

Supplemental Information

IRF4 Transcription Factor-Dependent

CD11b⁺ Dendritic Cells in Human and Mouse

Control Mucosal IL-17 Cytokine Responses

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Supplemental Inventory

1. Supplemental Figures and Tables

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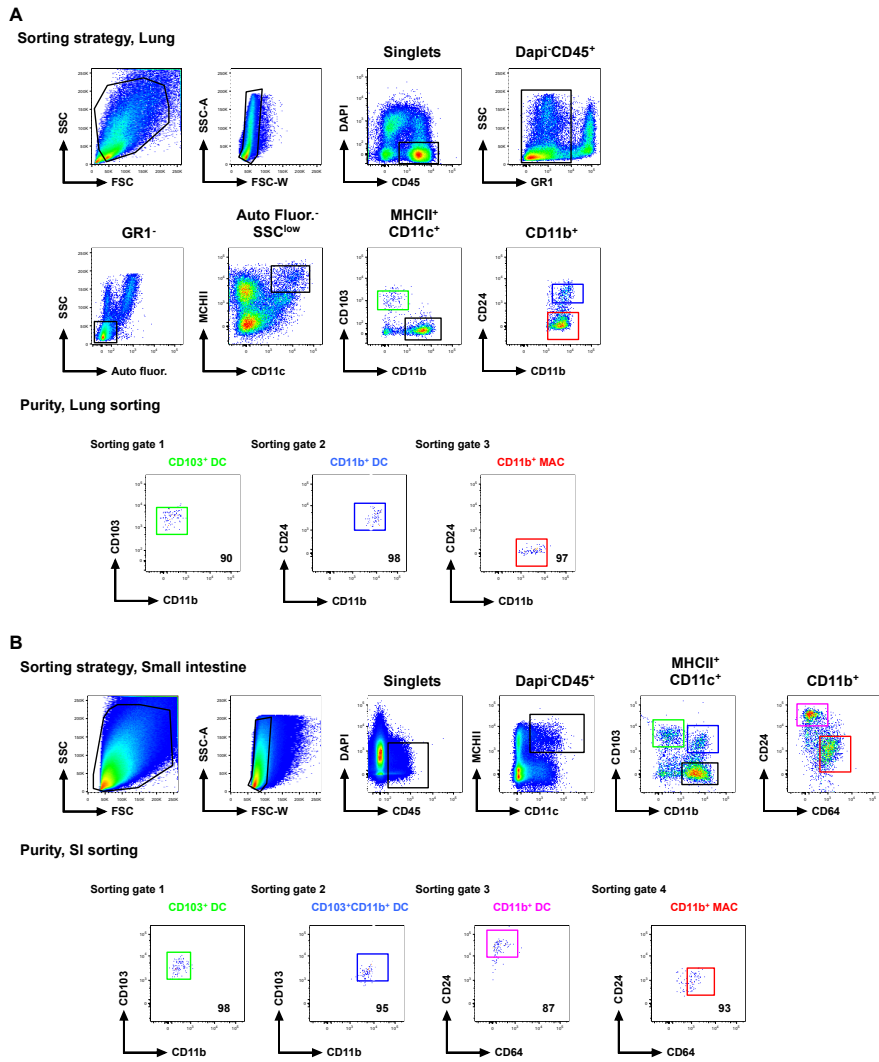
Table S2, Related to Figure 6

Table S3, Related to Figure 6

2. Supplemental Experimental Procedures

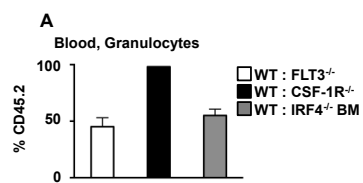
3. Supplemental References

Supplementary figure 1 Sorting strategy for mouse lung and small intestinal DC



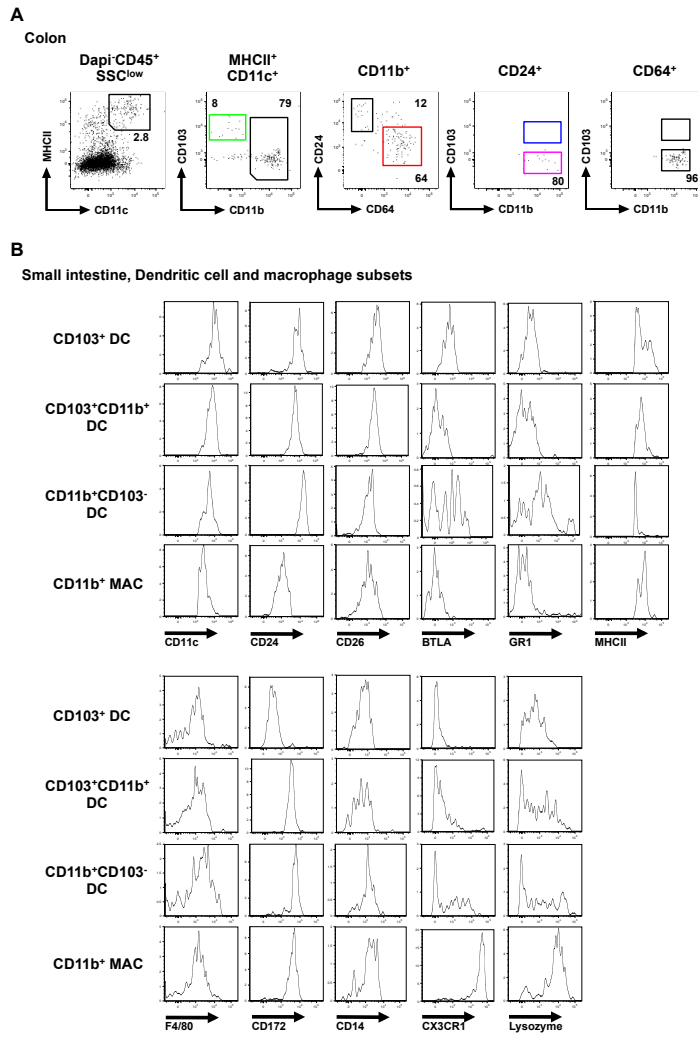
Supplementary figure 1 Sorting strategy for mouse lung and small intestinal DC
 Sorting strategy of lung CD103⁺ and CD11b⁺ DC as well as CD11b⁺ Macs from steady state WT mice (A). Sorting strategy of small intestinal CD103⁺, CD103⁺CD11b⁺ and CD11b⁺ DC as well as CD11b⁺ Macs from steady state WT mice (B).

Supplementary figure 2 Chimerism of blood granulocytes in mixed BM chimeras



Supplementary figure 2 Chimerism of blood granulocytes in mixed BM chimeras
Blood chimerism of granulocytes of FLT3^{-/-}, CSF-1R^{-/-} and IRF4^{-/-} mixed BM chimeras 4 weeks after irradiation (mean \pm SEM, n=4) (A).

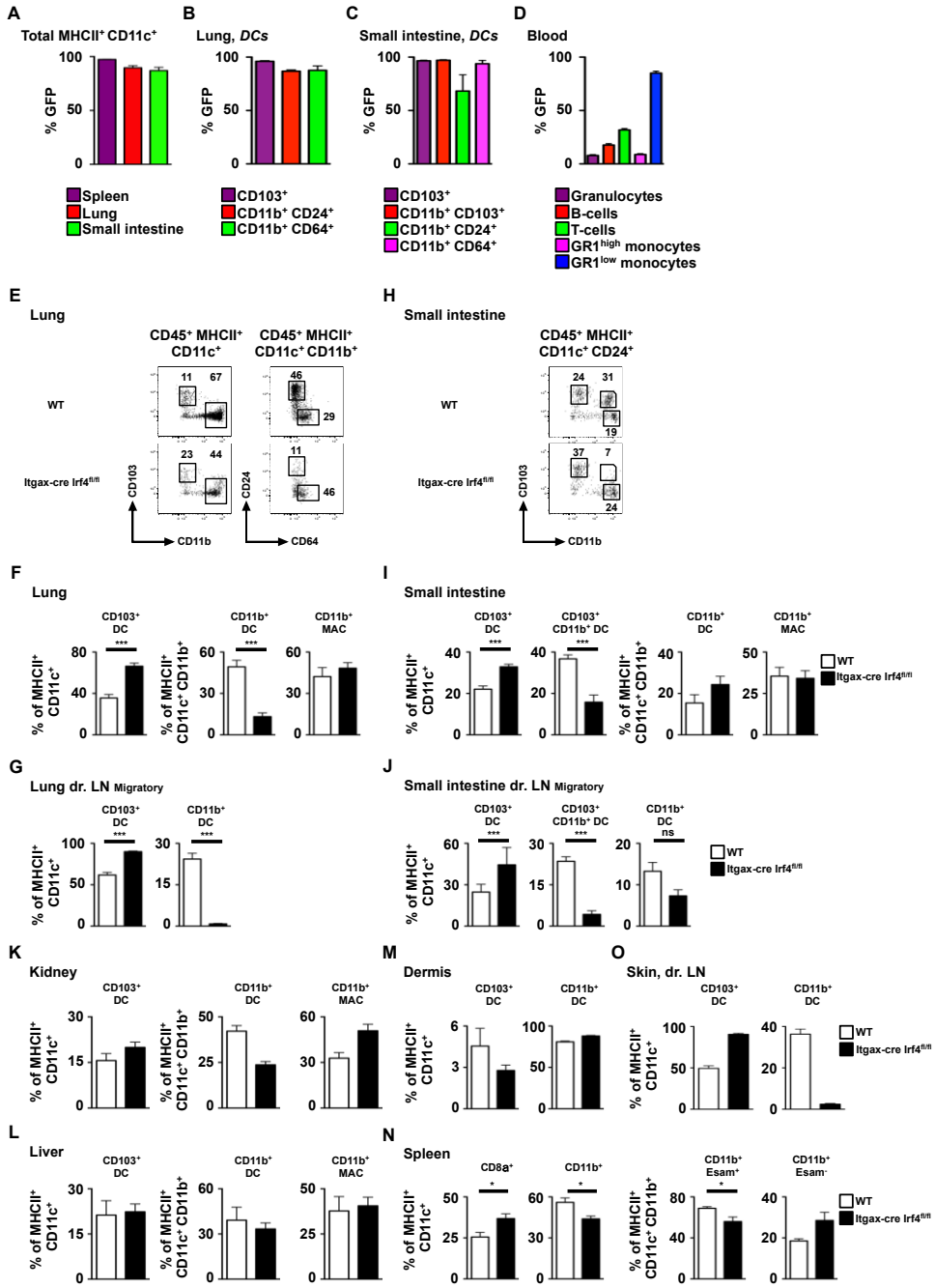
Supplementary figure 3 Flow cytometric analysis of mouse colonic and small intestinal lamina propria



Supplementary figure 3 Flow cytometric analysis of mouse colonic and small intestinal lamina propria

Analysis of the colonic lamina propria DC compartment for the depicted markers by flow cytometry. Dot plots were gated as indicated (n=5) (A). DC and macrophage populations within the SI-LP were labeled with antibodies specific for the indicated markers, or an isotype-matched control antibody and analyzed by flow cytometry (n=3) (B).

