Supplementary Table 1: Description of the baseline molecular phenotypes used in the study

Id	Trait	Category
B_ADNC	Androsteendion	hormones
B_CORC	Cortisol	hormones
B_DESC	11 deoxy cortisol	hormones
B_OHP	17 hydroxy progesterone	hormones
B_PROG	Progesterone	hormones
B_TESC	Testosterone	hormones
B_VITD	25 hydroxy vitamine D3	hormones
B_TSH	TSH	hormones
B_T4VR	T4	hormones
IL18bpx	Interleukin 18 binding protein	modulators
Resistin	Resistin	modulators
Leptin	Leptin	modulators
Adiponectin	Adiponectin	modulators
AAT	α 1 antitrepsin	modulators
IL18	Interleukin 18	modulators
IgG	IgG	immunoglobulins
IgA	IgA	immunoglobulins
IgM	IgM	immunoglobulins
IgG2	IgG2	immunoglobulins
IgG3	IgG3	immunoglobulins
IgG4	IgG4	immunoglobulins
PLT_AP1	Baseline P-selectin	platelets
PLT_AF1	Baseline Fibrinogen binding	platelets
PLT_AP_AUC	ADP P-selectin reactivity curve	platelets
PLT_AF_AUC	ADP Fibrinogen binding reactivity curve	platelets
PLT_CP_AUC	CRP P-selectin reactivity curve	platelets
PLT_CF_AUC	CRP fibrinogen reactivity curve	platelets
PLT_PMC_med	Platelet-monocyte complex	platelets
COAG_TAT	Coagulation markers	platelets
PLT_bTG	beta Thromboglobulin total concentrations	platelets
PLT_bTGperPLT	beta thromboglobulin per 1 million platelets	platelets
IT1	Granulocytes	celllcounts
IT2	Monocytes (CD14+)	celllcounts
IT3	Classical monocytes (CD14++CD16-)	celllcounts
IT4	Non-classical monocytes (CD14++CD16+)	celllcounts
IT5	Intermediate monocytes (CD14+CD16+)	celllcounts
IT7	T cells (CD3+ CD56-)	celllcounts
IT8	NK cells (CD3- CD56+)	celllcounts
IT9	NKT cells (CD3+ CD56+)	celllcounts
IT10	NA	celllcounts
IT11	B cells (CD19+)	celllcounts
IT12	CD4+ T cells	celllcounts
IT13	CD8+ T cells	celllcounts
IT14	DP (CD4+ CD8+)	celllcounts
IT15	DN (CD4- CD8-)	celllcounts
IT17	NK dim (CD56+ CD16+)	celllcounts
IT18	NK bright (CD56++ CD16-)	celllcounts
IT19	NK (CD56+ CD16-)	celllcounts
IT21	Lymphocytes	celllcounts
IT29	CD45RO- CD45RA+ T cells	celllcounts
IT30	CD45RO+ CD45RA+ T cells	celllcounts
IT31	CD45RO+ CD45RA- T cells	celllcounts
IT32	CD45RO- CD45RA- T cells	celllcounts
IT33	Treg CD25+ CD127low	celllcounts
IT34	CD4+ Naive CD45RA+ CD27+	celllcounts
IT35	CD4+ Eff CD45RA+ CD27-	celllcounts
IT36	CD4+ EM CD45RA- CD27-	celllcounts
IT37	CD4+ CM CD45RA- CD27+	celllcounts
IT38	CD4+ Naive CD45RO- CD27+	celllcounts
IT39	CD4+ Eff CD45RO- CD27-	celllcounts
IT40	CD4+ EM CD45RO+ CD27-	celllcounts
IT41	CD4+ CM CD45RO+ CD27+	celllcounts
IT50	CD8+ Naive CD45RA+ CD27+	celllcounts
IT51	CD8+ Eff CD45RA+ CD27-	celllcounts
IT52	CD8+ EM CD45RA- CD27-	celllcounts
IT53	CD8+ CM CD45RA- CD27+	celllcounts
IT54	CD8+ Naive CD45RO- CD27+	celllcounts
IT55	CD8+ Eff CD45RO- CD27-	celllcounts
IT56	CD8+ EM CD45RO+ CD27-	celllcounts
IT57	CD8+ CM CD45RO+ CD27+	celllcounts

