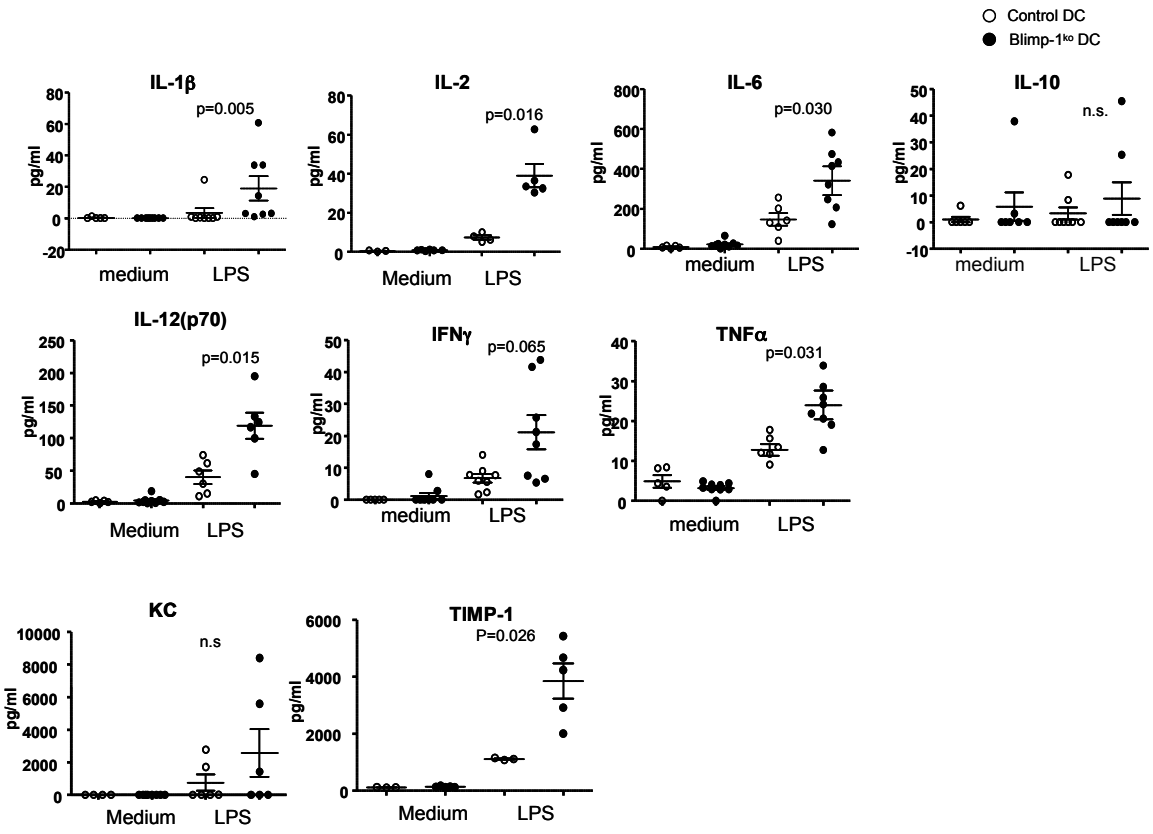
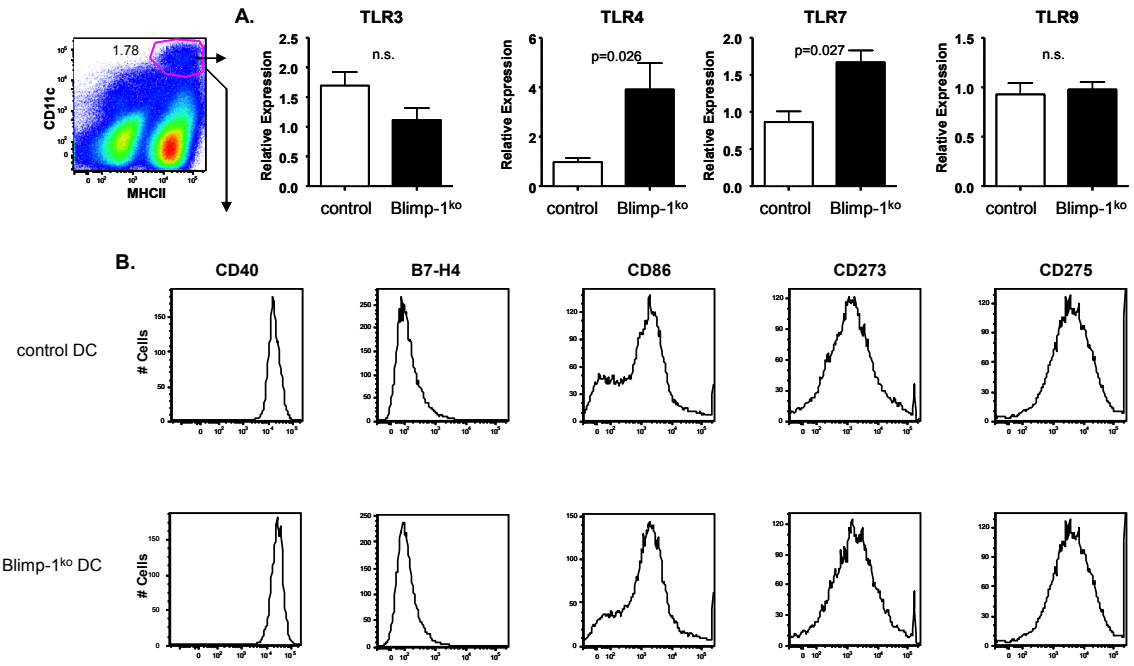
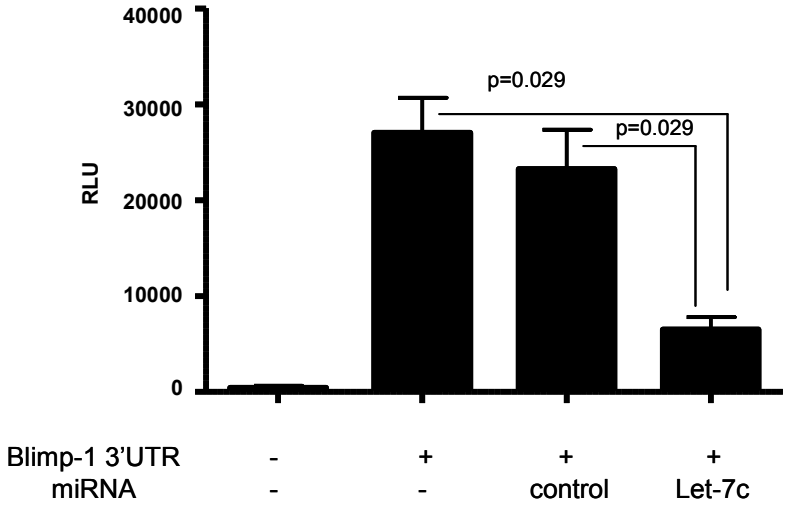
Supplementary data:



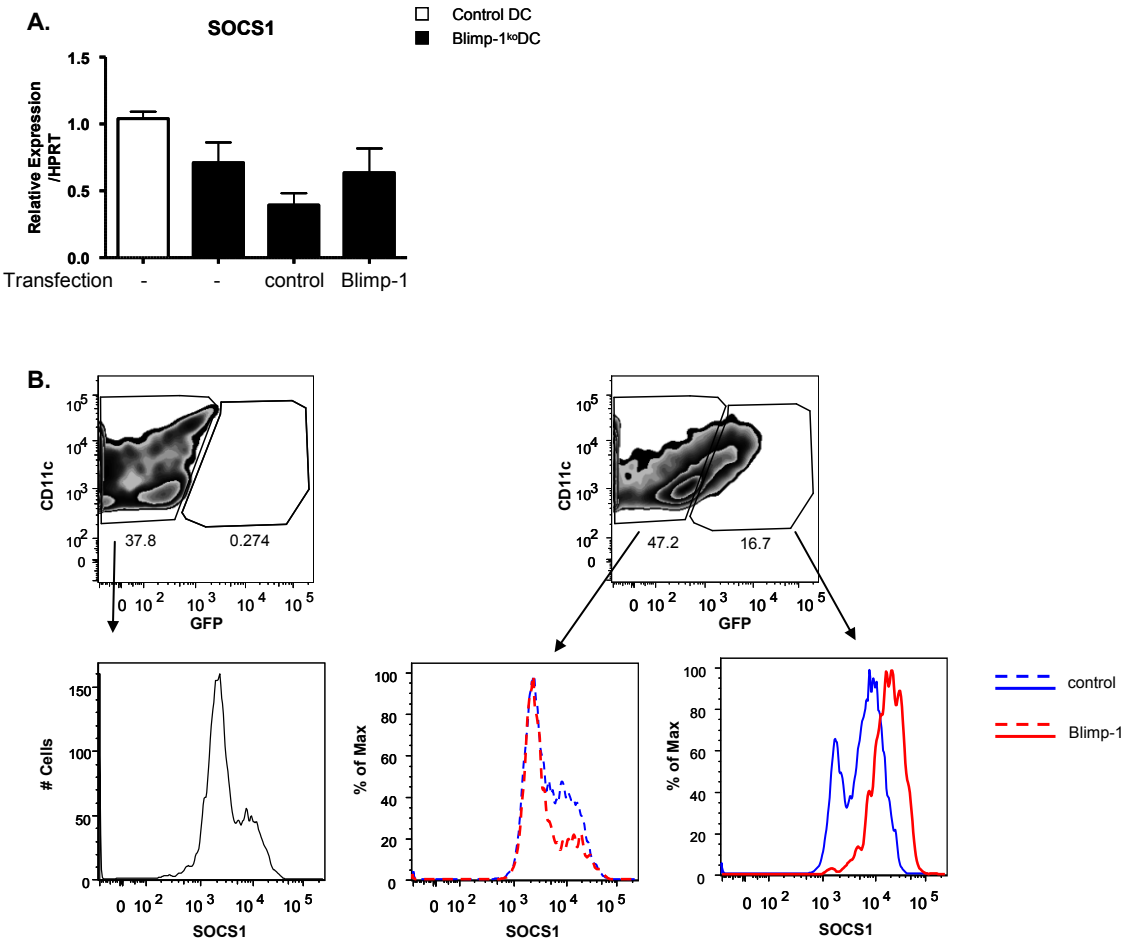
Supplementary figure 1. Quantification of proinflammatory cytokines. DCs were purified from spleens of control (o) or DCBlimp-1^{ko} (•) mice and treated with or without 1 μg of LPS overnight. 