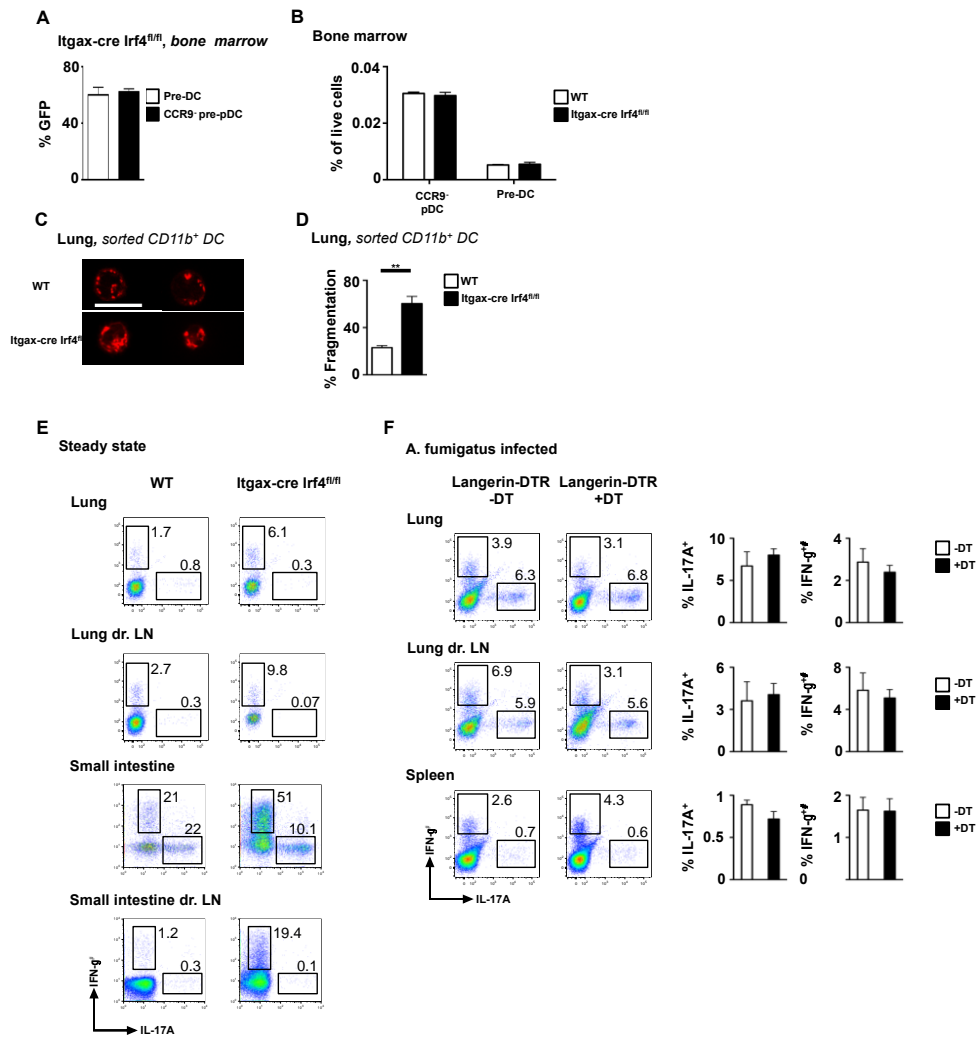
Supplementary figure 4 Lung CD24⁺CD11b⁺ DCs and gut LP CD24⁺CD103⁺CD11b⁺ DCs are absent in *Itgax-cre Irf4^{fl/fl}* but not in any other organ



Supplementary figure 4 Lung CD24⁺CD11b⁺ DCs and gut LP CD24⁺CD103⁺CD11b⁺ DCs are absent in *Ilgax-cre Irf4^{fl/fl}* but not in any other organ

Bar graphs depict percentages of GFP⁺ cells in the MHCII⁺CD11c⁺ fraction of spleen, lung and small intestine of *Ilgax-cre Irf4^{fl/fl}* mice (mean ± SEM, n=4) (A). Bar graphs depict the percentage of the indicated cell populations in the indicated organs in *Ilgax-cre Irf4^{fl/fl}* mice (mean ± SEM, n=4) (B-D). Cell populations within the lung (E) and SI-LP (H) of WT control littermate (upper panel) and *Ilgax-cre Irf4^{fl/fl}* (lower panel) mice were labeled with antibodies specific for the indicated markers, before flow cytometric analysis (n=7). Bar graphs depict percentage of DC and macrophage populations in WT (white bars) and *Ilgax-cre Irf4^{fl/fl}* (black bars) mice in the total Dapi⁺CD45⁺SSC^{low}MHCII⁺CD11c⁺ or Dapi⁺CD45⁺SSC^{low}MHCII⁺CD11c⁺CD11b⁺ fractions of the indicated tissues (F-J, n=7, mean ± SEM). Bar graphs depict percentage of DC and macrophage populations in WT (white bars) *Ilgax-cre Irf4^{fl/fl}* (black bars) mice in the total Dapi⁺CD45⁺SSC^{low}MHCII⁺CD11c⁺ or Dapi⁺CD45⁺SSC^{low}MHCII⁺CD11c⁺CD11b⁺ fractions of the indicated tissues (K-O, n=7, mean ± SEM).

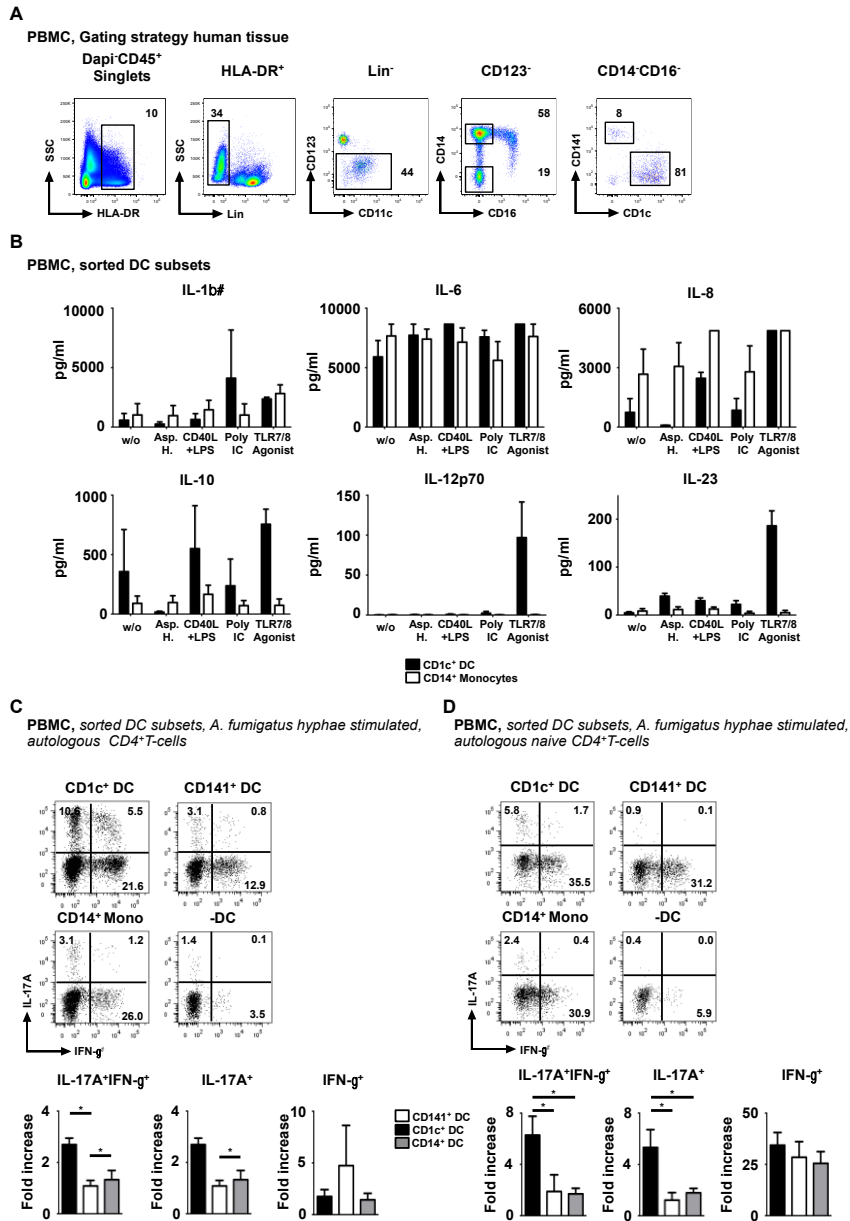
Supplementary figure 5 CD24⁺CD11b⁺ DCs show no developmental defect but enhanced apoptosis in the lung