IT58	IgD- IgM+	celllcounts
IT59	IgD+ IgM+	celllcounts
IT60	IgD+ IgM-	celllcounts
IT61	IgD- IgM-	celllcounts
IT62	Plasmablast (IgD- IgM- CD38++)	celllcounts
IT63	Class switched memory (IgD- IgM- CD38+ CD27+)	celllcounts
IT64	IgD- IgM- CD27-	celllcounts
IT65	NaiveB cells (IgD+ IgM+ CD27-)	celllcounts
IT66	Memory B cells (IgD+ IgM+ CD27+)	celllcounts
IT67	IgD- IgM+ CD27-	celllcounts
IT68	IgM only memory (IgD- IgM+ CD27)	celllcounts
IT69	CD24+ CD38+	celllcounts
IT70	Transitional B cells (CD24++ CD38++)	celllcounts
IT71	Naive mature B cells (CD24+ CD38+ CD27- IgM+)	celllcounts
IT72	CD24+ CD38+ CD27+ IgM+	celllcounts
IT73	IgM-	celllcounts
IT74	IgM only B cells (CD24+ CD38+ CD27+ IgM+)	celllcounts
IT75	Natural effector (CD24+ CD38+ IgD+ IgM+)	celllcounts
IT76	IgM+	celllcounts
IT77	IgM+ CD38++ CD27+	celllcounts
IT78	Class non switched memory (IgM+ CD38+ CD27+)	celllcounts
IT79	IgM+ CD27-	celllcounts
IT80	CD19+ CD20- Plasma blasts/cells	celllcounts
IT81	CD19+ CD20+ B cells	celllcounts
IT82	IgD- CD5++	celllcounts
IT83	IgD+ CD5++	celllcounts
IT84	IgD- CD5+	celllcounts
IT85	IgD+ CD5+	celllcounts
IT86	Prol DN(CD4-CD8-)	celllcounts
IT87	Prol DP(CD4+CD8+)	celllcounts
IT88	Prol CD4+ Tconv	celllcounts
IT89	Prol CD4+ Treg	celllcounts
IT90	Prol CD8	celllcounts
IT93	Treg CD45RA+	celllcounts
IT94	Treg CD45RA-	celllcounts
IT95	Treg HLA-DR+	celllcounts

Supplementary Table 2: Description of all cytokine stimulation pairs used in the study

