11.42	1.33	19	10.91	0.92	11	12.09	1.13	-4.31E-05	4.09E-05	0.30	27	0.37	0.20	19	0.45	0.29	11	0.25	0.30	-0.06	0.08	0.43	
		LpA	-	-	-	-	-	-	-	-	-	-	-	27	11.30	1.19	19	10.98	0.90	11	11.73	1.90	-3.51E-05	4.64E-05	0.45	27	0.42	0.20	19	0.54	0.29	11	0.34	0.50	-0.05	0.09	0.58	
		Ppg	-	-	-	-	-	-	-	-	-	-	-	27	11.18	0.99	19	10.80	1.00	11	11.69	2.10	1.53E-05	4.62E-05	0.74	27	0.45	0.26	19	0.51	0.33	11	0.36	0.34	0.02	0.05	0.73	
	IL23R	unst	-	-	-	-	-	-	-	-	-	-	-	27	15.49	1.11	22	15.36	1.38	12	16.92	2.87	-3.74	2.81	0.18	-	-	-	-	-	-	-	-	-	-	-	-	
		PHA	-	-	-	-	-	-	-	-	-	-	-	27	13.93	1.26	19	13.51	1.06	11	14.00	1.14	7.37E-06	1.08E-05	0.50	27	2.32	5.43	19	3.61	2.81	11	4.05	9.28	4.99	2.97	0.09	
		Derp1	-	-	-	-	-	-	-	-	-	-	-	27	16.69	1.52	19	16.11	2.22	11	16.48	1.82	1.48	2.62	0.57	27	0.26	0.56	18	0.46	0.23	10	1.01	1.20	7.21	3.03	0.0174	
		LpA	-	-	-	-	-	-	-	-	-	-	-	27	16.94	2.61	19	16.13	2.79	11	15.76	1.63	5.33	2.64	0.0434	27	0.33	0.67	19	0.74	0.96	10	1.58	1.46	5.83	3.17	0.07	
		Ppg	-	-	-	-	-	-	-	-	-	-	-	27	15.46	1.39	19	14.79	1.02	11	15.60	2.09	1.31	2.75	0.63	27	0.90	1.29	18	1.27	1.80	11	2.05	2.48	5.46	2.91	0.06	
	IL1R1	unst	-	-	-	-	-	-	-	-	-	-	-	27	17.05	1.46	22	16.41	1.65	12	17.23	1.25	-0.56	2.90	0.85	-	-	-	-	-	-	-	-	-	-	-	-	
		PHA	-	-	-	-	-	-	-	-	-	-	-	27	13.81	1.25	19	13.96	1.51	11	13.96	1.51	-1.50E-05	1.57E-05	0.34	27	8.14	13.95	19	6.76	4.81	11	12.08	14.77	-1.08	2.99	0.72	
		Derp1	-	-	-	-	-	-	-	-	-	-	-	27	11.64	2.45	19	11.14	0.89	11	12.77	2.25	-1.70E-05	5.15E-05	0.74	27	61.00	59.53	19	33.66	25.61	11	23.76	37.76	-3.99	2.94	0.17	
		LpA	-	-	-	-	-	-	-	-	-	-	-	27	11.41	2.88	19	10.95	1.19	11	11.80	2.22	2.53E-05	7.41E-05	0.73	27	58.98	69.14	19	34.04	36.97	11	46.69	78.64	-2.47	2.97	0.41	
		Ppg	-	-	-	-	-	-	-	-	-	-	-	27	12.30	2.43	19	11.69	1.70	11	12.72	1.74	3.15E-05	5.49E-05	0.57	27	27.98	40.51	19	22.06	10.18	11	26.59	38.63	-1.10	2.99	0.71	
	RORγ	unst	-	-	-	-	-	-	-	-	-	-	-	27	18.04	1.61	22	17.73	1.40	12	18.30	1.12	-0.57	2.84	0.84	-	-	-	-	-	-	-	-	-	-	-	-	
		PHA	-	-	-	-	-	-	-	-	-	-	-	27	14.81	1.49	19	14.63	0.91	11	15.70	1.56	-1.63E-06	6.75E-06	0.81	27	8.55	9.88	19	6.91	9.91	11	7.79	12.97	-0.42	3.16	0.90	
		Derp1	-	-	-	-	-	-	-	-	-	-	-	27	19.31	1.84	19	18.45	1.25	11	19.23	2.35	-1.16	2.76	0.67	26	0.37	0.52	19	0.50	0.52	11	0.81	1.51	5.24	3.27	0.11	
		LpA	-	-	-	-	-	-	-	-	-	-	-	27	18.36	1.66	19	18.76	1.38	11	19.51	1.73	-0.80	2.71	0.77	27	0.48	1.02	18	0.63	0.61	10	0.53	1.06	-3.85	3.31	0.24	
		Ppg	-	-	-	-	-	-	-	-	-	-	-	27	18.29	2.01	19	17.47	2.42	11	18.23	1.32	4.51	2.72	0.10	27	0.77	0.87	19	1.32	1.35	10	1.23	1.07	1.95	3.29	0.55	
	IL17A (IL-17A)	unst	-	-	-	-	-	-	-	-	-	-	-	27	23.44	1.06	22	23.72	0.83	12	23.60	0.93	na	na	na	-	-	-	-	-	-	-	-	-	-	-		
		PHA	27	1125.47	1152.48	22	1785.71	982.10	11	1407.66	925.93	156.46	154.11	0.31	27	14.11	2.42	19	14.05	3.07	11	14.87	1.83	-0.86	2.80	0.76	26	583.24	866.12	19	1031.39	1372.43	11	383.91	610.91	na	na	na*