Supplementary figure 5 CD24⁺CD11b⁺ DCs show no developmental defect but enhanced apoptosis in the lung

Bar graphs depict percentages of GFP⁺ cells in the indicated cell population of *Ilgax-cre Irf4^{fl/fl}* mice (mean \pm SEM, n=4) (A). WT (white bars) and *Ilgax-cre Irf4^{fl/fl}* (black bars) BM was stained for the depicted precursor populations and their abundance was quantified as % of live cells (B, n=3, mean \pm SEM). Lung CD11b⁺ DCs were stained with Mitotracker red and analyzed for mitochondrial fragmentation. Images show WT and *Ilgax-cre Irf4^{fl/fl}* CD11b⁺ DCs from the lung stained with Mitotracker red (C) (representative image, scale bar represents 10 μ m). Bar graph depicts percentage of cells with fragmented mitochondria within the population (D) (n \geq 100 cells, mean \pm SEM). Dot blots show 6h PMA/Ionomycin restimulated lung, lung LN, small intestine and mesenteric LN of WT or *Ilgax-cre Irf4^{fl/fl}* mice. Depicted tissues were gated for DAPI-CD3⁺CD4⁺ and analyzed for IL-17A⁺ and IFN- γ expression (n=2) (E). Langerin-DTR mice were injected, or not, with DT (day -1) and intranasally infected (day 0) with *A. fumigatus*. Mice were sacrificed 7 days after infection. Dot plots show CD3⁺CD4⁺ T-cells from the indicated tissues after 6h of PMA/Ionomycin restimulation. Cells were labeled with antibodies specific for IL-17A and IFN- γ . Bar graphs show the percentage of IL-17A⁺ or IFN- γ ⁺ CD3⁺CD4⁺ T-cells in the indicated organs 7 days after infection with *A. fumigatus* (n=2, mean \pm SEM) (F).

Supplementary figure 6 Gating strategy for human DC subsets



Supplementary figure 6 Gating strategy for human DC subsets

Gating and sorting strategy for PBMC, human lung and human small intestine (A). Sorted DC subsets derived from human PBMC stimulated with the indicated stimuli for 24hs. Depicted cytokines were measure by CBA (n=3, mean \pm SEM) (B). DC subsets and bulk and naive CD4+ T-cells were cocultured for 10 days in the presence of A. *Fumigatus* hyphae, restimulated and analyzed for the expression of IFN-g and IL-17A (n=3, mean \pm SEM) (C, D).

Supplementary table 1

Transcription factors differentially expressed between splenic CD8a⁺/ lung CD103⁺ DCs and splenic CD4⁺ / lung CD11b⁺ DC revealed using the SAM algorithm

Entrez_ID	Gene Symbol	Gene Name
21413	<i>TCF4</i>	transcription factor 4
15900	<i>IRF8</i>	interferon regulatory factor 8
100045165	<i>GM4223</i>	predicted gene 4223; similar to Csf3r protein
12986	<i>LOC100045165</i>	predicted gene 4223; similar to Csf3r protein
100043091	<i>CSF3R</i>	predicted gene 4223; similar to Csf3r protein
15902	<i>ID2</i>	inhibitor of DNA binding 2
381319	<i>BATF3</i>	basic leucine zipper transcription factor, ATF-like 3
14581	<i>GFI1</i>	growth factor independent 1
22433	<i>XBP1</i>	X-box binding protein 1
14255	<i>FLT3</i>	FMS-like tyrosine kinase 3
270110	<i>IRF2BP2</i>	interferon regulatory factor 2 binding protein 2
16600	<i>KLF4</i>	Kruppel-like factor 4 (gut)
16363	<i>IRF2</i>	interferon regulatory factor 2
13653	<i>EGR1</i>	early growth response 1
19698	<i>RELB</i>	avian reticuloendotheliosis viral oncogene related B
12399	<i>RUNX3</i>	runt related transcription factor 3
12982	<i>CSF2RA</i>	colony stimulating factor 2 receptor, alpha
20850	<i>STAT5A</i>	signal transducer and activator of transcription 5A
22778	<i>IKZF1</i>	IKAROS family zinc finger 1
12978	<i>CSF1R</i>	colony stimulating factor 1 receptor
20375	<i>SFPI1</i>	SFFV proviral integration 1
12983	<i>CSF2RB</i>	colony stimulating factor 2 receptor, beta
12984	<i>CSF2RB2</i>	colony stimulating factor 2 receptor, beta 2
16364	<i>IRF4</i>	interferon regulatory factor 4
20848	<i>LOC100045296</i>	similar to Stat3B
100045296	<i>STAT3</i>	signal transducer and activator of transcription 3

Supplementary table 2

Differentially expressed genes of mouse CD11b⁺ DC compared to mouse CD11b⁺ Mac.
All genes upregulated 1.5fold or more

Entrez_ID	Gene Symbol	Gene Name
11630	<i>AIM1</i>	absent in melanoma 1
11658	<i>ALCAM</i>	activated leukocyte cell adhesion molecule
11676	<i>ALDOC</i>	aldolase C, fructose-bisphosphate
11732	<i>ANK</i>	progressive ankylosis
11799	<i>BIRC5</i>	baculoviral IAP repeat-containing 5
11828	<i>AQP3</i>	aquaporin 3
12040	<i>BCKDHB</i>	branched chain ketoacid dehydrogenase E1
12257	<i>TSPO</i>	translocator protein
12306	<i>ANXA2</i>	similar to Annexin A2 (Annexin II)
12315	<i>CALM3</i>	calmodulin 3
12332	<i>CAPG</i>	capping protein (actin filament), gelsolin-like
12337	<i>CAPN5</i>	calpain 5
12443	<i>CCND1</i>	cyclin D1
12444	<i>CCND2</i>	cyclin D2
12481	<i>CD2</i>	CD2 antigen
12519	<i>CD80</i>	CD80 antigen
12550	<i>CDH1</i>	cadherin 1
12579	<i>CDKN2B</i>	similar to Cyclin-dependent kinase 4 inhibitor B
12615	<i>CENPA</i>	centromere protein A
12700	<i>CISH</i>	cytokine inducible SH2-containing protein
12702	<i>SOCS3</i>	suppressor of cytokine signaling 3
12775	<i>CCR7</i>	chemokine (C-C motif) receptor 7
12827	<i>COL4A2</i>	collagen, type IV, alpha 2
13007	<i>CSRP1</i>	cysteine and glycine-rich protein 1
13169	<i>DBNL</i>	drebrin-like
13449	<i>DOK2</i>	docking protein 2
13482	<i>DPP4</i>	dipeptidylpeptidase 4
13587	<i>EAR2</i>	eosinophil-associated, ribonuclease A family
13730	<i>EMP1</i>	epithelial membrane protein 1
13807	<i>ENO2</i>	enolase 2, gamma neuronal
13836	<i>EPHA2</i>	Eph receptor A2
14025	<i>BCL11A</i>	B-cell CLL/lymphoma 11A (zinc finger protein)
14064	<i>F2RL2</i>	coagulation factor II (thrombin) receptor-like 2
14083	<i>PTK2</i>	PTK2 protein tyrosine kinase 2
14086	<i>FSCN1</i>	fascin homolog 1
14130	<i>FCGR2B</i>	Fc receptor, IgG, low affinity IIb
14190	<i>FGL2</i>	fibrinogen-like protein 2
14194	<i>FH1</i>	fumarate hydratase 1
14204	<i>IL4I1</i>	interleukin 4 induced 1
14268	<i>FN1</i>	fibronectin 1
14700	<i>GNG10</i>	guanine nucleotide binding protein
14726	<i>PDPN</i>	podoplanin
14793	<i>CDCA3</i>	cell division cycle associated 3
15000	<i>H2-DMB2</i>	histocompatibility 2, class II, locus Mb2
15001	<i>H2-OA</i>	histocompatibility 2, O region alpha locus
15002	<i>H2-OB</i>	histocompatibility 2, O region beta locus
15108	<i>HSD17B10</i>	hydroxysteroid (17-beta) dehydrogenase 10
15270	<i>H2AFX</i>	H2A histone family, member X
15277	<i>HK2</i>	hexokinase 2
15460	<i>HR</i>	hairless
16164	<i>IL13RA1</i>	interleukin 13 receptor, alpha 1
16174	<i>IL18RAP</i>	interleukin 18 receptor accessory protein