Id	Cytokine	Stimulation	Tissue	Time	Stimulation type
IL6_LPS_macroPG_24h	IL6	LPS	macroPG	24h	TLR ligands
IL6_S.typhimurium_macroPG_24h	IL6	S.typhimurium	macroPG	24h	Bacteria
TNFA_S.typhimurium_macroPG_24h	TNFA	S.typhimurium	macroPG	24h	Bacteria
IL1b_S.aureus_PBMC_24h	IL1b	S.aureus	PBMC	24h	Bacteria
IL6_S.aureus_PBMC_24h	IL6	S.aureus	PBMC	24h	Bacteria
TNFA_S.aureus_PBMC_24h	TNFA	S.aureus	PBMC	24h	Bacteria
IFNy_S.aureus_PBMC_7days	IFNy	S.aureus	PBMC	7days	Bacteria
IL22_S.aureus_PBMC_7days	IL22	S.aureus	PBMC	7days	Bacteria
IL6_S.aureus_WB_48h	IL6	S.aureus	WB	48h	Bacteria
TNFA_S.aureus_WB_48h	TNFA	S.aureus	WB	48h	Bacteria
IFNy_S.aureus_WB_48h	IFNy	S.aureus	WB	48h	Bacteria
IL1b_S.aureus_WB_48h	IL1b	S.aureus	WB	48h	Bacteria
IL6_PolyIC_PBMC_24h	IL6	PolyIC	PBMC	24h	TLR ligands
IL1b_PolyIC_PBMC_24h	IL1b	PolyIC	PBMC	24h	TLR ligands
IL6_PHA_WB_48h	IL6	PHA	WB	48h	Non microbial
TNFA_PHA_WB_48h	TNFA	PHA	WB	48h	Non microbial
IFNy_PHA_WB_48h	IFNy	PHA	WB	48h	Non microbial
IL1b_PHA_WB_48h	IL1b	PHA	WB	48h	Non microbial
IL6_Pam3Cys_PBMC_24h	IL6	Pam3Cys	PBMC	24h	TLR ligands
TNFA_Pam3Cys_PBMC_24h	TNFA	Pam3Cys	PBMC	24h	TLR ligands
IL6_MTB_macroPG_24h	IL6	MTB	macroPG	24h	Bacteria
TNFA_MTB_macroPG_24h	TNFA	MTB	macroPG	24h	Bacteria
IL1b_MTB_PBMC_24h	IL1b	MTB	PBMC	24h	Bacteria
IL6_MTB_PBMC_24h	IL6	MTB	PBMC	24h	Bacteria
IFNy_MTB_PBMC_7days	IFNy	MTB	PBMC	7days	Bacteria
IL17_MTB_PBMC_7days	IL17	MTB	PBMC	7days	Bacteria
IL22_MTB_PBMC_7days	IL22	MTB	PBMC	7days	Bacteria
IL6_MSUC16_PBMC_24h	IL6	MSUC16	PBMC	24h	Non microbial
TNFA_MSUC16_PBMC_24h	TNFA	MSUC16	PBMC	24h	Non microbial
IL1b_MSUC16_PBMC_24h	IL1b	MSUC16	PBMC	24h	Non microbial
IL1b_LPS1ng_PBMC_24h	IL1b	LPS1ng	PBMC	24h	TLR ligands
IL6_LPS1ng_PBMC_24h	IL6	LPS1ng	PBMC	24h	TLR ligands
IL6_LPS100ng_PBMC_24h	IL6	LPS	PBMC	24h	TLR ligands
IL1b_LPS100ng_PBMC_24h	IL1b	LPS	PBMC	24h	TLR ligands
TNFA_LPS100ng_PBMC_24h	TNFA	LPS	PBMC	24h	TLR ligands
TNFA_LPS_macroPG_24h	TNFA	LPS	macroPG	24h	TLR ligands
IFNy_LPS_WB_48h	IFNy	LPS	WB	48h	TLR ligands
TNFA_LPS_WB_48h	TNFA	LPS	WB	48h	TLR ligands
IL1b_LPS_WB_48h	IL1b	LPS	WB	48h	TLR ligands
IL6_LPS_WB_48h	IL6	LPS	WB	48h	TLR ligands
IL6_Influenza_PBMC_24h	IL6	Influenza	PBMC	24h	Virus
TNFA_Influenza_PBMC_24h	TNFA	Influenza	PBMC	24h	Virus
IL1b_Influenza_PBMC_24h	IL1b	Influenza	PBMC	24h	Virus
IL6_E.Coli_PBMC_24h	IL6	E.Coli	PBMC	24h	Bacteria
TNFA_E.Coli_PBMC_24h	TNFA	E.Coli	PBMC	24h	Bacteria
IL1b_E.Coli_PBMC_24h	IL1b	E.Coli	PBMC	24h	Bacteria
IL1b_Cryptococcus_PBMC_24h	IL1b	Cryptococcus	PBMC	24h	Fungi
IL6_Cryptococcus_PBMC_24h	IL6	Cryptococcus	PBMC	24h	Fungi
TNFA_Cryptococcus_PBMC_24h	TNFA	Cryptococcus	PBMC	24h	Fungi
IFNy_Cryptococcus_PBMC_7days	IFNy	Cryptococcus	PBMC	7days	Fungi
IL17_Cryptococcus_PBMC_7days	IL17	Cryptococcus	PBMC	7days	Fungi
IL22_Cryptococcus_PBMC_7days	IL22	Cryptococcus	PBMC	7days	Fungi
IL6_CpG_PBMC_24h	IL6	CpG	PBMC	24h	TLR ligands
IL1b_C.burnetiininemileSerum_PBMC_24h	IL1b	C.burnetiininemile	PBMC	24h	Bacteria
IL6_C.burnetiininemileSerum_PBMC_24h	IL6	C.burnetiininemile	PBMC	24h	Bacteria
TNFA_C.burnetiininemileSerum_PBMC_24h	TNFA	C.burnetiininemile	PBMC	24h	Bacteria
IL1b_C.albicanshyphae_PBMC_24h	IL1b	C.albicanshyphae	PBMC	24h	Fungi
IL6_C.albicanshyphae_PBMC_24h	IL6	C.albicanshyphae	PBMC	24h	Fungi
TNFA_C.albicanshyphae_PBMC_24h	TNFA	C.albicanshyphae	PBMC	24h	Fungi
IFNy_C.albicanshyphae_PBMC_7days	IFNy	C.albicanshyphae	PBMC	7days	Fungi
IL17_C.albicanshyphae_PBMC_7days	IL17	C.albicanshyphae	PBMC	7days	Fungi
IL22_C.albicanshyphae_PBMC_7days	IL22	C.albicanshyphae	PBMC	7days	Fungi
IL6_C.conidiaHK_WB_48h	IL6	C.albicansconidia	WB	48h	Fungi
TNFA_C.conidiaHK_WB_48h	TNFA	C.albicansconidia	WB	48h	Fungi
IFNy_C.conidiaHK_WB_48h	IFNy	C.albicansconidia	WB	48h	Fungi
IL1b_C.conidiaHK_WB_48h	IL1b	C.albicansconidia	WB	48h	Fungi
IL6_C.albicansconidia_macroPG_24h	IL6	C.albicansconidia	macroPG	24h	Fungi
TNFA_C.albicansconidia_macroPG_24h	TNFA	C.albicansconidia	macroPG	24h	Fungi
IL6_C.albicansconidia_PBMC_24h	IL6	C.albicansconidia	PBMC	24h	Fungi
TNFA_C.albicansconidia_PBMC_24h	TNFA	C.albicansconidia	PBMC	24h	Fungi
IFNy_C.albicansconidia_PBMC_7days	IFNy	C.albicansconidia	PBMC	7days	Fungi
IL17_C.albicansconidia_PBMC_7days	IL17	C.albicansconidia	PBMC	7days	Fungi