		Derp1	27	329.50	47.06	22	324.75	31.04	11	354.17	24.98	4.00	4.29	0.35	27	21.32	3.60	19	20.24	3.53	11	21.92	4.11	-1.45	2.25	0.52	11	11.01	21.17	13	18.16	27.71	5	34.41	8.29	na	na	na*
		LpA	27	242.80	28.50	22	241.95	29.69	12	252.02	14.54	3.17	3.26	0.33	27	20.64	3.97	19	19.91	3.26	11	21.10	4.23	2.59	2.25	0.25	na	na	na	na	na	na	na	na	na	na	na*	
Ppg		27	500.33	230.30	22	519.99	272.15	12	423.51	91.92	-31.48	39.26	0.43	27	15.74	3.11	19	15.39	3.00	11	16.06	2.28	-1.13	2.81	0.69	27	146.67	368.26	19	234.74	1082.82	10	182.20	256.65	na	na	na*	
IL17F (IL-17F)	unst	-	-	-	-	-																																

SNP	Gene (Protein)	Stimulus	Protein (pg/ml)										dCt						RFC												
			TT			AT			Difference of median				Est	SE	p	TT			AT			Difference of median				Est	SE	p			
			n	median	IQR	n	median	IQR	(Minor-Major)	n	median	IQR				n	median	IQR	-(Minor-Major)	p	n	median	IQR	n	median				IQR	(Minor-Major)	
rs3917285 (IL1R1) 'T>A' T=higher IgE levels	IL23A (IL-23)	unst	-	-	-	-	-	-	-	-	-	-	49	14.39	1.41	12	14.68	0.69	-0.29	0.37	-	-	-	-	-	-	-	-	-	-	-
		PHA	49	25.46	21.80	11	29.24	8.09	3.78	5.87	6.89	0.39	46	10.70	2.34	11	10.15	3.52	0.56	0.50	46	8.43	15.79	11	23.55	49.95	15.12	na	na	0.21	
		Derp1	49	8.00	0.00	11	8.00	1.38	0.00	-4.69	31.10	0.88	46	12.90	1.31	11	12.81	0.80	0.09	0.44	46	3.23	3.80	11	3.08	2.12	-0.15	na	na	0.67	
		LpA	49	7.13	1.62	12	7.67	7.17	0.54	27.64	17.16	0.11	46	12.10	1.46	11	12.24	1.20	-0.14	0.82	46	5.76	9.53	11	6.36	7.57	0.60	na	na	1.00	
	Ppg	49	2.14	0.00	12	2.14	0.00	0.00	na	na	na	46	12.45	1.85	11	12.71	1.00	-0.26	0.39	46	3.46	6.68	11	3.66	4.24	0.20	na	na	0.72		
	IL12B	unst	-	-	-	-	-	-	-	-	-	-	49	23.48	0.92	12	23.52	1.18	-0.05	0.64	-	-	-	-	-	-	-	-	-	-	-
		PHA	-	-	-	-	-	-	-	-	-	-	46	23.45	1.09	11	23.61	2.08	-0.16	0.62	na	na	na	na	na	na	na	na	na	na	na
		Derp1	-	-	-	-	-	-	-	-	-	-	46	23.47	1.16	11	23.75	1.34	-0.28	0.82	na	na	na	na	na	na	na	na	na	na	na
		LpA	-	-	-	-	-	-	-	-	-	-	46	23.39	1.11	11	23.56	0.97	-0.17	0.53	na	na	na	na	na	na	na	na	na	na	na
	Ppg	-	-	-	-	-	-	-	-	-	-	46	23.61	1.25	11	23.39	1.10	0.22	0.58	na	na	na	na	na	na	na	na	na	na	na	
	IL21 (IL-21)	unst	-	-	-	-	-	-	-	-	-	-	49	24.16	1.78	12	23.86	2.33	0.30	0.86	-	-	-	-	-	-	-	-	-	-	-
		PHA	49	67.59	21.70	11	84.04	30.32	16.45	9.89	5.81	0.09	46	16.59	2.96	11	15.57	2.90	1.02	0.17	46	172.32	482.76	11	350.83	865.85	178.51	1.38	14.70	0.93	
		Derp1	49	22.77	18.91	11	26.51	15.82	3.74	2.00	6.94	0.77	46	23.75	1.57	11	24.06	2.87	-0.31	0.15	16	1.31	2.12	5	2.17	8.26	0.86	6.27	11.06	0.57	
		LpA	49	3.06	1.64	12	2.85	2.05	-0.21	-2.01	24.97	0.94	46	23.46	2.01	11	22.64	1.93	0.83	0.19	15	1.19	5.78	8	4.93	10.82	3.74	6.59	7.50	0.38	
	Ppg	49	8.89	1.48	12	8.89	1.80	0.00	na	na	na	46	21.80	2.90	11	20.77	2.19	1.03	0.65	32	7.77	13.56	9	19.38	22.61	11.61	-0.12	16.76	0.99		
	TGFB1	unst	-	-	-	-	-	-	-	-	-	-	49	10.11	0.80	12	10.13	1.19	-0.02	0.68	-	-	-	-	-	-	-	-	-	-	-
		PHA	-	-	-	-	-	-	-	-	-	-	46	10.17	1.28	11	10.14	1.22	0.04	0.70	46	0.95	0.66	11	1.00	0.93	0.05	na	na	0.95	