16178	<i>IL1R2</i>	interleukin 1 receptor, type II
16193	<i>IL6</i>	interleukin 6
16364	<i>IRF4</i>	interferon regulatory factor 4
16407	<i>ITGAE</i>	integrin alpha E, epithelial-associated
16421	<i>ITGB7</i>	integrin beta 7
16438	<i>ITPR1</i>	inositol 1,4,5-triphosphate receptor 1
16452	<i>JAK2</i>	Janus kinase 2
16498	<i>KCNAB2</i>	potassium voltage-gated channel
16541	<i>NAPSA</i>	napsin A aspartic peptidase
16643	<i>KLRD1</i>	killer cell lectin-like receptor, subfamily D, member 1
16911	<i>LMO4</i>	LIM domain only 4
16952	<i>ANXA1</i>	annexin A1
16985	<i>LSP1</i>	lymphocyte specific 1
16995	<i>LTB4R1</i>	leukotriene B4 receptor 1
17304	<i>MFGE8</i>	milk fat globule-EGF factor 8 protein
17427	<i>MNS1</i>	meiosis-specific nuclear structural protein 1
17532	<i>MRAS</i>	muscle and microspikes RAS
17750	<i>MT2</i>	metallothionein 2
17768	<i>MTHFD2</i>	methylenetetrahydrofolate cyclohydrolase
17939	<i>NAGA</i>	N-acetyl galactosaminidase, alpha
18074	<i>NID2</i>	nidogen 2
18105	<i>NQO2</i>	NAD(P)H dehydrogenase, quinone 2
18441	<i>P2RY1</i>	purinergic receptor P2Y, G-protein coupled 1
18476	<i>PAFAH1B3</i>	platelet-activating factor acetylhydrolase
18479	<i>PAK1</i>	p21 protein (Cdc42/Rac)-activated kinase 1
18569	<i>PDCD4</i>	programmed cell death 4
18636	<i>CFP</i>	complement factor properdin
18817	<i>PLK1</i>	polo-like kinase 1 (Drosophila)
18824	<i>PLP2</i>	proteolipid protein 2; predicted gene 13669
19088	<i>PRKAR2B</i>	protein kinase, cAMP dependent regulatory, type II beta
19354	<i>RAC2</i>	RAS-related C3 botulinum substrate 2
19378	<i>ALDH1A2</i>	aldehyde dehydrogenase family 1, subfamily A2
20190	<i>RYR1</i>	ryanodine receptor 1, skeletal muscle
20194	<i>SI00A10</i>	S100 calcium binding protein A10 (calpactin)
20200	<i>SI00A6</i>	S100 calcium binding protein A6 (calyculin)
20249	<i>SCD1</i>	stearoyl-Coenzyme A desaturase 1
20295	<i>CCL17</i>	chemokine (C-C motif) ligand 17
20299	<i>CCL22</i>	chemokine (C-C motif) ligand 22
20312	<i>CX3CL1</i>	chemokine (C-X3-C motif) ligand 1
20344	<i>SELP</i>	selectin, platelet
20351	<i>SEMA4A</i>	semaphorin 4A
20454	<i>ST3GAL5</i>	ST3 beta-galactoside alpha-2,3-sialyltransferase 5
20525	<i>SLC2A1</i>	solute carrier family 2, member 1
20527	<i>SLC2A3</i>	solute carrier family 2, member 3
20698	<i>SPHK1</i>	sphingosine kinase 1
20708	<i>SERPINB6B</i>	serine (or cysteine) peptidase inhibitor
20877	<i>AURKB</i>	aurora kinase B
20893	<i>BHLHE40</i>	basic helix-loop-helix family, member e40
21417	<i>ZEB1</i>	zinc finger E-box binding homeobox 1
21753	<i>TES</i>	testis derived transcript
21754	<i>TESK1</i>	testis specific protein kinase 1
21844	<i>TIAM1</i>	T-cell lymphoma invasion and metastasis 1
21936	<i>TNFRSF18</i>	tumor necrosis factor receptor superfamily, member 18

21948	<i>CD70</i>	CD70 antigen
21950	<i>TNFSF9</i>	tumor necrosis factor (ligand) superfamily, member 9
21953	<i>TNNI2</i>	troponin I, skeletal, fast 2
22032	<i>TRAF4</i>	TNF receptor associated factor 4
22038	<i>PLSCR1</i>	phospholipid scramblase 1
22041	<i>TRF</i>	transferrin
22142	<i>TUBA1A</i>	predicted gene 7172
22248	<i>UNC119</i>	unc-119 homolog (C. elegans)
22330	<i>VCL</i>	vinculin
22337	<i>VDR</i>	vitamin D receptor
22368	<i>TRPV2</i>	transient receptor potential cation channel
22793	<i>ZYX</i>	zyxin
23792	<i>ADAM23</i>	a disintegrin and metallopeptidase domain 23
23912	<i>RHOF</i>	ras homolog gene family, member f
24050	<i>3-SEP</i>	septin 3
26411	<i>MAP4K1</i>	mitogen-activated protein kinase kinase kinase kinase 1
26568	<i>SLC27A3</i>	solute carrier family 27 (fatty acid transporter), member 3
26914	<i>H2AFY</i>	H2A histone family, member Y
27049	<i>ETV3</i>	ets variant gene 3
27357	<i>GYG</i>	glycogenin
27528	<i>D0H4S114</i>	DNA segment, human D4S114
30057	<i>TIMMSB</i>	translocase of inner mitochondrial membrane 8 homolog b
30928	<i>ZFP238</i>	zinc finger protein 238
50784	<i>PPAP2C</i>	phosphatidic acid phosphatase type 2C
53313	<i>ATP2A3</i>	ATPase, Ca ⁺⁺ transporting, ubiquitous
53318	<i>PDLIM3</i>	PDZ and LIM domain 3
53608	<i>MAP3K6</i>	mitogen-activated protein kinase kinase kinase 6
53860	<i>SEP9</i>	septin 9
53877	<i>EAR4</i>	eosinophil-associated, ribonuclease A family, member 4
54563	<i>NUP210</i>	nucleoporin 210
56149	<i>GRASP</i>	General receptor for phosphoinositides 1
56177	<i>OLFM1</i>	olfactomedin 1
56297	<i>ARL6</i>	ADP-ribosylation factor-like 6
56349	<i>NET1</i>	predicted gene 8990; neuroepithelial cell transforming gene 1
56437	<i>RRAD</i>	Ras-related associated with diabetes
56524	<i>MPP6</i>	membrane protein, palmitoylated 6
56526	<i>SEP 6</i>	septin 6
57262	<i>RETNLA</i>	resistin like alpha
58200	<i>PPP1R1A</i>	protein phosphatase 1, regulatory (inhibitor) subunit 1A
58861	<i>CYSLTR1</i>	cysteinyl leukotriene receptor 1
64008	<i>AQP9</i>	aquaporin 9
64095	<i>GPR35</i>	G protein-coupled receptor 35
64136	<i>SDF2L1</i>	stromal cell-derived factor 2-like 1
66259	<i>CAMK2N1</i>	calcium/calmodulin-dependent protein kinase II inhibitor 1
66422	<i>DCTPP1</i>	dCTP pyrophosphatase 1
66815	<i>CCDC109B</i>	coiled-coil domain containing 109B
66874	<i>1200014J11RIK</i>	similar to RIKEN cDNA 1200014J11 gene
66922	<i>RRAS2</i>	related RAS viral (r-ras) oncogene homolog 2
67044	<i>HIGD2A</i>	HIG1 domain family, member 2A
67102	<i>D16ERTD472E</i>	DNA segment, Chr 16, ERATO Doi 472, expressed
67166	<i>ARL8B</i>	ADP-ribosylation factor-like 8B
67267	<i>2900010M23RIK</i>	hypothetical protein LOC675054
67647	<i>4930523C07RIK</i>	RIKEN cDNA 4930523C07 gene

67739	<i>SLC48A1</i>	solute carrier family 48 (heme transporter), member 1
67784	<i>PLXND1</i>	plexin D1
67800	<i>DGAT2</i>	diacylglycerol O-acyltransferase 2
67846	<i>TMEM39A</i>	transmembrane protein 39a
67941	<i>RPS27L</i>	ribosomal protein S27-like
68026	<i>2810417H13RIK</i>	predicted gene 15428
68870	<i>1190002A17RIK</i>	RIKEN cDNA 1190002A17 gene
69029	<i>1500032L24RIK</i>	RIKEN cDNA 1500032L24 gene
69165	<i>CD209B</i>	CD209b antigen
69189	<i>1810033B17RIK</i>	RIKEN cDNA 1810033B17 gene
69399	<i>1700025G04RIK</i>	RIKEN cDNA 1700025G04 gene
69635	<i>DAPK1</i>	death associated protein kinase 1
69698	<i>2310046K01RIK</i>	RIKEN cDNA 2310046K01 gene
69797	<i>1600029I14RIK</i>	thioredoxin domain containing 6
69810	<i>CLEC4B1</i>	C-type lectin domain family 4, member b1
69863	<i>TTC39B</i>	tetratricopeptide repeat domain 39B
69982	<i>SPINK2</i>	serine peptidase inhibitor, Kazal type 2
70025	<i>ACOT7</i>	acyl-CoA thioesterase 7
70031	<i>CMTM8</i>	CKLF-like MARVEL transmembrane domain containing 8
70536	<i>QPCT</i>	glutaminyl-peptide cyclotransferase (glutaminyl cyclase)
71268	<i>LRRFIP2</i>	leucine rich repeat (in FLII) interacting protein 2
71302	<i>ARHGAP26</i>	RIKEN cDNA 9630014M24 gene
71532	<i>9030418K01RIK</i>	RIKEN cDNA 9030418K01 gene
72084	<i>PIGX</i>	phosphatidylinositol glycan anchor biosynthesis, class X
72324	<i>PLXDC1</i>	plexin domain containing 1
72333	<i>PALLD</i>	palladin, cytoskeletal associated protein
72865	<i>CXX1C</i>	CAAX box 1 homolog C (human)
73385	<i>FAM177A</i>	RIKEN cDNA 1700047I17 gene 2
73835	<i>IFITM5</i>	interferon induced transmembrane protein 5
74015	<i>FCHO1</i>	FCH domain only 1
74134	<i>CYP2S1</i>	cytochrome P450, family 2, subfamily s, polypeptide 1
74145	<i>F13A1</i>	coagulation factor XIII, A1 subunit
74340	<i>AHCYL2</i>	S-adenosylhomocysteine hydrolase-like 2
75292	<i>PRKD3</i>	protein kinase D3
75766	<i>TM7SF4</i>	transmembrane 7 superfamily member 4
75863	<i>CLEC4G</i>	C-type lectin domain family 4, member g
76062	<i>5830428M24RIK</i>	RIKEN cDNA 5830428M24 gene
76263	<i>GSTK1</i>	glutathione S-transferase kappa 1
76737	<i>CRELD2</i>	cysteine-rich with EGF-like domains 2
77605	<i>H2AFV</i>	H2A histone family, member V
78416	<i>RNASE6</i>	ribonuclease, RNase A family, 6
78826	<i>P2RY10</i>	purinergic receptor P2Y, G-protein coupled 10
80885	<i>NIACR1</i>	niacin receptor 1
80891	<i>FCRLS</i>	Fc receptor-like 5, scavenger receptor
80914	<i>UCK2</i>	uridine-cytidine kinase 2
93671	<i>CD163</i>	CD163 antigen
93725	<i>EAR10</i>	eosinophil-associated, ribonuclease A family, member 9
94353	<i>HMGN3</i>	high mobility group nucleosomal binding domain 3
98256	<i>KMO</i>	kynurenine 3-monoxygenase (kynurenine 3-hydroxylase)
98752	<i>FCRLA</i>	Fc receptor-like A
103149	<i>UPB1</i>	ureidopropionase, beta
103711	<i>PNPO</i>	pyridoxine 5'-phosphate oxidase
104175	<i>SBK1</i>	SH3-binding kinase 1

