Supplemental Materials for Woo et. al.
Developmental Differences in Interferon Signaling Affect GATA1s Induced Megakaryocyte Differentiation

Supplemental Methods

RNA extraction and microarray analysis

Twenty thousand MkPs were isolated from adult bone marrow or day 13.5 fetal livers as described above. Total RNA was extracted using the RNEasy Micro kit (Qiagen). Subsequent handling was performed at the microarray facility of the Harvard-Partner Center for Genetics and Genomics. Disposable RNA chips (Agilent RNA 6000 Nano LabChip kit, Agilent Technologies) were used to determine RNA concentration, quality and integrity on an Agilent 2100 bioanalyzer. Ten to fifty nanograms of high quality RNA were amplified with the Nugen pico kit (Nugen) for each sample according to the manufacturer's instructions. The biotin-labeled target synthesis reactions, as well as the Affymetrix mouse 430 2.0 GeneChip array hybridization, staining, and scanning, were performed using Affymetrix standard protocols (Affymetrix). Three independent biologic replicates were performed for each of the BM-MkPs and FL-MkPs.

Quantitative real-time PCR (qRT-PCR)

For quantitative RT-PCR, RNA was extracted from isolated MkPs as described above. RNA amplification (Nugen pico kit; Nugen) and reverse transcription were performed at the microarray facility of the Harvard-Partner Center for Genetics and Genomics. Polymerase chain reactions were carried out in a 25μl volume using the iQ^{TM} SYBR Green Supermix (BioRad), as described in the manufacturer's protocol. The reaction was performed on an iCycler real time PCR instrument (BioRad) and data

analysed with the Bio-Rad MyIQ System Software 2.0. Levels were calculated relative to GAPDH using the 2^{DCt} method. Reactions were performed with 40 cycles for all genes beside Ifi203, which could be amplified with a 10-cycle program. Quantitative RT-PCR products were also run on a 2.5% agarose gel and visualized by ethidium bromide staining. Primer sequences (5'-3') were as follows: Ifi 203 forward (F), GCGGACTGGATTGAGGAC, reverse (R), AACTGAGTTCATCTTGCCCTTT; Ifi 205 F, GAAATATACCACGTTTCAGATTGCT, R CTTCTTGCCTATTTATTTCCAGTGA; IRF1 F, ATGCCAATCACTCGAATGCG, R, TTGTATCGGCCTGTGTGAATG; IRF2 F, AATTCCAATACGATACCAGGGCT, R, GAGCGGAGCATCCTTTTCCA; IFNAR1 F, AGCCACGGAGAGTCAATGG, R, GCTCTGACACGAAACTGTGTTTT; IRF8 F, GCCATATAAAGTTTACCGAATTGTC, R, ATACCCATGTACTCATCCACAGAAG; Ifitm6 F, GCATCAACAGTGATGTTATCCAG, R,GATGACCAGAGCAAGGATGTT; GAPDH F, TGGTGAAGGTCGGTGTGAAC, R, CCATGTAGTTGAGGTCAATGAAGG

Table S1. Top 200 up regulated genes

Log2 ratio	Symbol	Full Name
7.42	H2-Q7	histocompatibility 2, Q region locus 7
6.13	Chi3l3	chitinase 3-like 3
5.98	S100a9	S100 calcium binding protein A9 (calgranulin B)
5.86	Aldh1a1	aldehyde dehydrogenase family 1, subfamily A1
5.78	H2-Q8	histocompatibility 2, Q region locus 8
5.72	Nlrc5	NLR family, CARD domain containing 5
5.67	Ifi203	interferon activated gene 203
5.62	S100a8	S100 calcium binding protein A8 (calgranulin A)
5.18	Ctsg	cathepsin G
5.03	Ngp	neutrophilic granule protein
4.91	H2-Ob	histocompatibility 2, O region beta locus
4.82	Cybb	cytochrome b-245, beta polypeptide
4.76	Cd27	CD27 antigen
4.75	Ltf	lactotransferrin
4.73	Pyhin1	pyrin and HIN domain family, member 1
4.65	Prg2	proteoglycan 2, bone marrow
4.60	Camp	cathelicidin antimicrobial peptide
4.59	Ctss	cathepsin S
4.58	Serpina3g	serine (or cysteine) peptidase inhibitor, clade A, member 3G
4.56	Sdsl	serine dehydratase-like
4.56	Casp1	caspase 1
4.50	Mpeg1	macrophage expressed gene 1
4.44	Gda	guanine deaminase
4.43	Dusp6	dual specificity phosphatase 6
4.41	Dio2	deiodinase, iodothyronine, type II
4.34	Casp4	caspase 4, apoptosis-related cysteine peptidase
4.34	Tcfec	transcription factor EC
4.30	AW112010	expressed sequence AW112010
4.29	Cpne2	copine II
4.24	Lair1	leukocyte-associated Ig-like receptor 1
4.20	Lhfp	lipoma HMGIC fusion partner
4.19	Sp100	nuclear antigen Sp100
4.10	Hoxa9	homeobox A9
4.03	Ltbp3	latent transforming growth factor beta binding protein 3
4.00	Anxa1	annexin A1
3.93	1700012D01Rik	RIKEN cDNA 1700012D01 gene
3.92	Sell	selectin, lymphocyte
3.90	Als2cl	ALS2 C-terminal like
3.89	Dnajc6	DnaJ (Hsp40) homolog, subfamily C, member 6
3.85	Klf4	Kruppel-like factor 4 (gut)

Table S1. Top 200 up-regulated genes *Continued*

Log2 ratio	Symbol	Full Name
3.75	Runx2	runt related transcription factor 2
3.74	Gvin1	GTPase, very large interferon inducible 1
3.72	Irf8	interferon regulatory factor 8
3.68	Fos	FBJ osteosarcoma oncogene
3.68	Ly86	lymphocyte antigen 86
3.65	Rab11fip5	RAB11 family interacting protein 5 (class I)
3.63	Neurl1b	neuralized homolog 1b (Drosophila)
3.59	1810033B17Rik	RIKEN cDNA 1810033B17 gene
3.58	Ptpn22	protein tyrosine phosphatase, non-receptor type 22 (lymphoid)
3.56	Rgs1	regulator of G-protein signaling 1
3.52	Eltd1	EGF, latrophilin seven transmembrane domain containing 1
3.52	Rassf4	Ras association (RalGDS/AF-6) domain family member 4
3.47	Plscr4	phospholipid scramblase 4
3.47	4930519L02Rik	RIKEN cDNA 4930519L02 gene
3.41	S100a4	S100 calcium binding protein A4
3.40	Ms4a6c	membrane-spanning 4-domains, subfamily A, member 6C
3.35	A730056I06Rik	RIKEN cDNA A730056I06 gene
3.32	Epsti1	epithelial stromal interaction 1 (breast)
3.32	Glipr1	GLI pathogenesis-related 1 (glioma)
3.27	Pde4b	phosphodiesterase 4B, cAMP specific
3.26	Acpl2	acid phosphatase-like 2
3.25	Gm2629	predicted gene 2629
3.25	Fcer1a	Fc receptor, IgE, high affinity I, alpha polypeptide
3.24	Psmb9	proteasome (prosome, macropain) subunit, beta type 9 (large multifunctional peptidase 2)
3.24	Cobll1	Cobl-like 1
3.24	Abcb1b	ATP-binding cassette, sub-family B (MDR/TAP), member 1B
3.20	Gbp3	guanylate binding protein 3
3.18	Sorl1	sortilin-related receptor, LDLR class A repeats-containing
3.17	Bcl2	B cell leukemia/lymphoma 2
3.17	8430437N05Rik	RIKEN cDNA 8430437N05 gene
3.16	1100001G20Rik	RIKEN cDNA 1100001G20 gene
3.14	Cyp4v3	cytochrome P450, family 4, subfamily v, polypeptide 3
3.14	Ms4a3	membrane-spanning 4-domains, subfamily A, member 3
3.12	9530019H20Rik	RIKEN cDNA 9530019H20 gene
3.11	Ndrg1	N-myc downstream regulated gene 1
3.10	Aff3	AF4/FMR2 family, member 3
3.10	Tmie	transmembrane inner ear
3.08	Adrbk2	adrenergic receptor kinase, beta 2
3.05	Serpinb1a	serine (or cysteine) peptidase inhibitor, clade B, member 1a
3.01	Plac8	placenta-specific 8

