

Supplementary Table 1. Details of the databases used and the specific SNPs associated with the indicated genes.

Data Aggregation

Database Name	DOI
GWASdb	10.1093/nar/gkr1182
NHGRI GWAS Catalog	10.1093/nar/gkt1229
Genetic Association Database	10.1038/ng0504-431
GEO Signatures of Differentially Expressed Genes for Diseases	10.1093/nar/gks1193
dbGAP: Database of Genotypes and Phenotypes	10.1093/nar/gkt1211
CTD Gene-Disease Associations	10.1093/nar/gku935
DISEASES Experimental Gene-Disease Association Evidence Scores	10.1016/j.ymeth.2014.11.020

SNPs	Gene	Chr	Position	SNP ID	PubMed ID	adj P-value	Population	Trait	SNP Type
	Elmo1	7	37436854	rs11984075	21383967	5.00E-08	European(38053)	Celiac & RA	Intron
	Elmo1	7	37427351	rs75351767	23143596	2.94E-07	European(27345)	RA	Intron
	Elmo1	7	37427351	rs75351767	23143596	3.85E-05	European(27345)	RA (CCP positive)	Intron
	Elmo1	7	37427351	rs75351767	23143596	5.95E-05	European(27345)	RA (CCP negative)	Intron
	Elmo1	7	37067395	rs10488029	23382691	4.00E-06	European(2247)	IgG glycosylation	Intron
	Rac1	7	6434904	rs836472	21452313	1.28E-04	East Asian (1558)	RA	Exon 4
	Dock2	5	169461547	rs3763048	23382691	9.00E-06	European(2247)	IgG glycosylation	Intron
	Ptprc	1	198640488	rs17668708	24390342	1.70E-05	East Asian(22515), European(57284),ALL(79799)	RA	Intron
	Ptprc	1	198640488	rs17668708	24390342	1.80E-05	East Asian(22515) European(57284) ALL(79799)	RA	Intron
	Ptprc	1	198700442	rs10919563	22446963	3.30E-04	Japanese(20965) ALL(20965)	RA	Intron
	Ptprc	1	198700442	rs10919563	24449572	7.18E-05	European(8305) ALL(8305)	RA	Intron
	Ptprc	1	198700442	rs10919563	23143596	1.25E-10	European(27345) ALL(27345)	RA	Intron
	Lgals3	14	55138318	rs4652	21475983	9.00E-03	Taiwanese(151 RA patients, 182 healthy subjects)	RA	Missense
	Cflar	2	201289674	rs6715284	24390342	2.00E-09	58284 European, 22515 East Asian; replication: 9576 European, 13263 East Asian	RA	Intron
	Cflar	2	201289674	rs6715284	24390342	3.00E-09	58284 European, 22515 East Asian; replication: 9576 European, 13263 East Asian	RA	Intron
	Cd84	1	160513456	rs1503860	23555300	1.38E-07	European(2706) ALL(2706)	RA, αTNF Tx Response	UTR-3
	Cd84	1	160516308	rs6427528	23555300	2.00E-06	European(2706) ALL(2706)	RA, αTNF Tx Response	UTR-3
	Cd84	1	160516308	rs6427528	23555300	7.78E-08	European(2706) ALL(2706)	RA, αTNF Tx Response	UTR-3
	Tnfaip3	6	138195151	rs5029937	22446963	1.40E-07	Japanese(20965) ALL(20965)	RA	Intron
	Tnfaip3	6	138196066	rs2230926	20453841	2.00E-06	Japanese(5683) ALL(5683)	RA	Missense
	Tnfaip3	6	138197506	rs5029949	23143596	3.51E-08	European(27345) ALL(27345)	RA	Intron
	Tnfaip3	6	137685367	rs6920220	17982456	1.00E-07	NOPOP(397), Framingham(1211)	RA	Intron
	Tnfaip3	6	137685367	rs6920220	24449572	3.00E-08	European(3223 RA cases, 5,272 controls)	RA	Intron
	Tnfaip3	6	137681500	rs10499194	17982456	1.00E-09	NOPOP(397), Framingham(1211)	RA	Intron
	Tnfaip3	6	137906227	rs7752903	24390342	7.00E-11	East Asian(22515) European(57284) ALL(79799)	RA	Intergenic
	Tnfaip3	6	137685367	rs6920220	20453842	9.00E-13	European (5539 patient; 20169 control)	RA	Intron
	Tnfaip3	6	137906227	rs7752903	24390342	2.00E-20	East Asian(22515) European(57284) ALL(79799)	RA	Intergenic
	Tnfaip3	6	137906227	rs7752903	24390342	2.00E-29	East Asian(22515) European(57284) ALL(79799)	RA	Intergenic
	Tnfaip3	6	138227364	rs7752903	23143596	3.15E-08	European(27345) ALL(27345)	RA	Intergenic
	Tnfaip3	6	138242437	rs6932056	23143596	3.93E-05	European(27345) ALL(27345)	RA	Intergenic
	Tnfaip3	6	138243700	rs61117627	23143596	1.25E-08	European(27345) ALL(27345)	RA	Intergenic
	Tnfaip3	6	138243739	rs58721818	23143596	5.94E-12	European(27345) ALL(27345)	RA	Intergenic
	Tnfaip3	6	138243739	rs58721818	23143596	4.07E-09	European(27345) ALL(27345)	RA	Intergenic