		Derp1	-	-	-	-	-	-	-	-	-	-	46	11.43	1.33	11	10.79	1.32	0.65	0.21	46	0.38	0.30	11	0.42	0.39	0.04	na	na	0.33	
		LpA	-	-	-	-	-	-	-	-	-	-	46	11.30	1.08	11	10.93	1.22	0.37	0.19	46	0.43	0.28	11	0.54	0.28	0.10	na	na	0.38	
	Ppg	-	-	-	-	-	-	-	-	-	-	46	11.22	1.16	11	10.78	1.42	0.43	0.22	46	0.45	0.29	11	0.49	0.43	0.04	na	na	0.42		
	IL23R	unst	-	-	-	-	-	-	-	-	-	-	49	15.56	1.85	12	15.19	0.54	0.37	0.12	-	-	-	-	-	-	-	-	-	-	-
		PHA	-	-	-	-	-	-	-	-	-	-	46	14.00	1.24	11	13.07	0.76	0.92	0.0035	46	2.67	6.21	11	3.28	2.89	0.61	5.10	5.88	0.39	
		Derp1	-	-	-	-	-	-	-	-	-	-	46	16.58	2.01	11	15.87	1.28	0.72	0.12	44	0.40	0.77	11	0.49	0.54	0.10	8.40	5.98	0.16	
		LpA	-	-	-	-	-	-	-	-	-	-	46	16.49	3.06	11	15.76	1.97	0.74	0.82	45	0.66	1.22	11	0.77	0.85	0.11	2.97	6.26	0.64	
	Ppg	-	-	-	-	-	-	-	-	-	-	46	15.40	1.80	11	14.77	0.43	0.63	0.14	45	1.04	1.79	11	1.20	1.07	0.16	2.78	5.82	0.63		
	IL1R1	unst	-	-	-	-	-	-	-	-	-	-	49	16.86	1.92	12	17.06	0.87	-0.20	0.68	-	-	-	-	-	-	-	-	-	-	-
		PHA	-	-	-	-	-	-	-	-	-	-	46	13.51	1.30	11	13.52	1.56	-0.01	0.84	46	7.74	12.44	11	9.99	5.94	2.25	1.39	5.82	0.81	
		Derp1	-	-	-	-	-	-	-	-	-	-	46	11.56	1.96	11	11.51	1.70	0.04	0.80	46	45.07	54.10	11	30.45	52.15	-14.62	-1.13	5.81	0.85	
		LpA	-	-	-	-	-	-	-	-	-	-	46	11.31	1.70	11	11.06	2.50	0.25	0.89	46	48.06	54.01	11	31.23	102.52	-16.83	0.28	5.82	0.96	
	Ppg	-	-	-	-	-	-	-	-	-	-	46	12.36	2.21	11	12.38	1.84	-0.02	0.80	46	25.03	26.00	11	20.97	39.58	-4.06	-0.90	5.82	0.88		
	RORY	unst	-	-	-	-	-	-	-	-	-	-	49	18.14	1.65	12	17.43	1.47	0.70	0.49	-	-	-	-	-	-	-	-	-	-	-
		PHA	-	-	-	-	-	-	-	-	-	-	46	14.80	1.67	11	14.71	1.34	0.08	0.77	46	8.11	12.15	11	6.65	3.06	-1.46	-1.25	6.11	0.84	
		Derp1	-	-	-	-	-	-	-	-	-	-	46	18.90	1.95	11	18.45	1.10	0.45	0.62	45	0.42	0.65	11	0.50	0.62	0.07	3.16	6.33	0.62	
		LpA	-	-	-	-	-	-	-	-	-	-	46	18.77	1.80	11	18.21	1.69	0.56	0.87	44	0.52	0.69	11	0.69	1.13	0.16	1.76	6.22	0.78	
	Ppg	-	-	-	-	-	-	-	-	-	-	46	18.26	2.57	11	18.09	1.36	0.16	0.80	45	0.91	1.15	11	0.64	1.39	-0.28	-0.15	6.24	0.98		
	IL17A (IL-17A)	unst	-	-	-	-	-	-	-	-	-	-	49	23.46	0.98	12	23.91	1.18	-0.45	1.00	-	-	-	-	-	-	-	-	-	-	-
		PHA	49	1407.66	967.76	11	1941.52	1389.79	533.87	na	na	0.15	46	14.39	2.25	11	14.09	2.42	0.29	0.43	45	568.23	926.70	11	749.34	1767.57	181.11	na	na	na*	
		Derp1	49	328.28	42.77	11	347.58	31.72	19.31	na	na	0.11	46	21.47	4.02	11	20.24	2.15	1.23	0.74	20	21.47	26.74	9	18.44	21.69	-3.03	na	na	na*	
		LpA	49	242.80	25.27	12	260.29	22.63	17.49	na	na	0.0058	46	21.02	3.40	11	18.75	1.92	2.27	0.56	19	21.38	35.71	8	30.44	18.21	9.06	na	na	na*	
	Ppg	49	452.97	243.67	12	503.13	183.06	50.17	na	na	0.86	46	15.92	3.33	11	15.78	1.02	0.14	0.67	45	146.67	399.49	11	234.74	325.17	88.08	na	na	na*		
	IL17F (IL-17F)	unst	-	-	-	-	-	-	-	-	-	-	49	24.23	1.10	12	24.54	0.91	-0.30	0.82	-	-	-	-	-	-	-	-	-	-	-