Table S1. Top 200 up-regulated genes *Continued*

Log2 ratio	Symbol	Full Name
3.00	Cxcr4	chemokine (C-X-C motif) receptor 4
3.00	Cadps2	Ca2+-dependent activator protein for secretion 2
2.96	Lhfpl2	lipoma HMGIC fusion partner-like 2
2.94	Jdp2	Jun dimerization protein 2
2.91	Dtx4	deltex 4 homolog (Drosophila)
2.91	Ctsh	cathepsin H
2.90	Prtn3	proteinase 3
2.89	St8sia6	ST8 alpha-N-acetyl-neuraminide alpha-2,8-sialyltransferase 6
2.89	Nkg7	natural killer cell group 7 sequence
2.88	Sh2d5	SH2 domain containing 5
2.88	Nr4a1	nuclear receptor subfamily 4, group A, member 1
2.88	Cysltr2	cysteinyl leukotriene receptor 2
2.87	Mcpt8	mast cell protease 8
2.87	Gabbr1	gamma-aminobutyric acid (GABA) B receptor, 1
2.86	Csgalnact1	chondroitin sulfate N-acetylgalactosaminyltransferase 1
2.85	Mecom	MDS1 and EVI1 complex locus
2.83	App	amyloid beta (A4) precursor protein
2.82	Selp	selectin, platelet
2.82	Xaf1	XIAP associated factor 1
2.81	Hoxa10	homeobox A10
2.80	Irak3	interleukin-1 receptor-associated kinase 3
2.80	Atp1b1	ATPase, Na+/K+ transporting, beta 1 polypeptide
2.79	Slfn8	schlafen 8
2.79	Lphn2	latrophilin 2
2.78	Cd53	CD53 antigen
2.77	H3f3b	H3 histone, family 3B
2.75	Neat1	nuclear paraspeckle assembly transcript 1 (non-protein coding)
2.73	B3gnt5	UDP-GlcNAc:betaGal beta-1,3-N-acetylglucosaminyltransferase 5
2.72	Plcxd2	phosphatidylinositol-specific phospholipase C, X domain containing 2
2.71	Gbp2	guanylate binding protein 2
2.70	Rapgef3	Rap guanine nucleotide exchange factor (GEF) 3
2.67	Rsad2	radical S-adenosyl methionine domain containing 2
2.66	Nfic	nuclear factor I/C
2.66	Ddx60	DEAD (Asp-Glu-Ala-Asp) box polypeptide 60
2.65	Eya1	eyes absent 1 homolog (Drosophila)
2.65	Rgs2	regulator of G-protein signaling 2
2.64	Gimap8	GTPase, IMAP family member 8
2.63	Cd93	CD93 antigen
2.63	Psmb8	proteasome (prosome, macropain) subunit, beta type 8 (large multifunctional peptidase 7)
2.62	Lgals3bp	lectin, galactoside-binding, soluble, 3 binding protein

Table S1. Top 200 up-regulated genes *Continued*

Log2 ratio	Symbol	Full Name
2.61	Rgnef	Rho guanine nucleotide exchange factor (GEF) 28
2.61	Gm2a	GM2 ganglioside activator protein
2.59	Itih5	inter-alpha (globulin) inhibitor H5
2.57	Csf1r	colony stimulating factor 1 receptor
2.57	Hk3	hexokinase 3
2.54	Cd177	CD177 antigen
2.53	8430419K02Rik	RIKEN cDNA 8430419K02 gene
2.53	H2-K1	histocompatibility 2, K1, K region
2.53	Itga8	integrin alpha 8
2.52	Dntt	deoxynucleotidyltransferase, terminal
2.49	Epb4.1l4b	erythrocyte protein band 4.1-like 4b
2.46	Tnfaip3	tumor necrosis factor, alpha-induced protein 3
2.45	Ly6e	lymphocyte antigen 6 complex, locus E
2.45	Itsn1	intersectin 1 (SH3 domain protein 1A)
2.45	Lcn2	lipocalin 2
2.44	Cd180	CD180 antigen
2.44	Oas3	2'-5' oligoadenylate synthetase 3
2.43	Fam134b	family with sequence similarity 134, member B
2.43	Il6ra	interleukin 6 receptor, alpha
2.40	F13a1	coagulation factor XIII, A1 subunit
2.40	Mefv	Mediterranean fever
2.39	Casp12	caspase 12
2.38	Tnfsf10	tumor necrosis factor (ligand) superfamily, member 10
2.37	Hdgfrp3	hepatoma-derived growth factor, related protein 3
2.37	Tmem173	transmembrane protein 173
2.37	Vldlr	very low density lipoprotein receptor
2.36	Serpine2	serine (or cysteine) peptidase inhibitor, clade E, member 2
2.35	2310035P21Rik	RIKEN cDNA 2310035P21 gene
2.34	Hgf	hepatocyte growth factor
2.32	Fam184a	family with sequence similarity 184, member A
2.31	Ptms	parathymosin
2.31	Ms4a2	membrane-spanning 4-domains, subfamily A, member 2
2.31	2900084O13Rik	RIKEN cDNA 2900084O13 gene
2.30	Esr1	estrogen receptor 1 (alpha)
2.27	Alcam	activated leukocyte cell adhesion molecule
2.26	Lbh	limb-bud and heart
2.25	AB124611	cDNA sequence AB124611
2.24	Fam46a	family with sequence similarity 46, member A
2.23	Ncf1	neutrophil cytosolic factor 1
2.21	Dach1	dachshund 1 (Drosophila)