105348	<i>GOLM1</i>	golgi membrane protein 1
105841	<i>DENND3</i>	DENN/MADD domain containing 3
106795	<i>TCF19</i>	transcription factor 19
106840	<i>UNC119B</i>	unc-119 homolog B (C. elegans)
107221	<i>GPR120</i>	G protein-coupled receptor 120
107766	<i>HAAO</i>	3-hydroxyanthranilate 3,4-dioxygenase
108673	<i>CCDC86</i>	coiled-coil domain containing 86
108956	<i>APOL7C</i>	predicted gene 8221; apolipoprotein L 7c
109305	<i>ORAI1</i>	ORAI calcium release-activated calcium modulator 1
110033	<i>KIF22</i>	kinesin family member 22
170752	<i>BCO2</i>	beta-carotene oxygenase 2
170776	<i>CD209C</i>	similar to SIGNR2; CD209c antigen
170779	<i>CD209D</i>	CD209d antigen
170786	<i>CD209A</i>	CD209a antigen
207777	<i>BZRAP1</i>	benzodiazepine receptor associated protein 1
208638	<i>SLC25A38</i>	hypothetical protein LOC100048873
216233	<i>SOCS2</i>	suppressor of cytokine signaling 2
216864	<i>MGL2</i>	macrophage galactose specific lectin 2
217835	<i>RIN3</i>	Ras and Rab interactor 3
217946	<i>CDCA7L</i>	cell division cycle associated 7 like
224143	<i>KTELC1</i>	KTEL (Lys-Tyr-Glu-Leu) containing 1
225912	<i>CYBASC3</i>	cytochrome b, ascorbate dependent 3
226419	<i>DYRK3</i>	dual-specificity tyrosine phosphorylation regulated kinase 3
227659	<i>SLC2A6</i>	solute carrier family 2 , member 6
229323	<i>GPR171</i>	G protein-coupled receptor 171
233038	<i>NCCRP1</i>	non-specific cytotoxic cell receptor protein 1 homolog
233046	<i>RASGRP4</i>	RAS guanyl releasing protein 4
233406	<i>PRC1</i>	protein regulator of cytokinesis 1
234577	<i>CPNE2</i>	copine II
237250	<i>GM221</i>	predicted gene 221
238377	<i>GPR68</i>	G protein-coupled receptor 68
238875	<i>GAPT</i>	Grb2-binding adaptor
240047	<i>MMP25</i>	matrix metalloproteinase 25
243958	<i>SIGLECG</i>	sialic acid binding Ig-like lectin G
246277	<i>CSAD</i>	cysteine sulfinic acid decarboxylase
270066	<i>SLC35E1</i>	solute carrier family 35, member E1
270152	<i>AMICA1</i>	adhesion molecule, interacts with CXADR antigen 1
271844	<i>PLA2G4F</i>	phospholipase A2, group IVF
272636	<i>ESYT3</i>	family with sequence similarity 62
276891	<i>TIMD4</i>	T-cell immunoglobulin and mucin domain containing 4
320782	<i>TMEM154</i>	transmembrane protein 154
381269	<i>MREG</i>	melanoregulin
384009	<i>GLIPR2</i>	GLI pathogenesis-related 2
414084	<i>TNIP3</i>	TNFAIP3 interacting protein 3
433470	<i>AA467197</i>	expressed sequence AA467197
664968	<i>2210411K11RIK</i>	RIKEN cDNA 2210411K11 gene
671466	<i>GMI4024</i>	predicted gene 14024
100034251	<i>GMI1428</i>	predicted gene 11428
100042480	<i>NHSL2</i>	NHS-like 2;

Supplementary table 3

Differentially expressed genes of mouse CD11b⁺ Mac compared to mouse CD11b⁺ DC.
All genes upregulated 1.5fold or more

Entrez_ID	Gene Symbol	Gene Name
11421	<i>ACE</i>	angiotensin I converting enzyme
11432	<i>ACP2</i>	acid phosphatase 2, lysosomal
11491	<i>ADAM17</i>	a disintegrin and metallopeptidase domain 17
11520	<i>PLIN2</i>	adipose differentiation related protein
11655	<i>ALAS1</i>	aminolevulinic acid synthase 1
11727	<i>ANG</i>	angiogenin, ribonuclease, RNase A family, 5
11747	<i>ANXA5</i>	annexin A5
11810	<i>APOBEC1</i>	apolipoprotein B
11816	<i>APOE</i>	apolipoprotein E
11821	<i>APRT</i>	adenine phosphoribosyl transferase
11852	<i>RHOB</i>	ras homolog gene family, member B
11910	<i>ATF3</i>	activating transcription factor 3
12259	<i>C1QA</i>	complement component 1, q subcomponent
12260	<i>C1QB</i>	complement component 1, q subcomponent
12262	<i>C1QC</i>	complement component 1, q subcomponent
12266	<i>C3</i>	complement component 3
12475	<i>CD14</i>	CD14 antigen
12512	<i>CD63</i>	CD63 antigen
12514	<i>CD68</i>	CD68 antigen
12517	<i>CD72</i>	CD72 antigen
12520	<i>CD81</i>	CD81 antigen
12571	<i>CDK6</i>	cyclin-dependent kinase 6
12585	<i>CDR2</i>	cerebellar degeneration-related 2
12608	<i>CEBPB</i>	CCAAT/enhancer binding protein (C/EBP), beta
12642	<i>CH25H</i>	cholesterol 25-hydroxylase
12751	<i>TPP1</i>	tripeptidyl peptidase 1
12767	<i>CXCR4</i>	chemokine (C-X-C motif) receptor 4
12818	<i>COL14A1</i>	collagen, type XIV, alpha 1
12819	<i>COL15A1</i>	collagen, type XV, alpha 1
12978	<i>CSF1R</i>	colony stimulating factor 1 receptor
12986	<i>CSF3R</i>	predicted gene 4223
13014	<i>CSTB</i>	cystatin B
13030	<i>CTSB</i>	cathepsin B
13032	<i>CTSC</i>	cathepsin C
13170	<i>DBP</i>	D site albumin promoter binding protein
13421	<i>DNASE1L3</i>	deoxyribonuclease 1-like 3
13537	<i>DUSP2</i>	dual specificity phosphatase 2
13650	<i>RHBDF1</i>	rhomboid family 1 (Drosophila)
13653	<i>EGR1</i>	early growth response 1
13733	<i>EMR1</i>	EGF-like module containing
13808	<i>ENO3</i>	enolase 3, beta muscle
13822	<i>EPB4.1L2</i>	erythrocyte protein band 4.1-like 2
13849	<i>EPHX1</i>	epoxide hydrolase 1, microsomal
14129	<i>FCGR1</i>	Fc receptor, IgG, high affinity I
14281	<i>FOS</i>	FBJ osteosarcoma oncogene
14289	<i>FPR2</i>	formyl peptide receptor 2
14345	<i>FUT4</i>	fucosyltransferase 4
14388	<i>GAB1</i>	growth factor receptor bound protein 2
14456	<i>GAS6</i>	growth arrest specific 6
14562	<i>GDF3</i>	growth differentiation factor 3
14594	<i>GGTA1</i>	glycoprotein galactosyltransferase alpha 1, 3
14710	<i>GNGT2</i>	guanine nucleotide binding protein