IL22_C.albicansconidia_PBMC_7days	IL22	C.albicansconidia	PBMC	7days	Fungi
IL1b_C.albicansconidia_PBMC_24h	IL1b	C.albicansconidia	PBMC	24h	Fungi
IL6_Borreliamix_PBMC_24h	IL6	Borreliamix	PBMC	24h	Bacteria
IFNy_Borreliamix_PBMC_7days	IFNy	Borreliamix	PBMC	7days	Bacteria
IL22_Borreliamix_PBMC_7days	IL22	Borreliamix	PBMC	7days	Bacteria
IL1b_Borreliamix_PBMC_24h	IL1b	Borreliamix	PBMC	24h	Bacteria
IFNy_Bacteroides_PBMC_7days	IFNy	Bacteroides	PBMC	7days	Bacteria
IL17_Bacteroides_PBMC_7days	IL17	Bacteroides	PBMC	7days	Bacteria
IL22_Bacteroides_PBMC_7days	IL22	Bacteroides	PBMC	7days	Bacteria
IL1b_B.fragilis_PBMC_24h	IL1b	B.fragilis	PBMC	24h	Bacteria
IL6_B.fragilis_PBMC_24h	IL6	B.fragilis	PBMC	24h	Bacteria
IL6_B.burgdorferi_PBMC_24h	IL6	B.burgdorferi	PBMC	24h	Bacteria
IFNy_B.burgdorferi_PBMC_7days	IFNy	B.burgdorferi	PBMC	7days	Bacteria
IL22_B.burgdorferi_PBMC_7days	IL22	B.burgdorferi	PBMC	7days	Bacteria
IL1b_B.burgdorferi_PBMC_24h	IL1b	B.burgdorferi	PBMC	24h	Bacteria
IL6_A.fumigatusconidiaSerum_PBMC_24h	IL6	A.fumigatusconidia	PBMC	24h	Fungi
TNFA_A.fumigatusconidiaSerum_PBMC_24h	TNFA	A.fumigatusconidia	PBMC	24h	Fungi
IFNy_A.fumigatusconidia_PBMC_7days	IFNy	A.fumigatusconidia	PBMC	7days	Fungi
IL22_A.fumigatusconidia_PBMC_7days	IL22	A.fumigatusconidia	PBMC	7days	Fungi

Supplementary Table 3: Results of GO term enrichment of top 75 most varying genes after correcting age, gender and seasonal effects. Table shows enrichment of top 75 most varying genes in GO terms for FDR<0.05

GO biological process	# genes in reference	# genes in top 75	# expected	Fold Enrichment	Direction	Raw P value	FDR
positive regulation of toll-like receptor	3	2	0.01	> 100	"+"	6.16E-05	2.73E-02
regulation of toll-like receptor 7	4	2	0.01	> 100	"+"	9.23E-05	3.98E-02
regulation of immune response	1049	14	2.64	5.3	"+"	2.38E-07	5.26E-04
regulation of immune system process	1531	16	3.86	4.15	"+"	7.12E-07	6.49E-04
positive regulation of toll-like receptor	20	3	0.05	59.55	"+"	2.56E-05	1.20E-02
positive regulation of immune response	750	12	1.89	6.35	"+"	3.09E-07	6.00E-04
positive regulation of immune system	1037	12	2.61	4.59	"+"	8.64E-06	5.15E-03
antibacterial humoral response	37	4	0.09	42.92	"+"	3.36E-06	2.37E-03
humoral immune response	312	7	0.79	8.91	"+"	1.44E-05	7.19E-03
immune response	1720	23	4.33	5.31	"+"	5.90E-12	9.15E-08
immune system process	2575	23	6.49	3.55	"+"	1.66E-08	6.44E-05
defense response	1255	17	3.16	5.38	"+"	6.73E-09	3.48E-05
response to stress	3358	22	8.46	2.6	"+"	8.52E-06	5.29E-03
defense response to fungus	38	4	0.1	41.79	"+"	3.70E-06	2.50E-03
response to fungus	51	4	0.13	31.14	"+"	1.10E-05	5.69E-03
killing of cells of other organism	50	4	0.13	31.76	"+"	1.02E-05	5.47E-03
cell killing	79	5	0.2	25.13	"+"	2.19E-06	1.79E-03
disruption of cells of other organism	50	4	0.13	31.76	"+"	1.02E-05	5.67E-03
innate immune response	707	15	1.78	8.42	"+"	1.67E-10	1.30E-06
neutrophil degranulation	483	10	1.22	8.22	"+"	3.51E-07	6.06E-04
neutrophil mediated immunity	496	10	1.25	8	"+"	4.46E-07	5.76E-04
myeloid leukocyte mediated immunity	517	10	1.3	7.68	"+"	6.46E-07	6.26E-04
leukocyte mediated immunity	736	13	1.85	7.01	"+"	2.91E-08	7.52E-05
immune effector process	1026	15	2.58	5.8	"+"	2.42E-08	7.52E-05
leukocyte degranulation	505	10	1.27	7.86	"+"	5.24E-07	5.80E-04
regulated exocytosis	688	10	1.73	5.77	"+"	7.94E-06	5.13E-03
exocytosis	772	10	1.94	5.14	"+"	2.13E-05	1.03E-02
neutrophil activation involved in	485	10	1.22	8.19	"+"	3.65E-07	5.66E-04
myeloid cell activation involved in	514	10	1.29	7.72	"+"	6.13E-07	6.34E-04
leukocyte activation involved in	606	10	1.53	6.55	"+"	2.63E-06	2.04E-03
leukocyte activation	873	11	2.2	5	"+"	9.98E-06	5.73E-03
cell activation	1019	11	2.57	4.29	"+"	4.11E-05	1.88E-02
cell activation involved in immune	610	10	1.54	6.51	"+"	2.79E-06	2.06E-03
myeloid leukocyte activation	564	10	1.42	7.04	"+"	1.40E-06	1.21E-03
neutrophil activation	493	10	1.24	8.05	"+"	4.22E-07	5.95E-04
granulocyte activation	497	10	1.25	7.99	"+"	4.54E-07	5.42E-04