Table S1. Top 200 up-regulated genes *Continued*

Log2 ratio	Symbol	Full Name
2.21	Hlf	hepatic leukemia factor
2.21	Malat1	metastasis associated lung adenocarcinoma transcript 1 (non-coding RNA)
2.20	7030407E18Rik	RIKEN cDNA 7030407E18 gene
2.20	Ptpn3	protein tyrosine phosphatase, non-receptor type 3
2.20	Dgkg	diacylglycerol kinase, gamma
2.20	Lyz2	lysozyme 2
2.20	Zbtb20	zinc finger and BTB domain containing 20
2.19	B4galt6	UDP-Gal:betaGlcNAc beta 1,4-galactosyltransferase, polypeptide 6
2.19	Ldhb	lactate dehydrogenase B
2.19	Psd3	pleckstrin and Sec7 domain containing 3
2.18	Ddit4	DNA-damage-inducible transcript 4
2.16	Ceacam1	carcinoembryonic antigen-related cell adhesion molecule 1
2.16	Pik3ip1	phosphoinositide-3-kinase interacting protein 1
2.15	Otud1	OTU domain containing 1
2.13	Tnfrsf1b	tumor necrosis factor receptor superfamily, member 1b
2.13	Coro2a	coronin, actin binding protein 2A
2.12	Tgfbi	transforming growth factor, beta induced
2.12	Lyz1	lysozyme 1
2.12	C3	complement component 3
2.11	9030617O03Rik	RIKEN cDNA 9030617O03 gene
2.10	Cytip	cytohesin 1 interacting protein
2.10	Clca1	chloride channel calcium activated 1
2.10	Pdzk1ip1	PDZK1 interacting protein 1
2.09	Cd96	CD96 antigen
2.08	4930520O04Rik	RIKEN cDNA 4930520O04 gene
2.08	Basp1	brain abundant, membrane attached signal protein 1
2.07	H2-L	histocompatibility 2, D region locus L
2.07	1300010F03Rik	von Willebrand factor A domain containing 8
2.06	Ing4	inhibitor of growth family, member 4
2.06	Arl4c	ADP-ribosylation factor-like 4C
2.06	Robo3	roundabout homolog 3 (Drosophila)
2.06	Lonrf3	LON peptidase N-terminal domain and ring finger 3
2.05	Pram1	PML-RAR alpha-regulated adaptor molecule 1
2.05	Arhgef6	Rac/Cdc42 guanine nucleotide exchange factor (GEF) 6
2.03	Jun	Jun oncogene
2.02	Cldn15	claudin 15
2.02	Cd34	CD34 antigen
2.01	A130088B03Rik	RIKEN cDNA A130088B03 gene
2.01	Rab44	RAB44, member RAS oncogene family
2.00	Bcl6	B cell leukemia/lymphoma 6

Table S2. Top 122 down-regulated genes

Log2 ratio	Symbol	Full Name
-5.80	Xist	inactive X specific transcripts
-5.34	Tubb1	tubulin, beta 1 class VI
-5.08	Aqp3	aquaporin 3
-5.01	Thbs1	thrombospondin 1
-4.76	Igf2bp1	insulin-like growth factor 2 mRNA binding protein 1
-4.74	Speg	SPEG complex locus
-4.60	D2Ertd173e	DNA segment, Chr 2, ERATO Doi 173, expressed
-4.51	Slc30a10	solute carrier family 30, member 10
-4.08	Sfrp2	secreted frizzled-related protein 2
-3.98	Ddah1	dimethylarginine dimethylaminohydrolase 1
-3.97	Ndn	necdin
-3.96	Zfp711	zinc finger protein 711
-3.94	Igf2bp3	insulin-like growth factor 2 mRNA binding protein 3
-3.92	H19	H19 fetal liver mRNA
-3.86	Stc2	stanniocalcin 2
-3.84	Cald1	caldesmon 1
-3.84	Fscn1	fascin homolog 1, actin bundling protein (Strongylocentrotus purpuratus)
-3.82	Cntn3	contactin 3
-3.82	Hpgd	hydroxyprostaglandin dehydrogenase 15 (NAD)
-3.77	Hmga2	high mobility group AT-hook 2
-3.68	Ninl	ninein-like
-3.65	D0H4S114	DNA segment, human D4S114
-3.59	Spats2	spermatogenesis associated, serine-rich 2
-3.58	Rps6ka6	ribosomal protein S6 kinase polypeptide 6
-3.54	Peg3	paternally expressed 3
-3.53	2610019F03Rik	RIKEN cDNA 2610019F03 gene
-3.48	Mpdz	multiple PDZ domain protein
-3.41	D7Ertd715e	DNA segment, Chr 7, ERATO Doi 715, expressed
-3.37	Wasf1	WAS protein family, member 1
-3.29	Sardh	sarcosine dehydrogenase
-3.28	Igsf3	immunoglobulin superfamily, member 3
-3.26	Rhoj	ras homolog gene family, member J
-3.14	Myh10	myosin, heavy polypeptide 10, non-muscle
-3.13	Fam55d	neurexophilin and PC-esterase domain family, member 4
-3.13	D12Ertd125e	DNA segment, Chr 12, ERATO Doi 125, expressed
-3.12	Zfp105	zinc finger protein 105
-3.11	Slc39a8	solute carrier family 39 (metal ion transporter), member 8
-3.10	Podxl	podocalyxin-like
-3.10	St3gal6	ST3 beta-galactoside alpha-2,3-sialyltransferase 6
-3.08	Igf2	insulin-like growth factor 2

Table S2. Top 122 down-regulated genes *Continued*

Log2 ratio	Symbol	Full Name
-3.08	Cnn3	calponin 3, acidic
-3.07	Pawr	PRKC, apoptosis, WT1, regulator
-3.04	Fgd5	FYVE, RhoGEF and PH domain containing 5
-3.03	Slc16a3	solute carrier family 16 (monocarboxylic acid transporters), member 3
-3.02	Fam59a	GRB2 associated, regulator of MAPK1
-2.93	Il10ra	interleukin 10 receptor, alpha
-2.90	Serpinb2	serine (or cysteine) peptidase inhibitor, clade B, member 2
-2.90	Pde3a	phosphodiesterase 3A, cGMP inhibited
-2.89	Plxna2	plexin A2
-2.88	Tnni1	troponin I, skeletal, slow 1
-2.87	Gpc4	glypican 4
-2.80	Lypd1	Ly6/Plaur domain containing 1
-2.77	AA986860	expressed sequence AA986860
-2.77	Src	Rous sarcoma oncogen
-2.72	Hif3a	hypoxia inducible factor 3, alpha subunit
-2.72	Ptk2	PTK2 protein tyrosine kinase 2
-2.71	Dlk1	delta-like 1 homolog (Drosophila)
-2.70	Fstl1	follistatin-like 1
-2.68	Mum1l1	melanoma associated antigen (mutated) 1-like 1
-2.67	Slc22a23	solute carrier family 22, member 23
-2.65	Klhl13	kelch-like 13
-2.64	Bex4	brain expressed gene 4
-2.62	Evc	Ellis van Creveld gene syndrome
-2.62	5430401H09Rik	RIKEN cDNA 5430401H09 gene
-2.61	Gpc3	glypican 3
-2.58	Spna1	spectrin alpha, erythrocytic 1
-2.54	Grb10	growth factor receptor bound protein 10
-2.53	Mylk3	myosin light chain kinase 3
-2.53	5730471H19Rik	RIKEN cDNA 5730471H19 gene
-2.52	Gsta4	glutathione S-transferase, alpha 4
-2.51	Ston2	stonin 2
-2.51	Hebp1	heme binding protein 1
-2.48	Evc2	Ellis van Creveld syndrome 2
-2.46	Ndrg4	N-myc downstream regulated gene 4
-2.45	Pla2g6	phospholipase A2, group VI
-2.41	Daam1	dishevelled associated activator of morphogenesis 1
-2.41	Lrrc39	leucine rich repeat containing 39
-2.40	Fjx1	four jointed box 1 (Drosophila)
-2.40	Scd1	stearoyl-Coenzyme A desaturase 1
-2.40	Ext1	exostoses (multiple) 1