14744	<i>GPR65</i>	G-protein coupled receptor 65
14825	<i>CXCL1</i>	chemokine (C-X-C motif) ligand 1
15081	<i>H3F3B</i>	predicted gene 14383
15199	<i>HEBP1</i>	heme binding protein 1
15205	<i>HES1</i>	hairy and enhancer of split 1 (Drosophila)
15284	<i>HLX</i>	H2.0-like homeobox
15446	<i>HPGD</i>	hydroxyprostaglandin dehydrogenase 15 (NAD)
15478	<i>HS3ST3A1</i>	heparan sulfate (glucosamine) 3-O-sulfotransferase 3A1
15483	<i>HSD11B1</i>	hydroxysteroid 11-beta dehydrogenase 1
15511	<i>HSPA1B</i>	heat shock protein 1B
15531	<i>NDST1</i>	N-deacetylase/N-sulfotransferase 1
15900	<i>IRF8</i>	interferon regulatory factor 8
15903	<i>ID3</i>	inhibitor of DNA binding 3
15985	<i>CD79B</i>	CD79B antigen
16000	<i>IGF1</i>	insulin-like growth factor 1
16007	<i>CYR61</i>	cysteine rich protein 61
16010	<i>IGFBP4</i>	insulin-like growth factor binding protein 4
16153	<i>IL10</i>	interleukin 10
16154	<i>IL10RA</i>	interleukin 10 receptor, alpha
16155	<i>IL10RB</i>	interleukin 10 receptor, beta
16408	<i>ITGAL</i>	integrin alpha L
16419	<i>ITGB5</i>	integrin beta 5
16449	<i>JAG1</i>	jagged 1
16598	<i>KLF2</i>	Kruppel-like factor 2 (lung)
16653	<i>KRAS</i>	similar to GTPase KRas precursor
16658	<i>MAFB</i>	v-maf musculoaponeurotic fibrosarcoma oncogene family
16783	<i>LAMP1</i>	lysosomal-associated membrane protein 1
16784	<i>LAMP2</i>	lysosomal-associated membrane protein 2
16905	<i>LMNA</i>	lamin A
16988	<i>LST1</i>	leukocyte specific transcript 1
17064	<i>CD93</i>	CD93 antigen
17085	<i>LY9</i>	lymphocyte antigen 9
17087	<i>LY96</i>	lymphocyte antigen 96
17105	<i>LYZ2</i>	lysozyme 2
17127	<i>SMAD3</i>	MAD homolog 3 (Drosophila)
17260	<i>MEF2C</i>	myocyte enhancer factor 2C
17289	<i>MERTK</i>	c-mer proto-oncogene tyrosine kinase
17329	<i>CXCL9</i>	chemokine (C-X-C motif) ligand 9
17381	<i>MMP12</i>	matrix metalloproteinase 12
17386	<i>MMP13</i>	matrix metalloproteinase 13
17387	<i>MMP14</i>	matrix metalloproteinase 14 (membrane-inserted)
17474	<i>CLEC4D</i>	C-type lectin domain family 4, member d
17684	<i>CITED2</i>	Chp/p300-interacting transactivator
17872	<i>PPP1R15A</i>	protein phosphatase 1
17921	<i>MYO7A</i>	myosin VIIA
18008	<i>NES</i>	nestin
18022	<i>NFE2</i>	nuclear factor, erythroid derived 2
18173	<i>SLC11A1</i>	solute carrier family 11
18175	<i>NRAP</i>	nebulin-related anchoring protein
18412	<i>SQSTM1</i>	sequestosome 1
18590	<i>PDGFA</i>	platelet derived growth factor, alpha
18669	<i>ABCB1B</i>	ATP-binding cassette, sub-family B, member 1B
18689	<i>PHXR4</i>	per-hexamer repeat gene 4

18751	<i>PRKCB</i>	protein kinase C, beta
18805	<i>PLD1</i>	phospholipase D1
18807	<i>PLD3</i>	phospholipase D family, member 3
18858	<i>PMP22</i>	peripheral myelin protein 22
18987	<i>POU2F2</i>	POU domain, class 2, transcription factor 2
19039	<i>LGALS3BP</i>	lectin, galactoside-binding, soluble, 3 binding protein
19141	<i>LGMN</i>	legumain
19159	<i>CYTH3</i>	cytohesin 3
19229	<i>PTK2B</i>	PTK2 protein tyrosine kinase 2 beta
19261	<i>SIRPA</i>	signal-regulatory protein alpha
19340	<i>RAB3D</i>	RAB3D, member RAS oncogene family
19703	<i>RENBP</i>	renin binding protein
19731	<i>RGL1</i>	ral guanine nucleotide dissociation stimulator,-like 1
20230	<i>SATB1</i>	special AT-rich sequence binding protein 1
20293	<i>CCL12</i>	chemokine (C-C motif) ligand 12
20302	<i>CCL3</i>	chemokine (C-C motif) ligand 3
20310	<i>CXCL2</i>	chemokine (C-X-C motif) ligand 2
20317	<i>SERPINF1</i>	serine (or cysteine) peptidase inhibitor, clade F, member 1
20363	<i>SEPP1</i>	selenoprotein P, plasma, 1
20393	<i>SGK1</i>	serum/glucocorticoid regulated kinase 1
20715	<i>SERPINA3G</i>	serinepeptidase inhibitor, clade A, member 3G
20719	<i>SERPINB6A</i>	serine peptidase inhibitor, clade B, member 6a
20728	<i>SPIC</i>	Spi-C transcription factor (Spi-1/PU.1 related)
21452	<i>TCN2</i>	transcobalamin 2
21743	<i>INMT</i>	indolethylamine N-methyltransferase
21809	<i>TGFB3</i>	transforming growth factor, beta 3
21810	<i>TGFB1</i>	transforming growth factor, beta induced
21812	<i>TGFBRI</i>	transforming growth factor, beta receptor I
21813	<i>TGFBRII</i>	transforming growth factor, beta receptor II
21817	<i>TGM2</i>	transglutaminase 2, C polypeptide
21824	<i>THBD</i>	thrombomodulin
21858	<i>TIMP2</i>	tissue inhibitor of metalloproteinase 2
21897	<i>TLR1</i>	toll-like receptor 1
21926	<i>TNF</i>	tumor necrosis factor
21928	<i>TNFAIP2</i>	tumor necrosis factor, alpha-induced protein 2
21985	<i>TPD52</i>	similar to Tpd52 protein; tumor protein D52
22022	<i>TPST2</i>	protein-tyrosine sulfotransferase 2
22234	<i>UGCG</i>	UDP-glucose ceramide glucosyltransferase
22249	<i>UNC13B</i>	unc-13 homolog B (C. elegans)
22259	<i>NRIH3</i>	nuclear receptor subfamily 1, group H, member 3
22329	<i>VCAM1</i>	vascular cell adhesion molecule 1
22341	<i>VEGFC</i>	vascular endothelial growth factor C
23849	<i>KLF6</i>	Kruppel-like factor 6
23872	<i>ETS2</i>	E26 avian leukemia oncogene 2, 3' domain
23880	<i>FYB</i>	FYN binding protein
23886	<i>GDF15</i>	growth differentiation factor 15
23890	<i>GPR34</i>	G protein-coupled receptor 34
23962	<i>OASL2</i>	2'-5' oligoadenylate synthetase-like 2
24055	<i>SH3BP2</i>	SH3-domain binding protein 2
24088	<i>TLR2</i>	toll-like receptor 2
24099	<i>TNFSF13B</i>	tumor necrosis factor (ligand) superfamily, member 13b
26433	<i>PLOD3</i>	procollagen-lysine, 2-oxoglutarate 5-dioxygenase 3
26930	<i>PPNR</i>	per-pentamer repeat gene

26943	<i>SERINC3</i>	serine incorporator 3
27052	<i>AOAH</i>	acyloxyacyl hydrolase
27226	<i>PLA2G7</i>	phospholipase A2, group VII
27261	<i>DOK3</i>	docking protein 3
29819	<i>STAU2</i>	staufer (RNA binding protein) homolog 2 (Drosophila)
30794	<i>PDLIM4</i>	PDZ and LIM domain 4
50778	<i>RGS1</i>	regulator of G-protein signaling 1
50794	<i>KLF13</i>	Kruppel-like factor 13
50934	<i>SLC7A8</i>	solute carrier family 7
52076	<i>TMEM38B</i>	transmembrane protein 38B
52120	<i>HGSNAT</i>	heparan-alpha-glucosaminide N-acetyltransferase
52163	<i>CAMK1</i>	calcium/calmodulin-dependent protein kinase I
52588	<i>TSPAN14</i>	tetraspanin 14
52855	<i>LAIR1</i>	leukocyte-associated Ig-like receptor 1
53791	<i>TLR5</i>	toll-like receptor 5
53945	<i>SLC40A1</i>	solute carrier family 40 member 1
54123	<i>IRF7</i>	interferon regulatory factor 7
54486	<i>HPGDS</i>	prostaglandin D2 synthase 2, hematopoietic
54613	<i>ST3GAL6</i>	ST3 beta-galactoside alpha-2,3-sialyltransferase 6
54711	<i>PLAGL2</i>	pleiomorphic adenoma gene-like 2
54725	<i>CADMI</i>	cell adhesion molecule 1
55942	<i>SERTAD1</i>	SERTA domain containing 1
55985	<i>CXCL13</i>	chemokine (C-X-C motif) ligand 13
56278	<i>GKAP1</i>	G kinase anchoring protein 1
56312	<i>NUPR1</i>	nuclear protein 1
56504	<i>SRPK3</i>	serine/arginine-rich protein specific kinase 3
56619	<i>CLEC4E</i>	C-type lectin domain family 4, member e
56744	<i>PF4</i>	platelet factor 4
56807	<i>SCAMP5</i>	secretory carrier membrane protein 5
57266	<i>CXCL14</i>	chemokine (C-X-C motif) ligand 14
58185	<i>RSAD2</i>	radical S-adenosyl methionine domain containing 2
58218	<i>TREM3</i>	triggering receptor expressed on myeloid cells 3
60406	<i>SAP30</i>	sin3 associated polypeptide
63959	<i>SLC29A1</i>	solute carrier family 29, member 1
65256	<i>ASB2</i>	ankyrin repeat and SOCS box-containing 2
66168	<i>GRINA</i>	glutamate receptor
66566	<i>2310079N02RIK</i>	RIKEN cDNA 2310079N02 gene
66610	<i>ABI3</i>	ABI gene family, member 3
66868	<i>MFSD1</i>	major facilitator superfamily domain containing 1
66881	<i>PCYOX1</i>	prenylcysteine oxidase 1
66961	<i>NEAT1</i>	RIKEN cDNA 2310043N10 gene
67168	<i>LPAR6</i>	purinergic receptor P2Y, G-protein coupled, 5
67263	<i>ZSWIM6</i>	zinc finger, SWIM domain containing 6
67399	<i>PDLIM7</i>	PDZ and LIM domain 7
67603	<i>DUSP6</i>	dual specificity phosphatase 6
67865	<i>RGS10</i>	regulator of G-protein signalling 10
67893	<i>TMEM86A</i>	transmembrane protein 86A
68682	<i>SLC44A2</i>	solute carrier family 44, member 2
68728	<i>TRP53INP2</i>	transformation related protein 53 inducible nuclear protein 2
69068	<i>1810011O10RIK</i>	RIKEN cDNA 1810011O10 gene
69226	<i>SNX24</i>	sorting nexin 24
70564	<i>5730469M10RIK</i>	RIKEN cDNA 5730469M10 gene
70720	<i>6330407A03RIK</i>	RIKEN cDNA 6330407A03 gene