50 μl of undiluted supernatant was applied to multicytokine pre-coated well for 2 h at rt. Each dot represents an individual mouse and bar is the mean ± SEM.



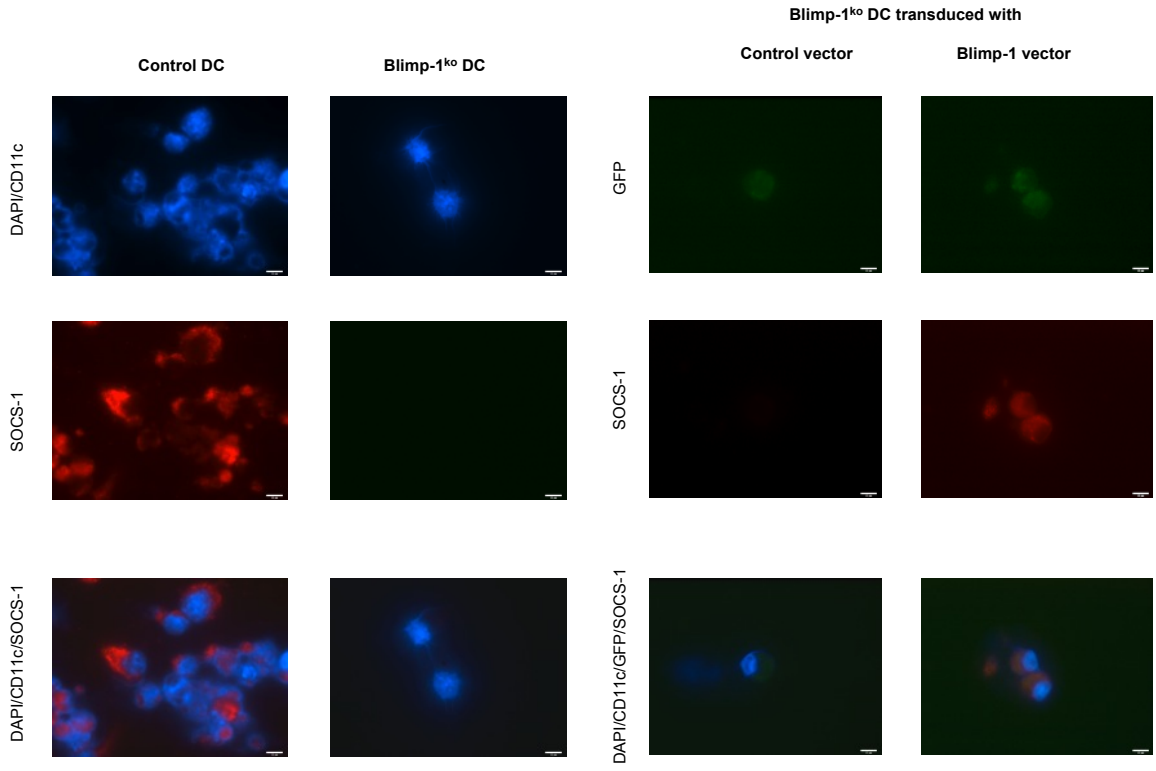
Supplementary figure 2. Surface expression of co-stimulatory molecules on DCs by flow cytometry. Spleens were collected from 6-8 week old control and DCBlimp-1^{ko} mice. Total spleen cells were stained with anti-CD11c and anti-MHCII for cDCs (left top corner). From the gated population, the