Supplementary Table 4: Comparison between real and permuted estimates of explained variation by genetics. Estimates are given as measured by the adjusted R^2The column delta indicates the difference between the mean of the permuted distribution and the real estimate.

Cytokine stimulation pair	Real estimate	Mean permuted estimate	Delta	Significant p < 0.05
IL6_C.burnetiininemileSerum_PBMC_24h	0,4416	0,1748	0,2668	TRUE
IL6_PolyIC_PBMC_24h	0,3579	0,0590	0,2989	TRUE
TNFA_LPS_macroPG_24h	0,3491	0,0485	0,3006	TRUE
IL6_MTB_macroPG_24h	0,3332	0,0444	0,2888	TRUE
IL6_LPS100ng_PBMC_24h	0,3161	0,1250	0,1910	TRUE
IL1b_Cryptococcus_PBMC_24h	0,3087	0,0537	0,2550	TRUE
IL6_B.fragilis_PBMC_24h	0,3048	0,0608	0,2440	TRUE
IL1b_S.aureus_PBMC_24h	0,2961	0,0445	0,2516	TRUE
TNFA_S.aureus_PBMC_24h	0,2863	0,0507	0,2355	TRUE
IL1b_C.burnetiininemileSerum_PBMC_24h	0,2821	0,0529	0,2292	TRUE
IFNy_C.albicanshyphae_PBMC_7days	0,2728	0,0514	0,2214	TRUE
IFNy_Cryptococcus_PBMC_7days	0,2679	0,0525	0,2153	TRUE
IL22_Cryptococcus_PBMC_7days	0,2633	0,0474	0,2159	TRUE
TNFA_Cryptococcus_PBMC_24h	0,2616	0,0614	0,2002	TRUE
TNFA_E.Coli_PBMC_24h	0,2578	0,1012	0,1566	TRUE
IL1b_S.aureus_WB_48h	0,2460	0,0464	0,1996	TRUE
TNFA_C.albicanshyphae_PBMC_24h	0,2448	0,0429	0,2019	TRUE
TNFA_S.typhimurium_macroPG_24h	0,2429	0,0440	0,1989	TRUE
IL17_Bacteroides_PBMC_7days	0,2407	0,0458	0,1949	TRUE
IL6_CpG_PBMC_24h	0,2362	0,0616	0,1746	TRUE
IL6_Cryptococcus_PBMC_24h	0,2357	0,0540	0,1818	TRUE
IL6_S.aureus_PBMC_24h	0,2345	0,0611	0,1734	TRUE
IL6_C.albicansconidia_macroPG_24h	0,2344	0,0458	0,1886	TRUE
IL1b_E.Coli_PBMC_24h	0,2304	0,0458	0,1846	TRUE
TNFA_MTB_macroPG_24h	0,2280	0,0490	0,1791	TRUE
TNFA_C.burnetiininemileSerum_PBMC_24h	0,2236	0,0504	0,1732	TRUE
IL17_MTB_PBMC_7days	0,2191	0,0485	0,1707	TRUE
TNFA_S.aureus_WB_48h	0,2137	0,0484	0,1653	TRUE
IL1b_PolyIC_PBMC_24h	0,2132	0,0536	0,1596	TRUE
IL17_Cryptococcus_PBMC_7days	0,2117	0,0559	0,1557	TRUE
IL6_C.albicansconidia_PBMC_24h	0,2079	0,0559	0,1520	TRUE
IL6_MTB_PBMC_24h	0,2076	0,0555	0,1521	TRUE
IL6_E.Coli_PBMC_24h	0,2058	0,0791	0,1267	TRUE
IL6_A.fumigatusconidiaSerum_PBMC_24h	0,2057	0,0936	0,1121	FALSE
IL6_LPS1ng_PBMC_24h	0,1992	0,0546	0,1446	TRUE
IL1b_MTB_PBMC_24h	0,1919	0,0489	0,1429	TRUE
IL6_S.aureus_WB_48h	0,1865	0,0504	0,1361	TRUE
IL1b_C.albicanshyphae_PBMC_24h	0,1839	0,0448	0,1391	TRUE
IFNy_Bacteroides_PBMC_7days	0,1829	0,0529	0,1300	TRUE
IL22_C.albicansconidia_PBMC_7days	0,1823	0,0437	0,1386	TRUE
IL22_Borreliamix_PBMC_7days	0,1822	0,0444	0,1378	TRUE
IL17_C.albicanshyphae_PBMC_7days	0,1785	0,0425	0,1360	TRUE
IFNy_B.burgdorferi_PBMC_7days	0,1783	0,0439	0,1344	TRUE
IL17_C.albicansconidia_PBMC_7days	0,1780	0,0437	0,1343	TRUE
IL1b_PHA_WB_48h	0,1762	0,0431	0,1331	TRUE
IL6_PHA_WB_48h	0,1711	0,0439	0,1272	TRUE
TNFA_C.albicansconidia_PBMC_24h	0,1705	0,0763	0,0942	TRUE
IL1b_Borreliamix_PBMC_24h	0,1694	0,0478	0,1216	TRUE
TNFA_MSUC16_PBMC_24h	0,1691	0,0543	0,1148	TRUE
IFNy_Borreliamix_PBMC_7days	0,1605	0,0559	0,1046	TRUE
IL1b_C.albicansconidia_PBMC_24h	0,1562	0,0463	0,1099	TRUE
IFNy_C.albicansconidia_PBMC_7days	0,1463	0,0398	0,1065	TRUE
IL1b_LPS_WB_48h	0,1461	0,0388	0,1073	TRUE
IL22_A.fumigatusconidia_PBMC_7days	0,1448	0,0599	0,0849	FALSE
IL6_B.burgdorferi_PBMC_24h	0,1438	0,0637	0,0800	FALSE
IFNy_S.aureus_PBMC_7days	0,1423	0,0429	0,0994	TRUE
IL1b_C.conidiaHK_WB_48h	0,1419	0,0457	0,0961	TRUE
IL1b_B.burgdorferi_PBMC_24h	0,1410	0,0474	0,0936	TRUE
IFNy_A.fumigatusconidia_PBMC_7days	0,1381	0,0620	0,0760	FALSE
IL6_MSUC16_PBMC_24h	0,1361	0,0646	0,0715	FALSE
IL6_Pam3Cys_PBMC_24h	0,1361	0,0781	0,0580	FALSE
IL1b_Influenza_PBMC_24h	0,1317	0,0480	0,0838	FALSE
IFNy_MTB_PBMC_7days	0,1314	0,0412	0,0902	TRUE
IFNy_S.aureus_WB_48h	0,1287	0,0415	0,0872	TRUE
IL22_MTB_PBMC_7days	0,1262	0,0437	0,0825	TRUE
IL1b_LPS100ng_PBMC_24h	0,1250	0,0495	0,0755	FALSE
TNFA_Pam3Cys_PBMC_24h	0,1221	0,0444	0,0777	FALSE
IL22_C.albicanshyphae_PBMC_7days	0,1192	0,0653	0,0539	FALSE