		PHA	49	9492.77	15448.71	11	9514.79	8154.33	22.02	2.66	6.41	0.68	46	15.45	3.70	11	13.85	3.05	1.59	0.26	45	481.27	1315.66	11	1422.66	2815.59	941.39	20.89	18.29	0.25	
		Derp1	49	96.61	109.34	11	202.12	211.31	105.52	5.88	5.81	0.31	46	18.85	2.65	11	18.50	2.22	0.35	0.17	44	41.13	65.88	11	55.15	101.51	14.02	15.40	18.71	0.41	
		LpA	49	84.09	99.30	12	131.21	170.71	47.12	3.15	5.76	0.58	46	19.09	1.86	11	17.55	2.95	1.54	0.10	42	33.24	77.34	10	115.39	90.77	82.15	19.74	16.45	0.23	
	Ppg	49	2118.47	4185.03	12	2039.48	4874.79	-79.00	-1.52	5.92	0.80	46	14.77	3.45	11	14.36	1.34	0.41	0.62	46	583.12	1786.83	11	1053.74	1052.93	470.62	26.68	20.70	0.20		
	IL22 (IL-22)	unst	-	-	-	-	-	-	-	-	-	-	49	23.23	0.93	12	23.91	1.26	-0.68	0.09	-	-	-	-	-	-	-	-	-	-	-
		PHA	49	44.03	52.26	11	56.48	37.99	12.46	na	na	0.68	46	22.25	2.68	11	21.95	3.36	0.30	0.48	31	2.92	6.84	10	3.42	6.97	0.50	6.28	13.67	0.65	
		Derp1	49	23.85	41.18	11	36.24	52.02	12.39	na	na	0.21	46	21.69	3.09	11	19.54	1.67	2.15	0.14	37	5.90	9.85	11	17.61	17.93	11.71	20.72	14.43	0.15	
LpA		49	14.80	23.35	12	27.81	42.72	13.02	4.82	5.72	0.40	46	21.48	2.51	11	20.26	2.24	1.22	0.51	33	5.29	9.47	11	8.52	27.59	3.24	12.89	10.90	0.24		
Ppg	49	157.12	502.29	12	197.72	247.71	40.60	na	na	0.75	46	18.58	3.27	11	18.45	1.25	0.13	0.99	45	25.98	60.54	11	38.18	36.25	12.20	3.17	12.32	0.80			

V: *IL1R1* rs3917285

SNP	Gene (Protein)	Stimulus	Protein (pg/ml)										dCt										RFC																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
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rs1030021 (IL1R1) 'A>C' A=higher IgE levels	IL23A (IL-23)	unst	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Asthma and IgE associated polymorphisms affect expression of T_H17 genes
Worth *et al.* - Online Supplement

SNP	Gene (Protein)	Stimulus	Protein (pg/ml)										dCt							RFC												
			GG			GA+AA			Difference of median (Minor- Major)	Est	SE	p	GG			GA+AA			Difference of median (Minor- Major)	p	GG			GA+AA			Difference of median (Minor- Major)	Est	SE	p		
			n	median	IQR	n	median	IQR					n	median	IQR	n	median	IQR			n	median	IQR	n	median	IQR					n	median
rs3819025 (IL17A) 'G>A' A=higher IgE levels	IL23A (IL-23)	unst	-	-	-	-	-	-	-	-	-	50	14.47	1.25	11	14.32	1.60	0.15	0.72	-	-	-	-	-	-	-	-	-	-	-		
		PHA	49	25.46	20.12	11	27.63	5.93	2.17	1.33	6.97	0.85	47	10.70	2.36	10	10.99	2.74	-0.29	0.78	47	10.18	29.06	10	8.43	14.32	-1.75	na	na	0.78		
		Derp1	49	8.00	0.00	11	8.00	0.00	0.00	-10.35	30.88	0.74	47	12.92	1.15	10	12.67	1.42	0.26	0.92	47	3.12	2.58	10	3.73	6.30	0.61	na	na	0.90		
		LpA	50	7.13	2.15	11	7.13	1.89	0.00	-6.15	20.50	0.76	47	12.03	1.43	10	12.39	1.84	-0.36	0.85	47	6.09	9.05	10	4.71	16.83	-1.38	na	na	0.89		
		Ppg	50	2.14	0.00	11	2.14	0.00	0.00	na	na	na	47	12.67	1.39	10	12.40	1.24	0.27	0.97	47	3.57	6.19	10	4.28	7.04	0.71	na	na	1.00		
	IL12B	unst	-	-	-	-	-	-	-	-	-	-	50	23.60	0.96	11	23.19	0.56	0.41	0.64	-	-	-	-	-	-	-	-	-	-	-	
		PHA	-	-	-	-	-	-	-	-	-	-	47	23.59	1.23	10	23.31	1.00	0.28	0.05	na	na	na	na	na	na	na	na	na	na	na	