Table S2. Top 122 down-regulated genes *Continued*

Log2 ratio	Symbol	Full Name
-2.38	Tnnt1	troponin T1, skeletal, slow
-2.37	Zdhhc2	zinc finger, DHHC domain containing 2
-2.35	Tmeff1	transmembrane protein with EGF-like and two follistatin-like domains 1
-2.33	Cmah	cytidine monophospho-N-acetylneuraminic acid hydroxylase
-2.33	Epb4.1l5	erythrocyte protein band 4.1-like 5
-2.31	Dbc1	deleted in bladder cancer 1 (human)
-2.31	Dennd2c	DENN/MADD domain containing 2C
-2.31	1700019D03Rik	RIKEN cDNA 1700019D03 gene
-2.30	Klf1	Kruppel-like factor 1 (erythroid)
-2.29	Lgi2	leucine-rich repeat LGI family, member 2
-2.29	6330416G13Rik	RIKEN cDNA 6330416G13 gene
-2.27	Add2	adducin 2 (beta)
-2.27	Alox12	arachidonate 12-lipoxygenase
-2.26	Ank3	ankyrin 3, epithelial
-2.26	Gpr155	G protein-coupled receptor 155
-2.26	2610305D13Rik	RIKEN cDNA 2610305D13 gene
-2.26	Myom2	myomesin 2
-2.26	Spire1	spire homolog 1 (Drosophila)
-2.25	Cth	cystathionase (cystathionine gamma-lyase)
-2.25	Lgr4	leucine-rich repeat-containing G protein-coupled receptor 4
-2.22	Mxra7	matrix-remodelling associated 7
-2.20	Gypa	glycophorin A
-2.20	Nes	nestin
-2.20	Khdrbs3	KH domain containing, RNA binding, signal transduction associated 3
-2.17	Hbb-bh1	hemoglobin Z, beta-like embryonic chain
-2.17	Rab4a	RAB4A, member RAS oncogene family
-2.17	Ralgps2	Ral GEF with PH domain and SH3 binding motif 2
-2.16	Asns	asparagine synthetase
-2.15	Atf7ip2	activating transcription factor 7 interacting protein 2
-2.14	A730089K16Rik	RIKEN cDNA A730089K16 gene
-2.12	A930004D18Rik	RIKEN cDNA A930004D18 gene
-2.11	9430076G02Rik	RIKEN cDNA 9430076G02 gene
-2.10	Ccdc23	coiled-coil domain containing 23
-2.10	Vash1	vasohibin 1
-2.09	Acot11	acyl-CoA thioesterase 11
-2.09	Epb4.9	erythrocyte protein band 4.9
-2.08	Sparc	secreted acidic cysteine rich glycoprotein
-2.08	Lyplal1	lysophospholipase-like 1
-2.07	Plagl1	pleiomorphic adenoma gene-like 1
-2.05	8030474K03Rik	RIKEN cDNA 8030474K03 gene
-2.02	Pdgfb	platelet derived growth factor, B polypeptide
-2.01	Cdr2	cerebellar degeneration-related 2

Table S3. Combined IFNα Response Gene Set

Symbol	HGNC ID	Full Name
ADAR	HGNC:225	adenosine deaminase, RNA-specific
AKR7A2	HGNC:389	aldo-keto reductase family 7, member A2 (aflatoxin aldehyde reductase)
BAX	HGNC:959	BCL2-associated X protein
BAZ1A	HGNC:960	bromodomain adjacent to zinc finger domain, 1A
BCL2	HGNC:990	B-cell CLL/lymphoma 2
BIRC4BP	HGNC:30932	XIAP associated factor 1
BST2	HGNC:1119	bone marrow stromal cell antigen 2
C1ORF38	HGNC:16839	thymocyte selection associated family member 2
CACNA2D2	HGNC:1400	calcium channel, voltage-dependent, alpha 2/delta subunit 2
CALR	HGNC:1455	calreticulin
CASP1	HGNC:1499	caspase 1, apoptosis-related cysteine peptidase
CASP3	HGNC:1504	caspase 3, apoptosis-related cysteine peptidase
CCL8	HGNC:10635	chemokine (C-C motif) ligand 8
CDKN1B	HGNC:1785	cyclin-dependent kinase inhibitor 1B (p27, Kip1)
CXCL10	HGNC:10637	chemokine (C-X-C motif) ligand 10
CXCL11	HGNC:10638	chemokine (C-X-C motif) ligand 11
E2F2	HGNC:3114	E2F transcription factor 2
ECGF1	HGNC:3148	thymidine phosphorylase
EIF2AK2	HGNC:9437	eukaryotic translation initiation factor 2-alpha kinase 2
GBP2	HGNC:4183	guanylate binding protein 2, interferon-inducible
GCH1	HGNC:4193	GTP cyclohydrolase 1
GMPR	HGNC:4376	guanosine monophosphate reductase
HLA-B	HGNC:4932	major histocompatibility complex, class I, B
HLA-E	HGNC:4962	major histocompatibility complex, class I, E
IFI27	HGNC:5397	interferon, alpha-inducible protein 27
IFI35	HGNC:5399	interferon-induced protein 35
IFI44	HGNC:16938	interferon-induced protein 44
IFI44L	HGNC:17817	interferon-induced protein 44-like
IFI6	HGNC:4054	interferon, alpha-inducible protein 6
IFIT2	HGNC:5409	interferon-induced protein with tetratricopeptide repeats 2
IFIT3	HGNC:5411	interferon-induced protein with tetratricopeptide repeats 3
IFIT5	HGNC:13328	interferon-induced protein with tetratricopeptide repeats 5
IFITM1	HGNC:5412	interferon induced transmembrane protein 1
IFITM2	HGNC:5413	interferon induced transmembrane protein 2
IFITM3	HGNC:5414	interferon induced transmembrane protein 3
IL12RB2	HGNC:5972	interleukin 12 receptor, beta 2
IL15	HGNC:5977	interleukin 15
IL15RA	HGNC:5978	interleukin 15 receptor, alpha
INDO	HGNC:6059	indoleamine 2,3-dioxygenase 1
IRF1	HGNC:6116	interferon regulatory factor 1