Supplementary Table 2. Neutrophil-specific ELMO1 protein interactome.

Protein	Gene
Alpha-actinin-1	Actn1
Talin-1	Tln1
Adenylyl cyclase-associated protein 1	Cap1
SUN domain-containing protein 2	Sun2
Receptor-type tyrosine-protein phosphatase C	Ptprc
ATP synthase subunit beta, mitochondrial	Atp5b
Transitional endoplasmic reticulum ATPase	Vcp
Glycogen phosphorylase, liver form	Pygl
Integrin alpha-M	Itgam
Matrix metalloproteinase-9	Mmp9
C5a anaphylatoxin chemotactic receptor 1	C5ar1
Galectin-3	Lgals3
Tubulin beta-4B chain	Tubb4b
Tubulin alpha-1B chain	Tuba1b
Tubulin alpha-4A chain	Tuba4a
Aldehyde dehydrogenase, mitochondrial	Aldh2
Galactocerebrosidase	Galc
Glyceraldehyde-3-phosphate dehydrogenase	Gapdh
Hexokinase-3	Hk3
Leukocyte immunoglobulin-like receptor subfamily B member 3	Lilrb3
Ferritin light chain 1	Ftl1
14-3-3 protein theta	Ywhaq
14-3-3 protein eta	Ywhah
Hypoxia up-regulated protein 1	Hyou1
Hemoglobin subunit beta-1	Hbb-b1
Hemoglobin subunit alpha	Hba
Glucose-6-phosphate 1-dehydrogenase X (G6PD)	G6pdx
40S ribosomal protein S8	Rps8
Cytochrome b-245 heavy chain (Nox2, gp91phox)	Cybb
Cytoskeleton-associated protein 4	Ckap4
Clathrin heavy chain 1	Cltc

Supplementary Table 3. *Elmo1* regulates shared and cell type-specific transcriptional programs in neutrophils and macrophages.