		Derp1	-	-	-	-	-	-	-	-	-	-	47	23.61	1.16	10	23.58	1.08	0.02	0.35	na	na	na	na	na	na	na	na	na	na	na	
		LpA	-	-	-	-	-	-	-	-	-	-	47	23.43	1.08	10	23.44	0.88	-0.01	0.62	na	na	na	na	na	na	na	na	na	na	na	
		Ppg	-	-	-	-	-	-	-	-	-	-	47	23.60	1.48	10	23.63	0.60	-0.03	0.48	na	na	na	na	na	na	na	na	na	na	na	
	IL21 (IL-21)	unst	-	-	-	-	-	-	-	-	-	-	50	24.14	1.97	11	24.04	1.67	0.11	0.48	-	-	-	-	-	-	-	-	-	-	-	
		PHA	49	68.61	29.91	11	71.70	14.45	3.09	-0.75	5.95	0.90	47	15.92	2.86	10	17.22	2.76	-1.31	0.46	47	217.62	596.82	10	82.20	797.09	-135.42	10.67	18.90	0.57		
		Derp1	49	24.02	18.91	11	18.95	17.83	-5.07	-3.39	6.91	0.62	47	23.59	1.69	10	24.05	0.39	-0.46	0.72	na	na	na	na	na	na	na	na	na	na	na	na
		LpA	50	3.47	2.05	11	3.06	0.83	-0.41	-22.58	29.51	0.44	47	23.17	2.27	10	23.50	2.07	-0.33	0.29	na	na	na	na	na	na	na	na	na	na	na	na
		Ppg	50	8.89	1.48	11	8.89	0.00	0.00	na	na	na	47	21.36	2.42	10	23.08	3.49	-1.72	0.08	36	6.77	16.99	5	15.73	10.50	8.96	5.03	22.68	0.82		
	TGFB1	unst	-	-	-	-	-	-	-	-	-	-	50	10.07	0.79	11	10.41	0.95	-0.35	0.44	-	-	-	-	-	-	-	-	-	-	-	
		PHA	-	-	-	-	-	-	-	-	-	-	47	10.16	1.25	10	10.43	1.01	-0.28	0.52	47	1.00	0.80	10	0.82	0.42	-0.17	na	na	0.61		
		Derp1	-	-	-	-	-	-	-	-	-	-	47	11.29	1.35	10	11.74	1.40	-0.45	0.36	47	0.41	0.30	10	0.32	0.25	-0.09	na	na	0.55		
		LpA	-	-	-	-	-	-	-	-	-	-	47	11.13	1.29	10	11.34	0.63	-0.21	0.66	47	0.47	0.32	10	0.42	0.44	-0.05	na	na	0.83		
		Ppg	-	-	-	-	-	-	-	-	-	-	47	11.18	1.29	10	11.31	1.13	-0.13	0.83	47	0.48	0.30	10	0.39	0.29	-0.09	na	na	0.83		
	IL23R	unst	-	-	-	-	-	-	-	-	-	-	50	15.49	1.98	11	15.39	0.86	0.11	0.94	-	-	-	-	-	-	-	-	-	-	-	
		PHA	-	-	-	-	-	-	-	-	-	-	47	13.93	1.48	10	13.95	0.61	-0.02	0.70	47	2.70	5.43	10	3.77	5.35	1.06	5.11	6.11	0.40		
		Derp1	-	-	-	-	-	-	-	-	-	-	47	16.54	1.97	10	15.83	1.42	0.71	0.11	46	0.41	0.53	9	1.17	1.08	0.76	10.68	6.33	0.09		
		LpA	-	-	-	-	-	-	-	-	-	-	47	16.45	2.86	10	15.64	1.38	0.81	0.18	47	0.58	1.01	9	1.14	1.11	0.56	6.15	6.70	0.36		
		Ppg	-	-	-	-	-	-	-	-	-	-	47	15.11	1.43	10	14.67	1.60	0.43	0.72	46	0.97	1.46	10	1.97	1.50	1.00	7.17	5.99	0.23		
	IL1R1	unst	-	-	-	-	-	-	-	-	-	-	50	16.95	1.69	11	16.91	1.71	0.04	0.55	-	-	-	-	-	-	-	-	-	-	-	
		PHA	-	-	-	-	-	-	-	-	-	-	47	13.35	1.33	10	14.09	1.17	-0.75	0.32	47	9.31	13.35	10	6.54	5.60	-2.76	-5.98	5.97	0.32		
		Derp1	-	-	-	-	-	-	-	-	-	-	47	11.52	1.68	10	11.61	1.96	-0.09	0.85	47	45.37	53.98	10	34.31	41.28	-11.07	-4.03	6.00	0.50		
		LpA	-	-	-	-	-	-	-	-	-	-	47	11.26	1.83	10	11.24	1.73	0.02	0.98	47	46.69	55.58	10	47.16	57.59	0.47	-1.71	6.02	0.78		
		Ppg	-	-	-	-	-	-	-	-	-	-	47	12.38	2.15	10	12.23	2.04	0.15	0.83	47	24.91	28.19	10	22.29	40.86	-2.63	-1.30	6.03	0.83		
	RORy	unst	-	-	-	-	-	-	-	-	-	-	50	17.93	1.57	11	18.73	1.16	-0.80	0.20	-	-	-	-	-	-	-	-	-	-	-	
		PHA	-	-	-	-	-	-	-	-	-	-	47	14.78	1.38	10	14.72	1.58	0.06	0.84	47	7.52	9.57	10	8.33	16.01	0.80	8.78	6.31	0.16		