Table S3. Combined IFNα Response Gene Set *Continued*

Symbol	HGNC ID	Full Name
IRF7	HGNC:6122	interferon regulatory factor 7
ISG15	HGNC:4053	ISG15 ubiquitin-like modifier
ISG20	HGNC:6130	interferon stimulated exonuclease gene 20kDa
KIAA0409	HGNC:29030	ribosomal RNA processing 8, methyltransferase, homolog (yeast)
KIF5C	HGNC:6325	kinesin family member 5C
KLK3	HGNC:6364	kallikrein-related peptidase 3
LGALS3BP	HGNC:6564	lectin, galactoside-binding, soluble, 3 binding protein
MAP2	HGNC:6839	microtubule-associated protein 2
MELK	HGNC:16870	maternal embryonic leucine zipper kinase
MX1	HGNC:7532	myxovirus (influenza virus) resistance 1, interferon-inducible protein p78 (mouse)
MX2	HGNC:7533	myxovirus (influenza virus) resistance 2 (mouse)
MXD4	HGNC:13906	MAX dimerization protein 4
MYD88	HGNC:7562	myeloid differentiation primary response gene (88)
NMI	HGNC:7854	N-myc (and STAT) interactor
NTRK1	HGNC:8031	neurotrophic tyrosine kinase, receptor, type 1
NULL	HGNC:24054	cancer susceptibility candidate 5
OAS1	HGNC:8086	2'-5'-oligoadenylate synthetase 1, 40/46kDa
OAS2	HGNC:8087	2'-5'-oligoadenylate synthetase 2, 69/71kDa
OASL	HGNC:8090	2'-5'-oligoadenylate synthetase-like
PDZD2	HGNC:18486	PDZ domain containing 2
PHB	HGNC:8912	prohibitin
PIAS4	HGNC:17002	protein inhibitor of activated STAT, 4
PLSCR1	HGNC:9092	phospholipid scramblase 1
PML	HGNC:9113	promyelocytic leukemia
PSCD1	HGNC:9501	pleckstrin homology, Sec7 and coiled-coil domains 1, cytohesin 1
PSMB9	HGNC:9546	proteasome (prosome, macropain) subunit, beta type, 9 (large multifunctional peptidase 2)
PSME1	HGNC:9568	proteasome (prosome, macropain) activator subunit 1 (PA28 alpha)
RABGAP1L	HGNC:24663	RAB GTPase activating protein 1-like
RARRES3	HGNC:9869	retinoic acid receptor responder (tazarotene induced) 3
RBCK1	HGNC:15864	RanBP-type and C3HC4-type zinc finger containing 1
RFC2	HGNC:9970	replication factor C (activator 1) 2, 40kDa
RGL1	HGNC:30281	ral guanine nucleotide dissociation stimulator-like 1
RPL23AP1	HGNC:10318	ribosomal protein L23a pseudogene 1
RSAD2	HGNC:30908	radical S-adenosyl methionine domain containing 2
SAMHD1	HGNC:15925	SAM domain and HD domain 1
SOCS1	HGNC:19383	suppressor of cytokine signaling 1
STAT1	HGNC:11362	signal transducer and activator of transcription 1, 91kDa
STX11	HGNC:11429	syntaxin 11
TDRD7	HGNC:30831	tudor domain containing 7
TLR3	HGNC:11849	toll-like receptor 3

Table S3. Combined IFNα Response Gene Set *Continued*

Symbol	HGNC ID	Full Name
TNFSF10	HGNC:11925	tumor necrosis factor (ligand) superfamily, member 10
TREX1	HGNC:12269	three prime repair exonuclease 1
TRIM14	HGNC:16283	tripartite motif containing 14
TRIM21	HGNC:11312	tripartite motif containing 21
TRIM22	HGNC:16379	tripartite motif containing 22
TUBB	HGNC:20778	tubulin, beta class I
UBE2D3	HGNC:12476	ubiquitin-conjugating enzyme E2D 3
UBE2L6	HGNC:12490	ubiquitin-conjugating enzyme E2L 6
VAT1	HGNC:16919	vesicle amine transport protein 1 homolog (T. californica)
VCAM1	HGNC:12663	vascular cell adhesion molecule 1
WARS	HGNC:12729	tryptophanyl-tRNA synthetase
ZBTB20	HGNC:13503	zinc finger and BTB domain containing 20

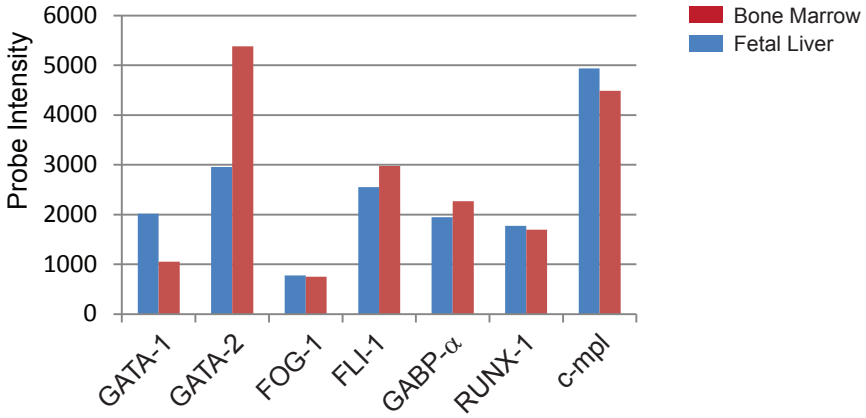

Figure S1. Expression differences of key megakaryocyte transcription factors in WT BM-MkPs and FL-MkPs. Probe intensities were derived from the average of MAS5 normalized expression array indexes.

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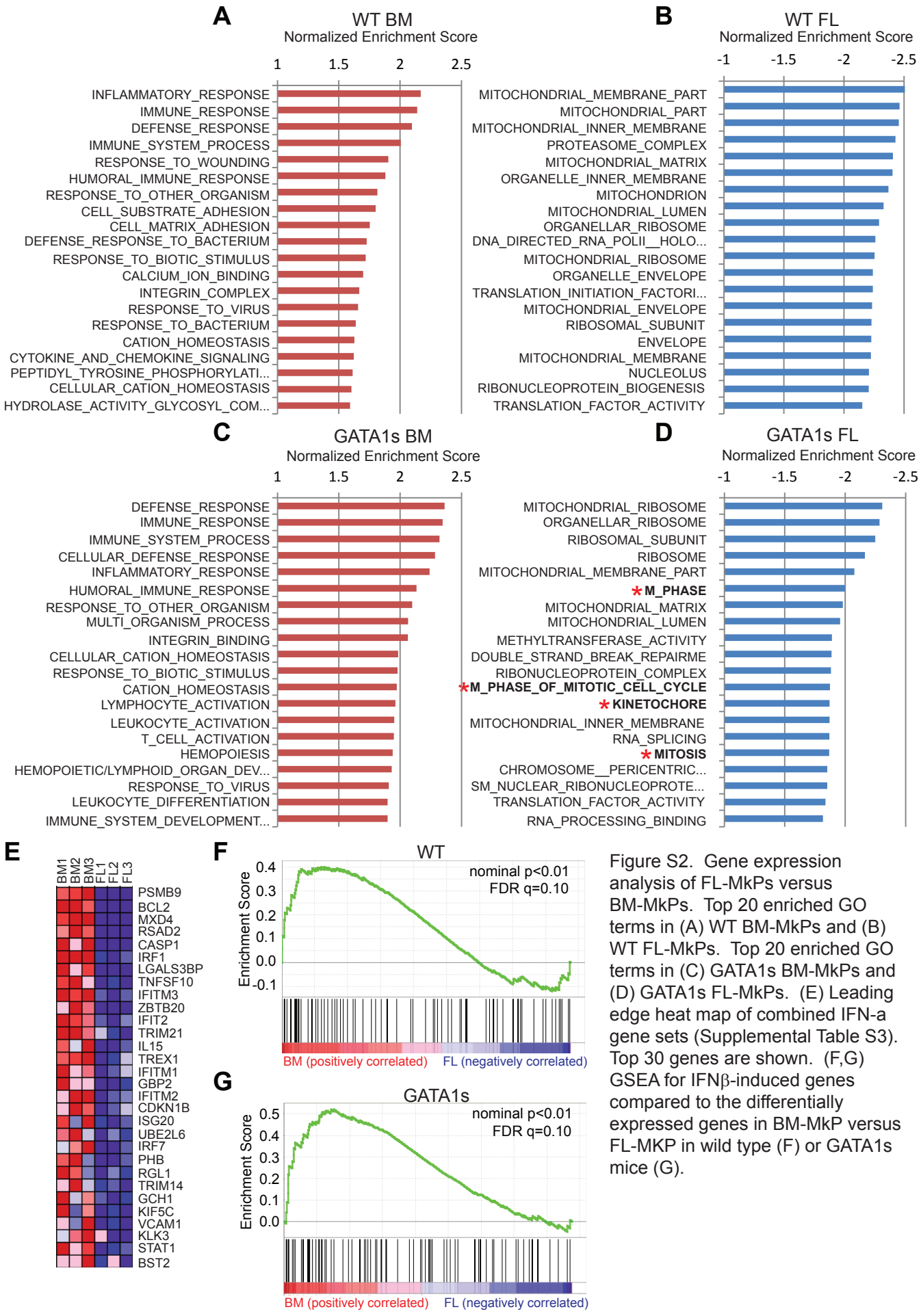