TNFA_PHA_WB_48h		0,1191	0,0371	0,0820	TRUE
IL6_Borreliamix_PBMC_24h		0,1176	0,0626	0,0549	FALSE
IL6_C.conidiaHK_WB_48h		0,1170	0,0700	0,0470	FALSE
IL6_LPS_WB_48h		0,1122	0,0427	0,0695	FALSE
IFNy_LPS_WB_48h		0,1092	0,0391	0,0701	FALSE
IL22_S.aureus_PBMC_7days		0,1043	0,0446	0,0597	FALSE
TNFA_LPS_WB_48h		0,1005	0,0377	0,0628	FALSE
IL6_S.typhimurium_macroPG_24h		0,0990	0,0689	0,0302	FALSE
TNFA_LPS100ng_PBMC_24h		0,0958	0,0489	0,0469	FALSE
TNFA_Influenza_PBMC_24h		0,0944	0,0470	0,0474	FALSE
IL22_Bacteroides_PBMC_7days		0,0918	0,0418	0,0500	FALSE
IL1b_MSUC16_PBMC_24h		0,0918	0,0658	0,0260	FALSE
TNFA_A.fumigatusconidiaSerum_PBMC_24h		0,0875	0,0706	0,0168	FALSE
TNFA_C.conidiaHK_WB_48h		0,0803	0,0444	0,0359	FALSE
TNFA_C.albicansconidia_macroPG_24h		0,0551	0,0454	0,0098	FALSE
IFNy_PHA_WB_48h		0,0545	0,0432	0,0113	FALSE
IL1b_B.fragilis_PBMC_24h		0,0530	0,0795	-0,0266	FALSE
IL6_LPS_macroPG_24h		0,0499	0,0472	0,0027	FALSE
IL22_B.burgdorferi_PBMC_7days		0,0445	0,0373	0,0071	FALSE
IFNy_C.conidiaHK_WB_48h	NA		0,0423	NA	NA
IL1b_LPS1ng_PBMC_24h	NA		0,0468	NA	NA
IL6_Influenza_PBMC_24h	NA		0,0541	NA	NA
IL6_C.albicanshyphae_PBMC_24h	NA		0,0705	NA	NA