level of TLRs measured by qPCR in A (Mean ± SEM, n=6) and various molecules were analyzed by flow cytometry and MFI was compared in B. A representative flow image of 3 independent experiments.



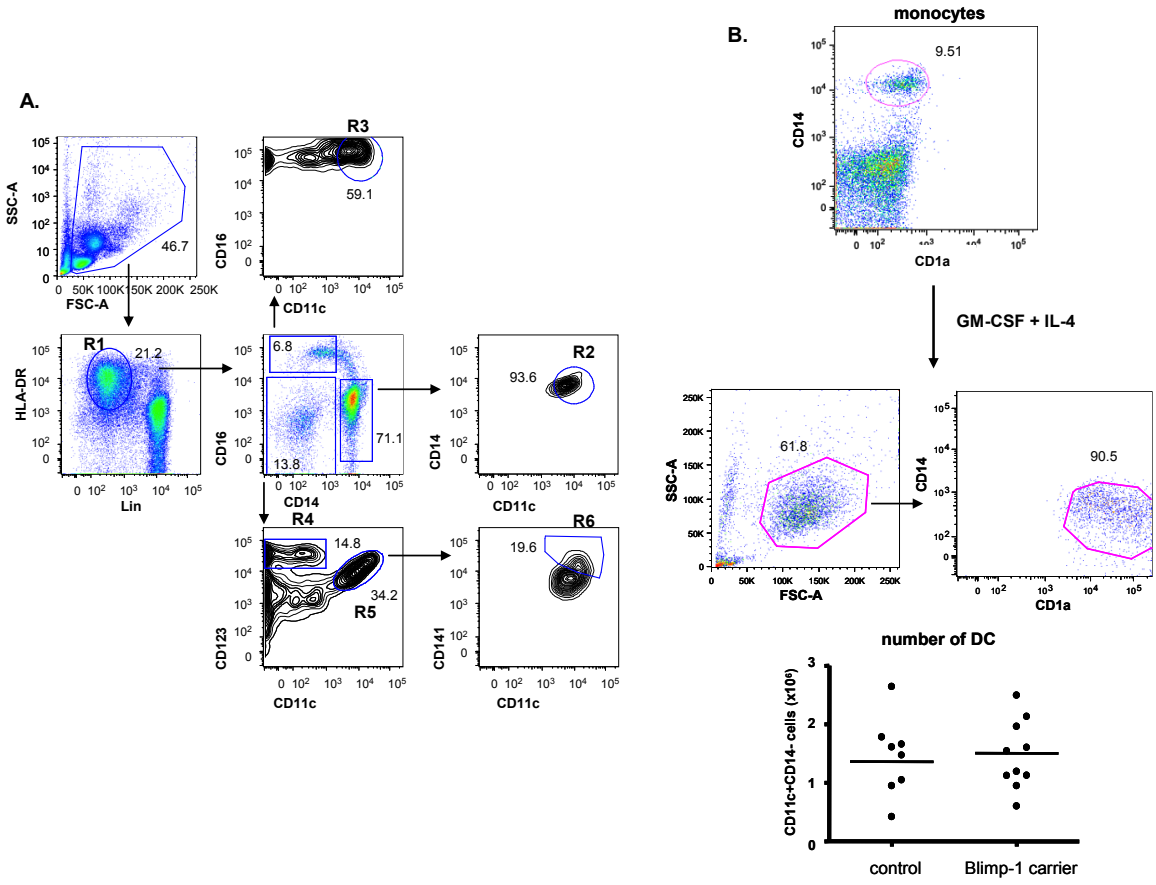
Supplementary figure 3. Blimp-1 regulation by miRNA measured by luciferase assay. 1 μg of Blimp-1 3' UTR/luciferase vector was transfected alone or with 1.4 μg of either control miRNA or Let-7c miRNA vector