Figure S2. Gene expression analysis of FL-MkPs versus BM-MkPs. Top 20 enriched GO terms in (A) WT BM-MkPs and (B) WT FL-MkPs. Top 20 enriched GO terms in (C) GATA1s BM-MkPs and (D) GATA1s FL-MkPs. (E) Leading edge heat map of combined IFN-a gene sets (Supplemental Table S3). Top 30 genes are shown. (F,G) GSEA for IFNβ-induced genes compared to the differentially expressed genes in BM-MkP versus FL-MKP in wild type (F) or GATA1s mice (G).

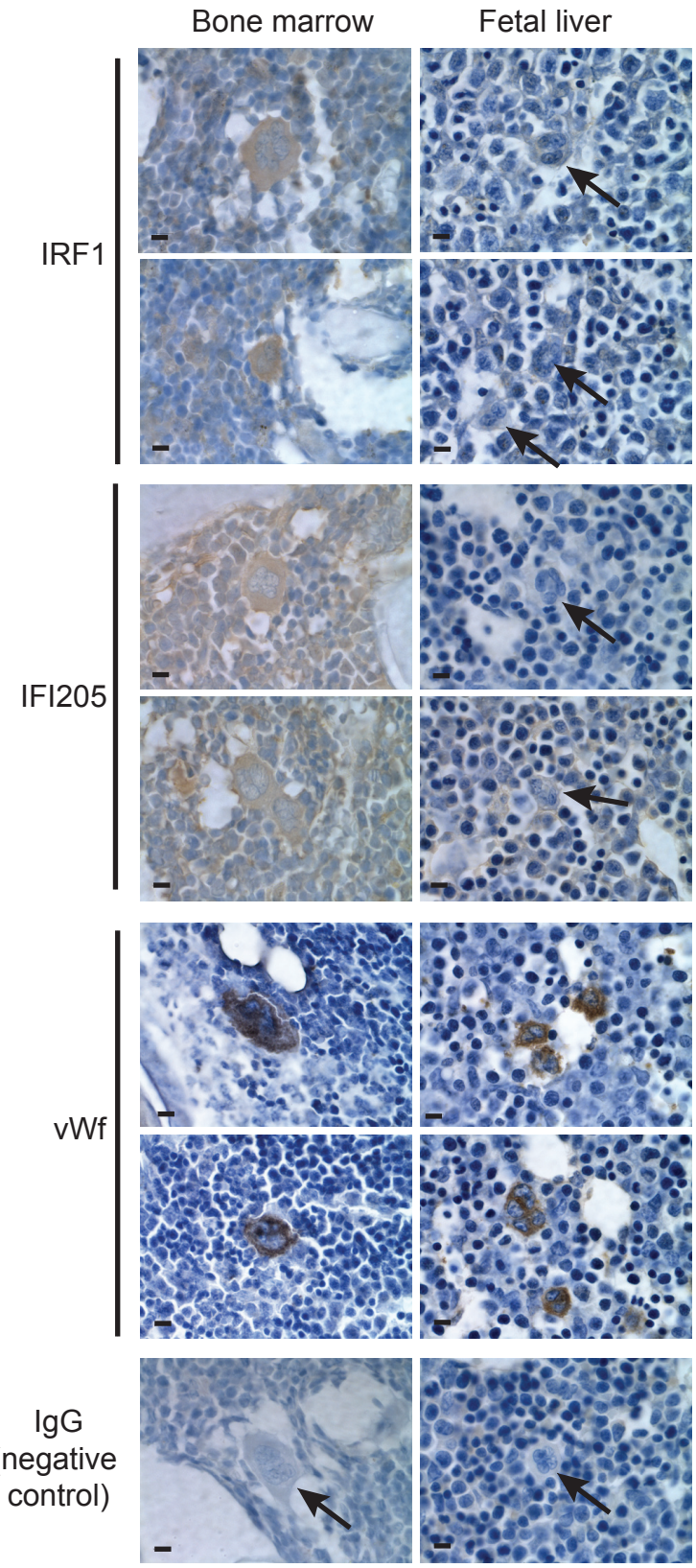

Figure S3. Increased protein levels of type I interferon response genes in BM versus e 13.5 FL Mks from wild type mice. *In situ* immunohistochemical staining for IRF1, IFI205 and vWf. Original magnification 1000x. Bar represents 5 μm . Arrows indicate Mks.