Supplementary Table 5: Genes associated to cytokine production and their corresponding correlation. The genes used in the multivariate linear models in order to predict the cytokine level of the cytokine indicated in the corresponding column.

Ensmbl id	Gene id	Type	Cytokine	Stimulus	Spearman correlation
ENSG00000068137	PLEKHH3	protein_coding	IL1b	C.albicans conidia	-0.4165293
ENSG00000104140	RHOV	protein_coding	IL1b	C.albicans conidia	-0.3284836
ENSG00000113916	BCL6	protein_coding	IL1b	C.albicans conidia	0.4418956
ENSG00000159263	SIM2	protein_coding	IL1b	C.albicans conidia	-0.2905726
ENSG00000165304	MELK	protein_coding	IL1b	C.albicans conidia	0.4198718
ENSG00000170627	GTSF1	protein_coding	IL1b	C.albicans conidia	0.4158425
ENSG00000182134	TDRKH	protein_coding	IL1b	C.albicans conidia	0.4652015
ENSG00000186994	KANK3	protein_coding	IL1b	C.albicans conidia	-0.3229853
ENSG00000206535	LNP1	protein_coding	IL1b	C.albicans conidia	-0.3696429
ENSG00000229512	AC068580.5	sense_intronic	IL1b	C.albicans conidia	-0.4175366
ENSG00000243547	HNRNPKP4	pseudogene	IL1b	C.albicans conidia	0.2808608
ENSG00000246560	RP11-10L12.4	processed_transcript	IL1b	C.albicans conidia	-0.3994048
ENSG00000259826	RP11-467D6.1	antisense	IL1b	C.albicans conidia	-0.3519231
ENSG00000259886	U82695.10	lincRNA	IL1b	C.albicans conidia	0.4627747
ENSG00000104140	RHOV	protein_coding	TNFA	C.albicans conidia	-0.5090318
ENSG00000120440	TTLL2	protein_coding	TNFA	C.albicans conidia	-0.4101638
ENSG00000122386	ZNF205	protein_coding	TNFA	C.albicans conidia	-0.3202647
ENSG00000125266	EFNB2	protein_coding	TNFA	C.albicans conidia	0.3934111
ENSG00000144677	CTDSPL	protein_coding	TNFA	C.albicans conidia	-0.404446
ENSG00000166816	LDHD	protein_coding	TNFA	C.albicans conidia	0.3901372
ENSG00000187486	KCNJ11	protein_coding	TNFA	C.albicans conidia	-0.4049497
ENSG00000197927	C2orf27A	protein_coding	TNFA	C.albicans conidia	0.3904299
ENSG00000211789	TRAV12-2	TR_V_gene	TNFA	C.albicans conidia	-0.3933882
ENSG00000225031	EIF4BP7	pseudogene	TNFA	C.albicans conidia	-0.4030495
ENSG00000228126	LINC00568	lincRNA	TNFA	C.albicans conidia	-0.4059461
ENSG00000242970	AC068522.4	pseudogene	TNFA	C.albicans conidia	-0.3943491
ENSG00000258702	RP11-433J8.1	lincRNA	TNFA	C.albicans conidia	0.4037548
ENSG00000260360	RP11-533E19.5	lincRNA	TNFA	C.albicans conidia	0.399043
ENSG00000068137	PLEKHH3	protein_coding	IL6	C.albicans conidia	-0.3970741
ENSG00000100033	PRODH	protein_coding	IL6	C.albicans conidia	-0.3295863
ENSG00000104140	RHOV	protein_coding	IL6	C.albicans conidia	-0.3564184
ENSG00000114790	ARHGEF26	protein_coding	IL6	C.albicans conidia	-0.3317098
ENSG00000131373	HACL1	protein_coding	IL6	C.albicans conidia	0.4119782
ENSG00000165304	MELK	protein_coding	IL6	C.albicans conidia	0.4255543
ENSG00000169750	RAC3	protein_coding	IL6	C.albicans conidia	-0.4544008
ENSG00000170627	GTSF1	protein_coding	IL6	C.albicans conidia	0.3410295
ENSG00000180730	SHISA2	protein_coding	IL6	C.albicans conidia	-0.4276259
ENSG00000206535	LNP1	protein_coding	IL6	C.albicans conidia	-0.3165787
ENSG00000243547	HNRNPKP4	pseudogene	IL6	C.albicans conidia	0.4551334
ENSG00000246560	RP11-10L12.4	processed_transcript	IL6	C.albicans conidia	-0.4290342
ENSG00000259826	RP11-467D6.1	antisense	IL6	C.albicans conidia	-0.4233107