		Derp1	-	-	-	-	-	-	-	-	-	-	47	18.89	1.78	10	18.44	1.52	0.45	0.24	46	0.42	0.56	10	1.25	2.02	0.83	10.86	6.52	0.10		
		LpA	-	-	-	-	-	-	-	-	-	-	47	18.40	1.66	10	19.06	1.42	-0.66	0.30	46	0.52	0.63	9	0.91	1.36	0.39	2.51	6.79	0.71		
		Ppg	-	-	-	-	-	-	-	-	-	-	47	18.23	1.94	10	17.90	2.34	0.34	0.42	47	0.79	1.14	9	1.40	2.51	0.61	8.42	6.67	0.21		
	IL17A (IL-17A)	unst	-	-	-	-	-	-	-	-	-	-	50	23.62	1.02	11	23.19	0.75	0.43	1.00	-	-	-	-	-	-	-	-	-	-	-	
		PHA	49	1530.43	1380.23	11	1268.28	1018.99	-262.15	na	na	0.37	47	14.11	2.31	10	15.94	2.58	-1.82	0.0141	46	711.47	1067.98	10	110.26	624.20	-601.21	na	na	na*		
		Derp1	49	329.66	47.52	11	336.40	35.48	6.74	na	na	0.80	47	21.22	4.18	10	20.38	3.80	0.84	0.98	23	24.40	27.32	6	16.65	22.02	-7.74	na	na	na*		
		LpA	50	245.08	29.21	11	251.73	15.39	6.65	na	na	0.61	47	20.63	3.80	10	20.51	2.89	0.12	0.66	na	na	na	na	na	na	na	na	na	na*		
		Ppg	50	475.95	234.76	11	477.59	221.16	1.64	na	na	0.24	47	15.74	2.71	10	16.35	2.46	-0.61	0.45	47	234.74	392.00	9	134.13	135.39	-100.61	na	na	na*		
	IL17F (IL-17F)	unst	-	-	-	-	-	-	-	-	-	-	50	24.26	1.20	11	24.45	0.61	-0.19	0.39	-	-	-	-	-	-	-	-	-	-	-	
		PHA	49	9544.33	15421.19	11	9492.77	5062.49	-51.56	-2.81	6.35	0.66	47	14.66	3.76	10	15.56	2.39	-0.90	0.27	46	632.89	2941.98	10	474.98	522.64	-157.91	12.17	20.68	0.56		
		Derp1	49	98.66	129.32	11	137.99	296.17	39.33	0.82	5.86	0.89	47	18.86	2.55	10	18.18	2.80	0.68	0.22	46	43.23	68.01	9	63.79	127.03	20.57	17.26	19.86	0.38		
		LpA	50	77.15	95.40	11	119.52	225.77	42.37	3.69	5.95	0.53	47	18.90	2.12	10	18.38	2.52	0.52	0.41	43	33.69	94.91	9	53.93	88.94	20.24	19.43	18.21	0.29		
		Ppg	50	2186.80	3981.09	11	1622.17	12448.07	-564.63	-3.81	6.11	0.53	47	14.77	2.34	10	14.11	3.18	0.66	0.83	47	650.42	1609.04	10	667.07	1097.38	16.65	15.66	20.34	0.44		
	IL22 (IL-22)	unst	-	-	-	-	-	-	-	-	-	-	50	23.37	1.02	11	23.17	0.75	0.20	0.60	-	-	-	-	-	-	-	-	-	-	-	
		PHA	49	42.38	51.03	11	66.70	29.14	24.32	na	na	0.53	47	22.20	2.75	10	23.03	3.29	-0.83	0.99	34	3.22	6.91	7	1.68	10.04	-1.54	-9.09	14.26	0.52		
		Derp1	49	24.29	38.94	11	23.85	54.59	-0.43	na	na	0.75	47	21.29	3.26	10	20.22	3.16	1.07	0.56	39	6.15	11.88	9	11.91	13.08	5.76	2.69	16.22	0.87		
LpA		50	18.00	25.12	11	15.33	42.83	-2.67	2.15	5.94	0.72	47	21.35																			

Asthma and IgE associated polymorphisms affect expression of T_H17 genes
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SNP	Gene (Protein)	Stimulus	Protein (pg/ml)									dCt								RFC										
			GG			GA+AA			Difference of median (Minor-Major)	Est	SE	p	GG			GA+AA			Difference of median (Minor-Major)	p	GG			GA+AA			Difference of median (Minor-Major)	Est	SE	p
			n	median	IQR	n	median	IQR					n	median	IQR	n	median	IQR			n	median	IQR	n	median	IQR				
rs7747909 (IL17A) 'G>A' G=higher IgE levels	IL23A (IL-23)	unst	-	-	-	-	-	-	-	-	-	39	14.51	1.31	22	14.24	1.01	0.27	0.28	-	-	-	-	-	-	-	-	-	-	-
		PHA	39	27.63	11.56	21	22.20	21.43	-5.43	-9.58	5.59	0.09	37	10.70	2.16	20	11.16	3.06	-0.47	0.26	37	17.37	35.51	20	5.97	8.17	-11.40	na	na	0.08