71602	<i>MYO1E</i>	myosin IE
71712	<i>DRAM1</i>	RIKEN cDNA 1200002N14 gene
73149	<i>CLEC4A3</i>	C-type lectin domain family 4, member a3
74048	<i>4632428N05RIK</i>	RIKEN cDNA 4632428N05 gene
74096	<i>HVCN1</i>	hydrogen voltage-gated channel 1
74136	<i>SEC14L1</i>	SEC14-like 1 (<i>S. cerevisiae</i>)
74191	<i>P2RY13</i>	purinergic receptor P2Y, G-protein coupled 13
74747	<i>DDIT4</i>	DNA-damage-inducible transcript 4
74772	<i>ATP13A2</i>	ATPase type 13A2
74777	<i>SEPN1</i>	selenoprotein N, 1
76408	<i>ABCC3</i>	ATP-binding cassette, sub-family C, member 3
77976	<i>NUAK1</i>	NUAK family, SNF1-like kinase, 1
80281	<i>CTTNBP2NL</i>	CTTNBP2 N-terminal like
83433	<i>TREM2</i>	triggering receptor expressed on myeloid cells 2
83490	<i>PIK3AP1</i>	phosphoinositide-3-kinase adaptor protein 1
93695	<i>GPNCMB</i>	glycoprotein (transmembrane) nmb
98878	<i>EHD4</i>	EH-domain containing 4
99543	<i>OLFML3</i>	olfactomedin-like 3
100198	<i>H6PD</i>	hexose-6-phosphate dehydrogenase
100213	<i>RUSC2</i>	RUN and SH3 domain containing 2
101488	<i>SLCO2B1</i>	solute carrier organic anion transporter family, member 2b1
102657	<i>CD276</i>	CD276 antigen
103210	<i>D630004K10RIK</i>	RIKEN cDNA D630004K10 gene
103724	<i>TBC1D10A</i>	TBC1 domain family, member 10a
104099	<i>ITGA9</i>	integrin alpha 9
104252	<i>CDC42EP2</i>	CDC42 effector protein (Rho GTPase binding) 2
106952	<i>ARAP3</i>	ArfGAP with RhoGAP domain
107607	<i>NOD1</i>	nucleotide-binding oligomerization domain containing 1
108089	<i>RNF144A</i>	ring finger protein 144A
109225	<i>MSA47</i>	membrane-spanning 4-domains, subfamily A, member 7
110454	<i>LY6A</i>	lymphocyte antigen 6 complex, locus A
114606	<i>TLE6</i>	transducin-like enhancer of split 6
140488	<i>IGF2BP3</i>	insulin-like growth factor 2 mRNA binding protein 3
140497	<i>AF251705</i>	cDNA sequence AF251705
140795	<i>P2RY14</i>	purinergic receptor P2Y, G-protein coupled, 14
170460	<i>STARD5</i>	StAR-related lipid transfer (START) domain containing 5
170625	<i>SNX18</i>	sorting nexin 18
170743	<i>TLR7</i>	toll-like receptor 7
170744	<i>TLR8</i>	toll-like receptor 8
192187	<i>STAB1</i>	stabilin 1
192654	<i>PLA2G15</i>	phospholipase A2, group XV
192678	<i>RASSF3</i>	Ras association domain family member 3
195522	<i>ZFP691</i>	zinc finger protein 691
207521	<i>DTX4</i>	deltex 4 homolog (<i>Drosophila</i>)
209200	<i>DTX3L</i>	deltex 3-like (<i>Drosophila</i>)
210530	<i>LEPREL1</i>	leprecan-like 1
210808	<i>9030625A04RIK</i>	RIKEN cDNA 9030625A04 gene
213002	<i>IFITM6</i>	interferon induced transmembrane protein 6
213573	<i>EFCAB4A</i>	EF-hand calcium binding domain 4A
215900	<i>FAM26F</i>	family with sequence similarity 26, member F
216805	<i>FLCN</i>	folliculin
216869	<i>ARRB2</i>	arrestin, beta 2
216991	<i>ADAP2</i>	ArfGAP with dual PH domains 2

217333	<i>TRIM47</i>	tripartite motif-containing 47
218454	<i>LHFPL2</i>	lipoma HMGIC fusion partner-like 2
218624	<i>IL31RA</i>	interleukin 31 receptor A
218793	<i>UBE2E2</i>	ubiquitin-conjugating enzyme E2E 2
224454	<i>ZDHHC14</i>	zinc finger, DHHC domain containing 14
224794	<i>ENPP4</i>	ectonucleotide pyrophosphatase 4
224840	<i>TREML4</i>	triggering receptor on myeloid cells-like 4
225884	<i>BC021614</i>	cDNA sequence BC021614
226421	<i>5430435G22RIK</i>	RIKEN cDNA 5430435G22 gene
226519	<i>LAMC1</i>	laminin, gamma 1
226691	<i>AI607873</i>	expressed sequence AI607873
227612	<i>A830007P12RIK</i>	RIKEN cDNA A830007P12 gene
227620	<i>UAP1L1</i>	UDP-N-acetylglucosamine pyrophosphorylase 1-like 1
228545	<i>VPS18</i>	vacuolar protein sorting 18 (yeast)
228608	<i>SMOX</i>	spermine oxidase
229595	<i>ADAMTSL4</i>	ADAMTS-like 4
229599	<i>GM129</i>	predicted gene 129
231507	<i>PLAC8</i>	placenta-specific 8
231633	<i>TMEM119</i>	transmembrane protein 119
231991	<i>CREB5</i>	RIKEN cDNA 9430076C15 gene
232288	<i>FRMD4B</i>	FERM domain containing 4B
232801	<i>LILRA5</i>	predicted gene 4878
232984	<i>B3GNT8</i>	beta-1,3-N-acetylglucosaminyltransferase 8
233016	<i>BLVRB</i>	biliverdin reductase B (flavin reductase (NADPH))
233079	<i>FFAR2</i>	free fatty acid receptor 2
233571	<i>P2RY6</i>	pyrimidinergic receptor P2Y, G-protein coupled, 6
233979	<i>TPCN2</i>	two pore segment channel 2
234595	<i>SLC38A7</i>	predicted gene 3599; solute carrier family 38, member 7
239027	<i>ARHGAP22</i>	Rho GTPase activating protein 22
239827	<i>PIGZ</i>	phosphatidylinositol glycan anchor biosynthesis, class Z
243725	<i>PPP1R9A</i>	protein phosphatase 1, regulatory (inhibitor) subunit 9A
244853	<i>FAM55D</i>	family with sequence similarity 55, member D
245190	<i>GM4980</i>	predicted gene 4980
246256	<i>FCGR4</i>	Fc receptor, IgG, low affinity IV
246278	<i>CD207</i>	CD207 antigen
246696	<i>SLC25A28</i>	solute carrier family 25, member 28
246707	<i>EMILIN2</i>	elastin microfibril interfacier 2
268973	<i>NLR4</i>	NLR family, CARD domain containing 4
269181	<i>MGAT4A</i>	mannoside acetylglucosaminyltransferase 4, isoenzyme A
269799	<i>CLEC4A1</i>	C-type lectin domain family 4, member a1
269951	<i>IDH2</i>	isocitrate dehydrogenase 2 (NADP+), mitochondrial
270118	<i>MAML2</i>	similar to Maml2 protein; mastermind like 2 (Drosophila)
319939	<i>TNS3</i>	tensin 3
320024	<i>NCEH1</i>	arylacetamide deacetylase-like 1
327957	<i>A430084P05RIK</i>	RIKEN cDNA A430084P05 gene
328314	<i>GMS086</i>	predicted gene 5086
330635	<i>3830612M24</i>	hypothetical protein 3830612M24
381484	<i>GMS150</i>	predicted gene 5150; similar to SIRP beta 1 like 1 protein
383435	<i>MS4A14</i>	membrane-spanning 4-domains, subfamily A, member 14
436440	<i>GPR31C</i>	predicted gene 8593
574428	<i>ZMYND15</i>	zinc finger, MYND-type containing 15
100038947	<i>LOC100038947</i>	signal-regulatory protein beta 1
100039795	<i>ILDR2</i>	immunoglobulin-like domain containing receptor 2
100043272	<i>5430417L22RIK</i>	similar to F32B6.11