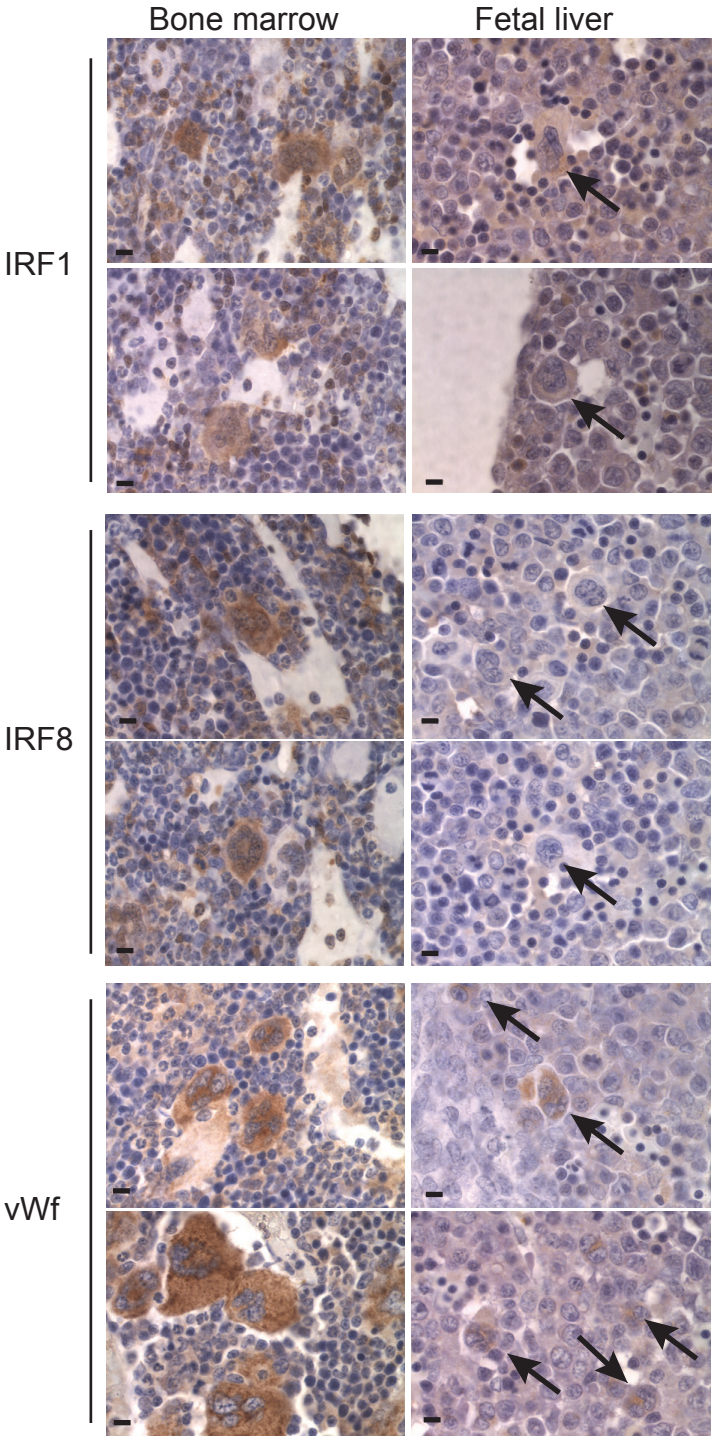

Figure S4. Increased protein levels of type I interferon response genes in BM versus e13.5 FL Mks from GATA1s male mice. In situ immunohistochemical staining for IRF1, IRF8 and vWf. Original magnification 1000x. Bar represents 5 μm. Arrows indicate Mks.

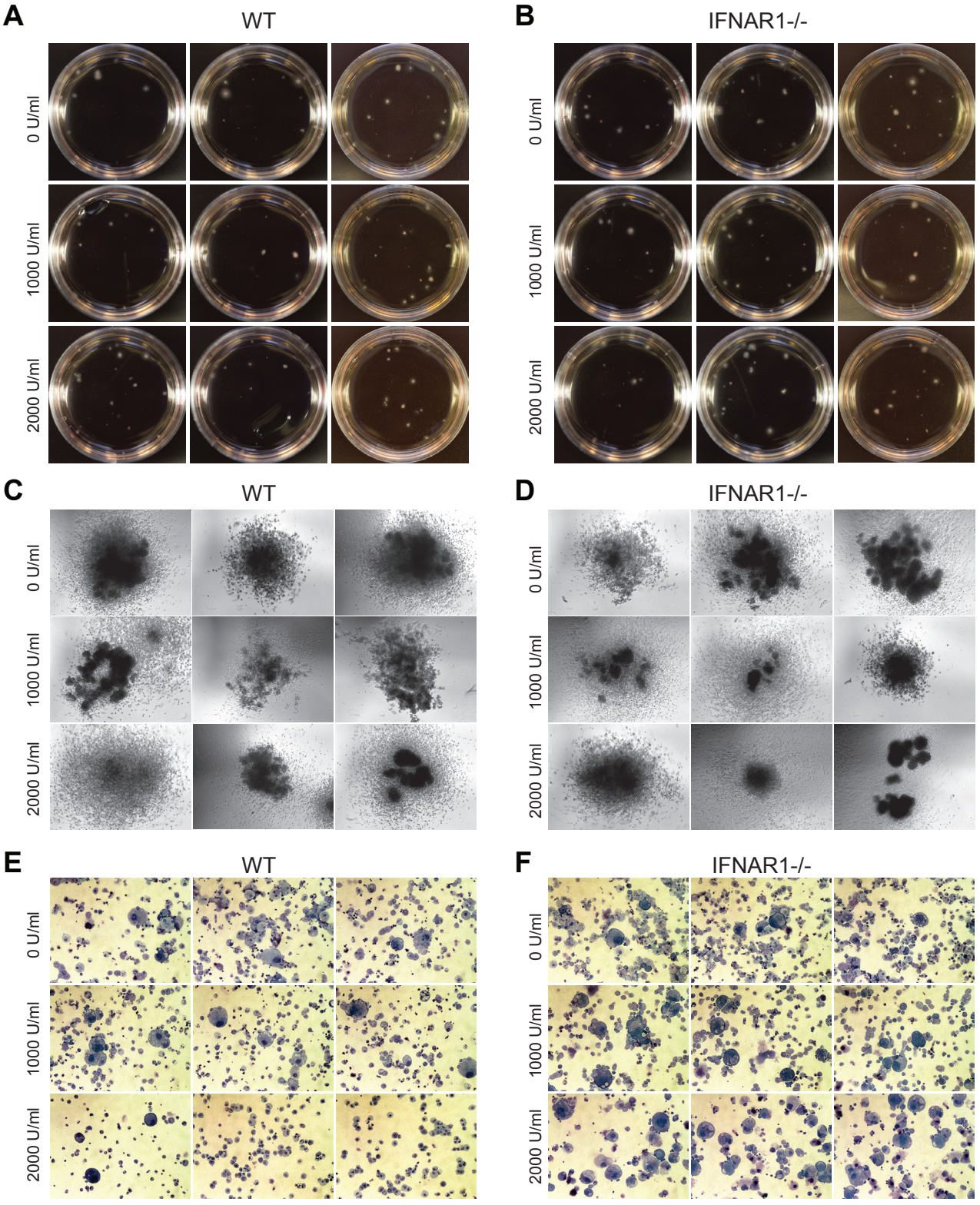

Figure S5. Effects of IFN-α on myeloid, CFU-GEMM and BFU-E progenitors in the bone marrow. Wild type and IFNAR-/- bone marrow cells were cultured in MethoCult M3434 methylcellulose medium containing SCF (50 ng/ml), IL-3 (10 ng/ml), IL-6 (10 ng/ml), EPO (3 U/ml), insulin (10 μg/ml), transferrin (200 μg/mL) and increasing IFN-α concentrations at 37°C, 5% CO2 in a humidified chamber and colonies were examined after 9 days. (A-B) View of the whole methylcellulose plate with increasing concentrations of IFN-α (0, 1000 or 2000 U/ml) in (A) WT and (B) IFNAR-/- bone marrows cells. (C-D) Photographs of megakaryocyte containing CFU-GEMM colonies from (C) WT and (D) IFNAR-/- bone marrow cells. Appearance of CFU-GEMM colonies are indistinguishable with increasing IFN-α concentrations in both WT and IFNAR-/- animals. Original magnification at 40x. (E-F) Cytospin and May-Grunward stained images of CFU-GEMM colonies. CFU-GEMM colonies from WT animals lack megakaryocytic cells at higher IFN-α concentrations.