		Derp1	39	8.00	0.00	21	8.00	0.74	0.00	-29.73	30.11	0.32	37	12.80	1.14	20	13.20	1.13	-0.40	0.25	37	3.56	6.06	20	2.40	1.83	-1.16	na	na	0.07
		LpA	39	7.13	2.15	22	7.13	2.49	0.00	8.90	15.38	0.56	37	12.26	1.36	20	11.94	1.77	0.32	0.69	37	6.09	11.88	20	4.38	5.63	-1.71	na	na	0.20
	Ppg	39	2.14	0.00	22	2.14	0.00	0.00	na	na	na	37	12.39	1.30	20	12.94	1.44	-0.54	0.16	37	5.17	7.46	20	2.45	2.88	-2.72	na	na	0.0405	
	IL12B	unst	-	-	-	-	-	-	-	-	-	-	39	23.61	0.76	22	23.34	1.10	0.27	0.36	-	-	-	-	-	-	-	-	-	-
		PHA	-	-	-	-	-	-	-	-	-	-	37	23.46	1.21	20	23.51	1.08	-0.05	0.85	na	na	na	na	na	na	na	na	na	na
		Derp1	-	-	-	-	-	-	-	-	-	-	37	23.49	1.02	20	23.70	1.34	-0.21	0.44	na	na	na	na	na	na	na	na	na	na
		LpA	-	-	-	-	-	-	-	-	-	-	37	23.48	1.08	20	23.24	0.99	0.24	0.12	na	na	na	na	na	na	na	na	na	na
	Ppg	-	-	-	-	-	-	-	-	-	-	37	23.66	1.34	20	23.44	1.01	0.21	0.20	na	na	na	na	na	na	na	na	na	na	
	IL21 (IL-21)	unst	-	-	-	-	-	-	-	-	-	-	39	24.06	1.83	22	24.23	1.93	-0.18	0.86	-	-	-	-	-	-	-	-	-	-
		PHA	39	71.70	26.29	21	67.59	39.27	-4.12	-3.70	4.81	0.44	37	16.14	2.73	20	16.54	3.22	-0.40	0.31	37	175.62	759.76	20	168.06	390.04	-7.55	20.65	15.05	0.17
		Derp1	39	21.50	17.09	21	26.51	17.46	5.01	3.82	5.64	0.50	37	23.75	1.36	20	23.80	1.87	-0.05	0.50	16	0.85	3.97	5	1.89	0.58	1.05	15.56	12.67	0.22
		LpA	39	3.06	1.44	22	3.67	2.05	0.62	-7.40	21.42	0.73	37	23.17	2.08	20	23.24	1.93	-0.07	0.07	17	1.80	6.60	6	3.56	8.49	1.76	8.98	8.64	0.30
	Ppg	39	8.89	1.48	22	8.89	1.48	0.00	na	na	na	37	21.26	2.74	20	22.00	2.46	-0.74	0.42	30	9.33	16.98	11	6.16	17.45	-3.17	17.22	17.90	0.34	
	TGFB1	unst	-	-	-	-	-	-	-	-	-	-	39	10.15	0.79	22	10.08	0.86	0.07	0.80	-	-	-	-	-	-	-	-	-	-
		PHA	-	-	-	-	-	-	-	-	-	-	37	10.09	1.49	20	10.42	0.87	-0.33	0.13	37	1.04	0.80	20	0.77	0.65	-0.27	na	na	0.06
		Derp1	-	-	-	-	-	-	-	-	-	-	37	11.21	1.40	20	11.50	1.38	-0.29	0.32	37	0.43	0.33	20	0.31	0.15	-0.12	na	na	0.08
		LpA	-	-	-	-	-	-	-	-	-	-	37	11.13	1.18	20	11.45	1.27	-0.33	0.08	37	0.50	0.33	20	0.32	0.26	-0.18	na	na	0.0076
	Ppg	-	-	-	-	-	-	-	-	-	-	37	11.00	1.15	20	11.57	1.29	-0.58	0.08	37	0.51	0.30	20	0.33	0.23	-0.18	na	na	0.0139	
	IL23R	unst	-	-	-	-	-	-	-	-	-	-	39	15.49	1.78	22	15.41	1.48	0.07	0.85	-	-	-	-	-	-	-	-	-	-
		PHA	-	-	-	-	-	-	-	-	-	-	37	13.93	1.46	20	13.93	1.37	0.00	0.80	37	3.93	6.45	20	2.50	1.53	-1.43	-2.35	4.87	0.63
		Derp1	-	-	-	-	-	-	-	-	-	-	37	16.48	1.77	20	16.38	2.34	0.10	0.33	35	0.44	0.98	20	0.40	0.48	-0.04	-4.05	5.07	0.42
		LpA	-	-	-	-	-	-	-	-	-	-	37	16.26	2.40	20	16.70	2.96	-0.44	0.70	36	0.76	1.33	20	0.29	0.77	-0.47	-10.98	5.08	0.0308
	Ppg	-	-	-	-	-	-	-	-	-	-	37	15.11	1.55	20	14.99	1.63	0.11	0.77	36	1.32	2.03	20	0.97	0.85	-0.34	-5.63	4.77	0.24	
	IL1R1	unst	-	-	-	-	-	-	-	-	-	-	39	16.86	1.50	22	17.17	1.78	-0.31	0.43	-	-	-	-	-	-	-	-	-	-
		PHA	-	-	-	-	-	-	-	-	-	-	37	13.20	1.26	20	13.95	1.13	-0.75	0.07	37	7.35	8.43	20	9.05	9.88	1.70	-1.91	4.80	0.69