Supplementary table 4
Real-Time PCR primers used in this article

Target	Primer 5'-3'	Species
Csf-1r forward	CGAGGGAGACTCCA GCTACA	mouse
Csf-1r reverse	GACTGGAGAAGCCA CTGTCC	mouse
Flt3 forward	GAGCGACTCCAGCT ACGTC	mouse
Flt3 reverse	ACCCAGTGAAAATAT CTCCAGA	mouse
Irf4 forward	ACAGCACCTTATGGC TCTCTG	mouse
Irf4 reverse	ATGGGGTGGCATCAT GTAGT	mouse
Irf8 forward	CCTATGACACACACC ATTCAGC	mouse
Irf8 reverse	AGAGACGGCAGCCT TCAA	mouse
Hprt forward	TCCTCCTCAGACCGC TTTT	mouse
Hprt reverse	CCTGGTTCATCATCG CTAATC	mouse
Id2 forward	GACAGAACCAGGCG TCCA	mouse
Id2 reverse	AGCTCAGAAGGGAA TTCAGATG	mouse
Batf3 forward	AGAAGGCTGACAAG CTCCAC	mouse
Batf3 reverse	CCTTCAGCTTCGAAA TCTCC	mouse
Il-23p19 forward	AACAGCCAGTTCTGC TTGC	mouse
Il-23p19 reverse	AGGGAGGTGTGAAG TTGCTC	mouse
Ccr7 forward	CAGGGAAACCCAGG AAAAAC	mouse
Ccr7 reverse	TCATCTGGCAGAAG CACAC	mouse
Il-23p19 forward	CCCAAGGACTCAGG GACAAC	human
Il-23p19 reverse	TCAGACCCTGGTGG ATCCTT	human

Supplemental Experimental Procedures

Mice

C57BL/6 (CD45.2⁺) mice were purchased from the Biological Resource Center (BRC), Agency for Science, Technology and Research (A*STAR), Singapore. Congenic C57BL/6 (CD45.1⁺), B6.129S1-*Irf4*^{tm1Rdf}/J (*Irf4*^{fl/fl}), B6.Cg-Tg(*Itgax-cre*)1-1Reiz/J (*Itgax-cre*), B6.129P-Cx3cr1^{tm1Litt}/J mice were purchased from the Jackson Laboratory (Jackson Laboratory, Bar Harbor, USA). DC-specific Cre recombinase mouse (*Itgax-cre*) was crossed with the *Irf4*^{fl/fl} to produce mice which are deficient for IRF4 in the DC lineage (*Itgax-cre Irf4*^{fl/fl}). *Itgax-cre Irf4*^{fl/fl} were negative (tested by Q-PCR) for segmented filamentous bacteria (SFB) (Ivanov et al., 2009). OTII-Rag1 mice (Barnden et al., 1998) were obtained from Taconic (Taconic Farms, USA) through the NIAID Exchange Program, NIH line number 4234. Fucci-492 mice (Sakaue-Sawano et al., 2008) were purchased from the Riken BioResource Center (Ibaraki, Japan). Langerin-DTR mice were provided by Dr. Bernard Malissen (Centre d'Immunologie de Marseille-Luminy, France). Lysozyme-GFP mice were kindly provided by Dr. Thomas Graf. All mice were bred and maintained in our animal facility, and analyzed between 8-12 weeks of age. All experiments and procedures were approved by the Institutional Animal Care and Use Committee (IACUC) of A*STAR (Biopolis, Singapore) in accordance with the guidelines of the Agri-Food and Veterinary Authority (AVA) and the National Advisory Committee for Laboratory Animal Research (NACLAR) of Singapore.

Restimulation of T-Cells

Murine T-cells were restimulated for 6h using 50ng/ml Phorbol myristate acetate (PMA, Sigma) and 1ng/ml Ionomycin (Iono, Sigma), Brefeldin A was added after 2h of stimulation. Cells were stained intracellularly as described below.

Flow Cytometry and Cell Sorting (Igs and Clones in Supp)

Flow cytometry was performed on an LSR II or FACS Canto (Becton Dickinson, San Jose, USA) and analyzed with FlowJo software (Tree Star, Ashland, USA). Fluorochrome or biotin-conjugated monoclonal antibodies (mAbs) specific to mouse IA/IE (M5/114.15.2), CD103 (2E7), SIRPa (P84), CD11b (M1/70), CD11c (N418), CD45 (30F11), CD45.1 (A20), CD45.2 (104), CD115 (AFS98), Gr-1 (RB6-8C5), F4/80 (A3-1), CD3 (17A2), CD4 (L3T4), CD24 (M1/69), CD64 (X54-5/7.1) CD26 (H194-112), CD172 (P84), EpCAM (G8.8), IL-17A (TC11-18H10.1), IFN- γ (XMG1.2) and IRF4 (3E4) the corresponding isotype controls and the secondary reagents were purchased either from BD Biosciences (San Jose, USA), Ebiosciences (San Diego, USA) or Serotech (Raleigh, USA). For human tissue analysis the following antibodies were used CD3, CD7, CD19, CD20, CD56, CD2 (TS1/8), IFN- γ (4S.B3), IL-17A (eBio64DEC17), CD45 (HI30), HLA-DR (Q10052), CD11c (B-ly6), CD14 (M5E2), CD16 (3G8), CD1c (AD5-8E7), CD1a (HI149), CD64 (10.1), CD11b (ICRF44), CD141 (AD5-14H12) CD172 (B4B6), BTLA (MIH26), CX3CR1 (2A9-1) and IRF4 (3E4).

Quantitative Real-Time PCR

Real-Time PCR was performed as described previously (Haniffa et al., 2012). Primer pairs used are described in Supplementary Table 4.

In Vivo Reconstitution Assays

FLT3^{-/-} C57BL/6 BM was provided by Dr. Ihor Lemischka (Mount Sinai School of Medicine, New York, USA). *IRF4*^{-/-} C57BL/6 bone marrow was provided by Dr. Axel Kallies (Walter and Eliza Hall Institute, Australia) and Dr Tak Mak (University of Toronto, Canada). *CSF-1R*^{-/-} C57BL/6 fetal liver was provided by Dr. E. Richard Stanley (Albert Einstein College of Medicine, New York, USA). Recipient CD45.1⁺ C57BL/6 mice were lethally irradiated (2x 600 rad, 3 hr apart using a Cesium source) and reconstituted with a mixture of CD45.1⁺ WT BM and CD45.2⁺ BM or fetal liver cells isolated from WT or mutant mice. Engraftment was assessed by measuring the % of donor cells among blood Ly6C/G⁺ granulocytes 4 weeks after transplantation. Mice were analyzed two months post-transplant and the proportion of lung, LLN and splenic DC and MAC subset derived from WT (CD45.1) and KO (CD45.2) cells was determined. To enforce engraftment of the different donor BMs a 90:10 ratio was used for *FLT3*^{-/-} and *CSF-1R*^{-/-} BM and a 60:40 ratio was used for *IRF4*^{-/-} BM.

Nanostring analysis of mouse DC subsets

10000 FACS sorted small intestinal dendritic cells were lysed and analyzed using the nCounter GX mouse inflammation Kit and the nCounter system (Nanostring Technologies, Seattle, USA). Cut-off for non-specific probe binding was the mean of individual lanes negative probes supplied with the kit. Counts were normalized to the geometric means of the supplied positive controls and 5 housekeeping genes, as recommended by the manufacturer. Normalized counts from log₁₀ transformed mean derived from triplicate analysis are shown.

Mitotracker Red Staining

Purified mouse lung CD11b⁺ DCs were sorted as described before and were stained for 30min at 37°C with 12.5nM of Mitotracker Red and counterstained with DAPI. Images were acquired on an Olympus FV-1000 confocal system.

OTII Proliferation Assay

DCs and macrophages were FACS-sorted from lungs of mice immunized intratracheally with ova 18h before. OTII T cells were negatively selected from the spleens of OTII-*Rag1*^{-/-} mice using the CD4⁺ T cell enrichment kit (Miltenyi Biotec, Bergisch Gladbach, Germany). Enriched T cells were washed with PBS, and labeled with 1uM CFSE (Invitrogen). DCs and T-cells were cultured for 72h at a ratio of 1:20 and proliferation was analyzed using flow cytometry.

Cytospins and Scanning Electron Microscopy Imaging

For cytospin, purified cells were spun onto glass slides, dried overnight, stained in Field stain A and B and rinsed in distilled water. Images were analyzed using a Nikon Eclipse E800 microscope (Nikon, Japan) at 10 × 60-fold magnification. Scanning electron microscopy was done as described previously (Haniffa et al., 2012).

Microarray Analysis

In order for cross-species comparison to be made, human orthologs of mouse signatures were first obtained via the R HomoVert package (ver. 0.4.1) (<http://labs.fhcrc.org/fero/R/HomoVert.html>), which uses a Homologene conversion table (Build 64) (<http://www.ncbi.nlm.nih.gov/homologene>). Enrichment of the human ortholog lung CD11b⁺ DC signature within the human blood CD1c⁺ DC signature was calculated

using a one-tailed hypergeometric test. The same enrichment test was carried out between the human ortholog lung CD11b⁺ MAC signature and the human blood CD14⁺ monocyte signature. Statistical significance was assessed on a p-value cutoff ($\alpha < 0.01$). Statistical Analyses were carried out using Bioconductor's "lumi" package via the R Programming Language (version 2.12.2) and Accelrys' Pipeline Pilot (www.accelrys.com). The microarray data are available in the Gene Expression Omnibus (GEO) database (<http://www.ncbi.nlm.nih.gov/gds>) under the accession number GSE46680.

Stimulation of Human DCs and Monocytes

FACS sorted PBMC derived CD1c⁺ DCs and CD14⁺ monocytes were cultured in 96-well bottomed plates. Cells were stimulated for 24 with *A. fumigatus* hyphae (ratio 1:10), CD40L (1 μ g/ml, dimerized, Alexis) + LPS (0.1mg/ml), Poly(I:C) (25 μ g/ml, InvivoGen) or a TLR7/8 agonist (1 μ g/ml, CL075 (InvivoGen)). Supernatants were collected 24h after stimulation and analyzed for the presence of IL-1 β , IL-6, IL-8, IL-10, IL-12p70. Cytokines were detected using BD Cytometric Bead arrays and analyzed with BD-FCAP Array software v1.0. IL-23p19 was measured by ELISA (Ebioscience).

Supplementary References

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