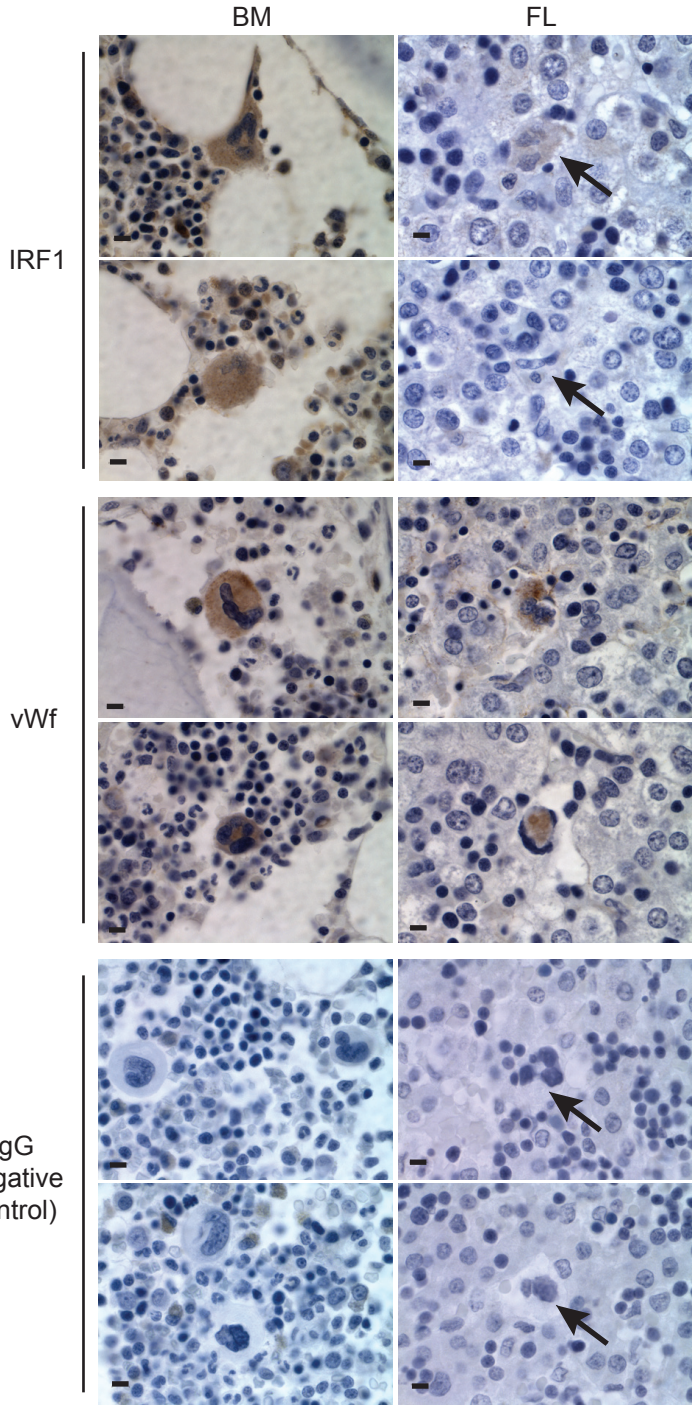

Figure S6. Increased protein levels of type I interferon response genes in human BM versus FL Mks. *In situ* immunohistochemical staining for IRF1 and vWf in FL from 12-22 week estimated gestation age aborted human fetuses or from BM of > 1 year old individuals. Original magnification 1000x for all images. Bar represents 5 μm.

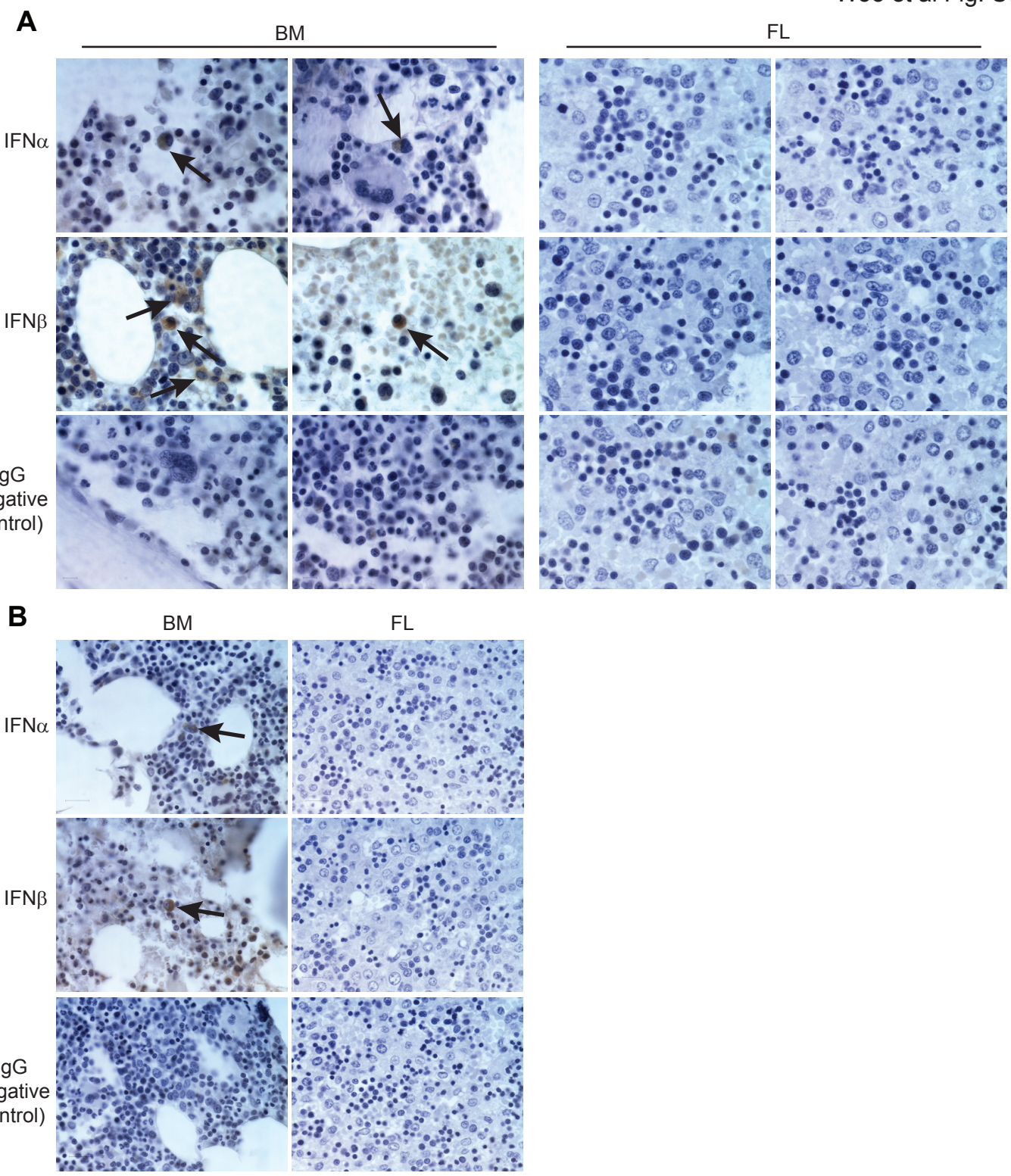

Figure S7. Presence of IFNα and IFNβ producing cells in human BM versus FL. In situ immunohistochemical staining for IFNα and IFNβ from 12-22 week estimated gestational age aborted human fetuses or from BM of >1 year old individuals. (A) Original magnification, 1000x. (B) Original magnification, 600x. Arrows highlight positive cells.