		Derp1	-	-	-	-	-	-	-	-	-	-	37	11.50	1.67	20	11.62	2.33	-0.12	0.78	37	43.47	47.28	20	42.70	56.11	-0.77	1.55	4.81	0.75
		LpA	-	-	-	-	-	-	-	-	-	-	37	11.26	1.27	20	11.23	3.00	0.02	0.87	37	46.69	51.77	20	52.48	84.96	5.79	2.44	4.80	0.61
	Ppg	-	-	-	-	-	-	-	-	-	-	37	12.24	2.15	20	12.58	2.33	-0.34	0.42	37	22.97	23.20	20	25.94	40.22	2.97	0.41	4.81	0.93	
	RORy	unst	-	-	-	-	-	-	-	-	-	-	39	18.13	1.45	22	18.05	1.83	0.08	0.94	-	-	-	-	-	-	-	-	-	-
		PHA	-	-	-	-	-	-	-	-	-	-	37	14.72	1.40	20	15.46	1.08	-0.74	0.12	37	7.52	10.39	20	8.14	6.03	0.61	-0.58	5.07	0.91
		Derp1	-	-	-	-	-	-	-	-	-	-	37	18.62	2.00	20	19.48	1.67	-0.86	0.13	37	0.47	0.63	19	0.41	0.69	-0.06	-4.09	5.34	0.44
		LpA	-	-	-	-	-	-	-	-	-	-	37	18.77	1.58	20	18.33	2.64	0.44	0.57	36	0.52	0.57	19	0.77	1.61	0.25	2.63	5.25	0.62
	Ppg	-	-	-	-	-	-	-	-	-	-	37	18.07	2.17	20	18.29	2.00	-0.23	0.24	36	0.91	1.08	20	0.70	1.66	-0.21	0.99	5.21	0.85	
	IL17A (IL-17A)	unst	-	-	-	-	-	-	-	-	-	-	39	23.61	0.99	22	23.43	1.03	0.18	1.00	-	-	-	-	-	-	-	-	-	-
		PHA	39	1639.86	1387.46	21	1306.87	872.01	-332.99	na	na	0.28	37	14.05	2.35	20	14.93	2.48	-0.89	0.14	36	810.29	1079.43	20	345.29	718.76	-465.00	na	na	na*
		Derp1	39	331.04	35.95	21	329.96	42.30	-1.07	na	na	0.67	37	20.55	3.75	20	22.09	3.28	-1.54	0.53	22	23.26	27.34	7	15.94	22.63	-7.32	na	na	na*
		LpA	39	242.80	26.12	22	252.01	23.71	9.22	na	na	0.12	37	20.95	3.70	20	20.02	4.24	0.93	0.46	17	25.85	33.66	10	28.38	28.58	2.53	na	na	na*
	Ppg	39	477.59	224.83	22	462.82	227.65	-14.78	na	na	0.97	37	15.46	3.68	20	15.92	1.56	-0.46	0.46	36	214.39	537.50	20	156.58	252.07	-57.81	na	na	na*	
	IL17F (IL-17F)	unst	-	-	-	-	-	-	-	-	-	-	39	24.40	1.12	22	24.23	1.41	0.17	0.51	-	-	-	-	-	-	-	-	-	-
		PHA	39	10306.21	15991.63	21	7176.86	11173.99	-3129.35	-9.50	5.01	0.06	37	14.55	4.01	20	15.78	3.41	-1.23	0.16	36	687.37	2978.06	20	209.73	1422.08	-477.64	0.69	13.85	0.96
		Derp1	39	103.11	122.13	21	96.61	150.67	-6.50	-1.05	4.76	0.83	37	18.83	2.34	20	19.17	2.60	-0.34	0.96	36	51.86	75.48	19	29.80	78.97	-22.07	2.11	14.49	0.88
		LpA	39	93.21	99.41	22	85.90	150.28	-7.31	2.47	4.75	0.60	37	18.64	2.51	20	19.42	2.51	-0.78	0.99	35	43.31	89.55	17	36.46	111.91	-6.85	2.70	12.85	0.83
	Ppg	39	2118.47	5916.86	22	2044.28	3627.17	-74.20	1.89	4.91	0.70	37	14.33	4.05	20	14.80	1.43	-0.47	0.55	37	844.93	2721.99	20	634.60	1115.70	-210.33	8.98	14.55	0.54	
	IL22 (IL-22)	unst	-	-	-	-	-	-	-	-	-	-	39	23.42	0.98	22	23.20	1.43	0.22	0.25	-	-	-	-	-	-	-	-	-	-
		PHA	39	62.90	56.22	21	37.44	40.43	-25.47	na	na	0.08	37	22.06	3.18	20	22.86	1.90	-0.81	0.87	28	3.53	7.49	13	2.28	4.15	-1.26	-5.26	12.18	0.67
Derp1		39	21.33	38.17	21	30.53	45.70	9.20	na	na	0.29	37	21.39	3.02	20	21.00	4.11	0.39	0.26	31	7.94	11.15	17	6.15	17.51	-1.78	11.08	13.70	0.42	
LpA		39	14.26	29.85	22	21.92	23.17	7.66	5.13	4.72	0.28	37	21.35	2.55	20	20.86	2.90	0.49	0.20	29	6.14	10.95	15	6.44						

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