Elmo1 regulated genes

Fold Change (log2) = *Elmo1*^{+/+}/*Elmo1*^{-/-}

Shared <u>Symbol</u>	Fold Change (log2)		Neutrophil-specific genes regulated by <i>Elmo1</i>		Macrophage-specific genes regulated by <i>Elmo1</i>	
	<u>Neutrophils</u>	<u>Macrophages</u>	<u>Symbol</u>	<u>Fold Change (log2)</u>	<u>Symbol</u>	<u>Fold Change (log2)</u>
<i>Elmo1</i>	2.880464187	2.355475856	<i>Pmaip1</i>	-0.628710496	<i>Il9r</i>	-0.941080499
<i>Aoah</i>	0.915850744	0.56933025	<i>Dip2c</i>	-0.558184818	<i>Igkv9-120</i>	-0.624630451
<i>Ero1lb</i>	1.372282657	0.852185623	<i>Lars2</i>	-0.514366097	<i>Cxcl1</i>	-0.52620906
<i>Gpr137b</i>	-1.979956104	-0.927126864	<i>Gpr132</i>	-0.498829307	<i>Camk2b</i>	-0.488972363
<i>Gpr137b-ps</i>	2.617272065	2.992377917	<i>H2-Q7</i>	-0.485226506	<i>Igkv4-59</i>	-0.428026921
<i>Hist1h2bc</i>	0.39396578	0.742381795	<i>H3f3b</i>	-0.472989058	<i>Ighv8-8</i>	-0.424412158
<i>Zkscan8</i>	-0.571637572	-0.355224675	<i>Impact</i>	-0.457510572	<i>Ighv14-3</i>	-0.411677221
<i>Stard3nl</i>	-0.396427744	0.430240833	<i>Gm23935</i>	-0.454457801	<i>Ighv10-1</i>	-0.409746982
<i>Ggps1</i>	-0.549251668	0.460340538	<i>Sertad3</i>	-0.4461594	<i>Igkv16-104</i>	-0.394899331
<i>Hist1h4i</i>	-0.696696873	0.435461088	<i>CT010467.1</i>	-0.439970046	<i>Amigo1</i>	-0.367684067
			<i>H2-Q8</i>	-0.436343221	<i>Phldb1</i>	-0.365132178
			<i>Thbs1</i>	-0.418092546	<i>Scand1</i>	-0.293073708
			<i>Clec7a</i>	-0.401047706	<i>Syk</i>	-0.155228169
			<i>Chrm3</i>	-0.382221472	<i>Mvd</i>	0.159542443
			<i>Mir22hg</i>	-0.37975576	<i>Snx6</i>	0.17639781
			<i>Cirbp</i>	-0.363829499	<i>Stard4</i>	0.181372197
			<i>Wsb1</i>	-0.363416986	<i>Sc5d</i>	0.223028415
			<i>Btg1</i>	-0.356631086	<i>Twf1</i>	0.225992578
			<i>Slc3a2</i>	-0.336040701	<i>Fgd4</i>	0.237930297
			<i>Srgn</i>	-0.335775941	<i>Zak</i>	0.250852397
			<i>Lgals8</i>	-0.334898605	<i>Dhcr7</i>	0.253971026
			<i>Dtd1</i>	-0.334796861	<i>Ndufaf7</i>	0.257936666
			<i>Pdcd5</i>	-0.317530307	<i>Nsdhl</i>	0.268383558
			<i>Frat2</i>	-0.315335873	<i>Pbx1</i>	0.269157445
			<i>Pgrmc1</i>	-0.312536956	<i>Mmab</i>	0.289483153
			<i>Pik3c3</i>	-0.307242742	<i>Hmgcs1</i>	0.305091343
			<i>Plekha1</i>	-0.303084336	<i>Igkv12-89</i>	0.307608709
			<i>Metrn1</i>	-0.299759386	<i>Idi1</i>	0.31024232
			<i>2410006H16Rik</i>	-0.29611882	<i>Lss</i>	0.315296839
			<i>Tnfrsf13</i>	-0.294815251	<i>Tagap</i>	0.316231319
			<i>Vnn3</i>	-0.293582705	<i>Fcor</i>	0.409777107
			<i>Tspan13</i>	-0.291364989	<i>Ifitm6</i>	0.425752082
			<i>Fundc2</i>	-0.288076372	<i>Lipn</i>	0.442843861
			<i>H2-Q10</i>	-0.277520521	<i>Cfp</i>	0.456862451
			<i>Gm9733</i>	-0.268712697	<i>Hfe</i>	0.612284422
			<i>Eif1</i>	-0.260132528	<i>Akr1c12</i>	0.695890394
			<i>Cd84</i>	-0.256804425	<i>Akr1e1</i>	0.797689112
			<i>Tob1</i>	-0.255245997		
			<i>N4bp2l1</i>	-0.247864369		
			<i>Klra2</i>	-0.241531326		
			<i>Amica1</i>	-0.238120316		
			<i>Smim3</i>	-0.232852118		
			<i>Fcho2</i>	-0.210485649		
			<i>Vamp3</i>	-0.209811519		
			<i>Rps14</i>	-0.204735992		
			<i>Slc44a1</i>	-0.199422135		
			<i>Arg2</i>	-0.194031715		
			<i>Hgsnat</i>	-0.192914512		
			<i>Cd24a</i>	-0.182327986		
			<i>Gng2</i>	-0.18025398		
			<i>Smim7</i>	-0.161439569		
			<i>Dazap2</i>	-0.142941473		
			<i>Bmx</i>	-0.118902286		
			<i>Atp8b4</i>	0.166880622		
			<i>Ankfy1</i>	0.168936293		
			<i>Ptpn9</i>	0.187108781		
			<i>N4bp1</i>	0.191707215		
			<i>Mbnl2</i>	0.199264563		
			<i>Pfkfb3</i>	0.200305066		
			<i>Numb</i>	0.201214808		
			<i>Gabpb2</i>	0.201288932		
			<i>Ubp1</i>	0.201388297		
			<i>Elovl1</i>	0.201603337		
			<i>Brd3</i>	0.204708411		
			<i>Ctr9</i>	0.206332067		
			<i>Suv420h1</i>	0.211614188		
			<i>Ncoa3</i>	0.213438113		
			<i>Atad2b</i>	0.215863246		
			<i>Stard8</i>	0.215987306		