Supplementary Table 6: Description of the summary statistics used to calculate PRS and the date they were downloaded

Consortium	Trait	Pubmed id	Year	Downloaded
DIAGRAM	Type 2 Diabetes GWAS+metabochip	22885922	2012	5/29/2016
EAGLE	Eczema	26482879	2015	5/30/2016
GABRIEL	Asthma (fixed effects)	860503	2010	5/14/2016
GUGC	Gout	23263486	2013	5/31/2016
IIBDGC	Crohn's disease (Euro)	26192919	2015	5/30/2016
IIBDGC	Ulcerative colitis (Euro)	26192919	2015	5/30/2016
IIBDGC	Inflammatory Bowel Disease (Euro)	26192919	2015	5/30/2016
IMMUNOBASE	Celiac disease	22057235	2011	15/05/2016
IMMUNOBASE	Juvenile Idiopathic Arthritis	23603761	2011	15/05/2016
IMMUNOBASE	Multiple sclerosis	21833088	2011	15/05/2016
IMMUNOBASE	Primary biliary cirrhosis	26394269	2015	15/05/2016
IMMUNOBASE	Psoriasis	23143594	2012	15/05/2016
IMMUNOBASE	Rheumatoid Arthritis	24390342	2014	15/05/2016
IMMUNOBASE	Systemic lupus erythematosus	26502338	2015	15/05/2016
IMMUNOBASE	T1D meta-study	25751624	2015	15/05/2016

Supplementary Table 7: Results of t-test between mono and lymphocyte groups and their respective permuted distribution

Disease	Cytokine type	Raw p-value	T-statistic	Degrees of freedom	Bonferroni p-value
Type 2 Diabetes	monocyte	1.22E-10	8.41	43.22	2.08E-09
Type 1 Diabetes	monocyte	2.11E-10	8.24	43.08	3.59E-09
Inflammatory Bowel Disease	lymphocyte	4.37E-09	9.29	22.06	7.43E-08
Eczema	monocyte	1.39E-08	6.97	43.20	2.37E-07
Rheumatoid Arthritis	monocyte	3.98E-08	6.66	43.12	6.77E-07
Type 2 Diabetes	lymphocyte	1.62E-07	7.51	22.09	2.76E-06
Multiple sclerosis	lymphocyte	1.07E-06	6.65	22.08	1.83E-05
Multiple sclerosis	monocyte	2.31E-06	-5.44	43.15	3.93E-05
Ulcerative colitis	lymphocyte	2.82E-05	5.25	22.08	4.79E-04
Psoriasis	lymphocyte	5.37E-05	4.99	22.10	9.12E-04
Inflammatory Bowel Disease	monocyte	7.59E-04	3.62	43.11	1.29E-02
Crohns disease	monocyte	1.19E-03	3.47	43.14	2.03E-02
Crohns disease	lymphocyte	4.71E-03	3.14	22.07	8.01E-02
Systemic lupus erythematosus	monocyte	7.28E-03	-2.82	43.14	1.24E-01
Eczema	lymphocyte	2.72E-02	2.36	22.06	4.63E-01
Asthma	monocyte	3.97E-02	-2.12	43.11	6.75E-01
Primary biliary cirrhosis	monocyte	4.79E-02	2.04	43.12	8.14E-01
Asthma	lymphocyte	9.90E-01	-0.01	22.05	1.00E+00
Celiac disease	lymphocyte	8.66E-01	-0.17	22.07	1.00E+00
Celiac disease	monocyte	1.60E-01	1.43	43.11	1.00E+00
Gout	lymphocyte	2.33E-01	-1.23	22.07	1.00E+00
Gout	monocyte	9.76E-02	-1.69	43.08	1.00E+00
Juvenile Idiopathic Arthritis	lymphocyte	1.80E-01	-1.39	22.05	1.00E+00
Juvenile Idiopathic Arthritis	monocyte	6.87E-02	1.87	43.10	1.00E+00
Primary biliary cirrhosis	lymphocyte	9.88E-01	-0.02	22.06	1.00E+00
Psoriasis	monocyte	6.70E-01	-0.43	43.08	1.00E+00
Rheumatoid Arthritis	lymphocyte	1.67E-01	1.43	22.05	1.00E+00
Systemic lupus erythematosus	lymphocyte	2.63E-01	-1.15	22.07	1.00E+00
Type 1 Diabetes	lymphocyte	8.66E-01	-0.17	22.04	1.00E+00
Ulcerative colitis	monocyte	1.44E-01	-1.49	43.11	1.00E+00