<i>Arhgap27</i>	0.218104276
<i>Ncoa1</i>	0.219942667
<i>Eya3</i>	0.220687397
<i>Clip1</i>	0.223352871
<i>Kidins220</i>	0.226765126
<i>Arhgef11</i>	0.229629156
<i>Myo9b</i>	0.234041244
<i>Tbc1d1</i>	0.236894876
<i>Arid2</i>	0.237310339
<i>Utrn</i>	0.237403681
<i>Myo18a</i>	0.239499165
<i>Tbc1d2</i>	0.241547768
<i>Ncor1</i>	0.24221615
<i>Rbbp6</i>	0.242609043
<i>Arhgef18</i>	0.243807252
<i>Tcf20</i>	0.248062806
<i>Fanca</i>	0.248680134
<i>Jmjd1c</i>	0.250095307
<i>Fkbp5</i>	0.251505884
<i>Upf2</i>	0.251999657
<i>B430306N03Rik</i>	0.252835627
<i>Smarcc2</i>	0.253832348
<i>Aff1</i>	0.25537644
<i>Chdh</i>	0.257424602
<i>Nhsl2</i>	0.258119973
<i>Hcfc1</i>	0.258815495
<i>Tirap</i>	0.259087986
<i>Card6</i>	0.259716482
<i>Rnf24</i>	0.259867686
<i>C2cd3</i>	0.260808335
<i>Ston2</i>	0.261387253
<i>Tnrc18</i>	0.262860308
<i>Usf3</i>	0.264411198
<i>Lhfp12</i>	0.266980618
<i>Arid1a</i>	0.267214206
<i>Rap1gap2</i>	0.267521425
<i>6430548M08Rik</i>	0.267597881
<i>Mlxip</i>	0.267921246
<i>Tet3</i>	0.268640727
<i>Akna</i>	0.271742321
<i>Pag1</i>	0.27209798
<i>Sipa1l2</i>	0.272302126
<i>Maml1</i>	0.272642922
<i>Cep350</i>	0.273387752
<i>Smarca4</i>	0.274470545
<i>Ccdc88b</i>	0.275208681
<i>Golga3</i>	0.276662702
<i>Bdp1</i>	0.281903
<i>Hivep1</i>	0.283744591
<i>Mrpl49</i>	0.286036149
<i>Myo5a</i>	0.286524538
<i>Sh2b3</i>	0.286606631
<i>Kmt2c</i>	0.287165544
<i>Cdan1</i>	0.287408514
<i>Mkl1</i>	0.288337545
<i>Tnrc6c</i>	0.289570163
<i>Myo1d</i>	0.290276122
<i>Iqsec1</i>	0.291628348
<i>Baz2a</i>	0.292944639
<i>Prrc2a</i>	0.294453313
<i>Nin</i>	0.295845503
<i>Stk10</i>	0.297485543
<i>Fry</i>	0.299543296
<i>Bptf</i>	0.300894009
<i>Rhbdf2</i>	0.30124038
<i>Zmiz1</i>	0.301604116
<i>Anks1</i>	0.302136879
<i>Dhrs9</i>	0.304115911
<i>Trip11</i>	0.304697414
<i>Inhba</i>	0.306027908
<i>A430078G23Rik</i>	0.306921133
<i>Kat6a</i>	0.307754591
<i>Trim16</i>	0.307819367
<i>Yeats2</i>	0.308136371
<i>Dopey2</i>	0.309129701
<i>Golga4</i>	0.312631963

<i>Cflar</i>	0.312719209
<i>Magi3</i>	0.313564187
<i>Kmt2d</i>	0.314653079
<i>Ep300</i>	0.318920934
<i>Ncoa6</i>	0.323188747
<i>Kmt2a</i>	0.3232111
<i>Rrbp1</i>	0.323308346
<i>Cep250</i>	0.323557717
<i>Myh9</i>	0.325344123
<i>Prrc2c</i>	0.326548
<i>Zfp609</i>	0.329623137
<i>Clasp1</i>	0.331041808
<i>Plau</i>	0.331788561
<i>Cdk12</i>	0.334035703
<i>Erc1</i>	0.334402278
<i>Prrc2b</i>	0.336088342
<i>Dcp1a</i>	0.336764434
<i>Ppp1r10</i>	0.337993755
<i>Zfyve26</i>	0.339031014
<i>Setd1b</i>	0.339088183
<i>Tor4a</i>	0.341749945
<i>Golgb1</i>	0.342575734
<i>Rreb1</i>	0.342999948
<i>Kif21b</i>	0.343475784
<i>Plec</i>	0.353943667
<i>Nuak2</i>	0.358042945
<i>Gpr84</i>	0.359365747
<i>Dock5</i>	0.36174605
<i>Ap5b1</i>	0.361964531
<i>Spen</i>	0.367309865
<i>Lmo1</i>	0.367974677
<i>Ankrd11</i>	0.371439058
<i>Camkk1</i>	0.392422859
<i>Rasa2</i>	0.40345356
<i>Bcor1</i>	0.403795233
<i>Irf1</i>	0.409037261
<i>Ccdc88c</i>	0.430620672
<i>C130026I21Rik</i>	0.448205772
<i>Zfp142</i>	0.457135437