into the 293T cell line. Luciferase activity was measured from $3x10^5$ cells 48 h post transfection. Renilla luciferase activity was measured to compare transfection efficiency. Mean ± SEM of 4 independent experiments.



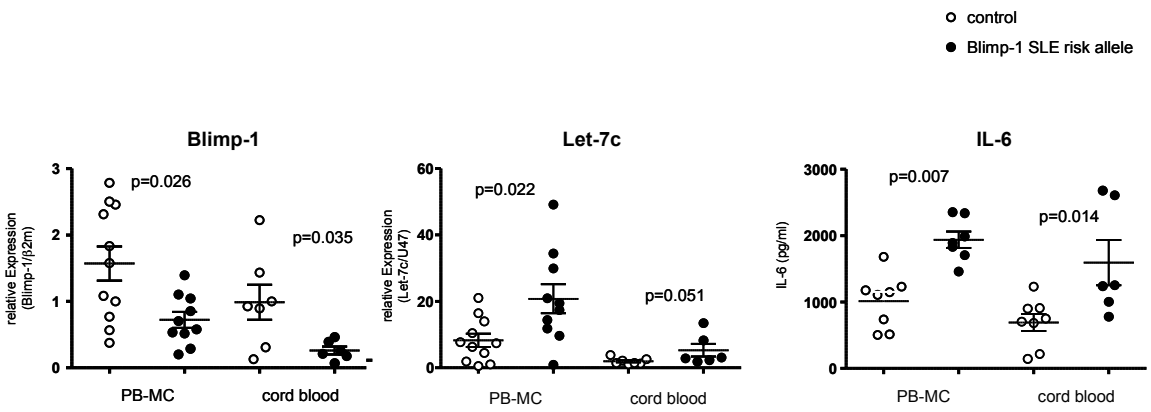
Supplementary figure 4. Expression of SOCS-1 was measured from BM-DCs. Blimp-1^{ko} BM-DCs were transduced with lentivirus expressing either control gene or Blimp-1 gene with a GFP reporter. (A) To measure SOCS-1 mRNA, GFP positive BM-DCs were sorted and SOCS-1 was measured by qPCR. Mean ± SEM, n=3. (B) SOCS-1 protein was measured by flow cytometry. To induce SOCS-1, BM-DCs were stimulated with 1 μg of LPS for 24 h. On the left panel, SOCS-1 expression from untransduced control DCs. On the right panel, SOCS-1 expression from lentivirus transduced Blimp-1^{ko} DCs. SOCS-1 expression was analyzed from $CD11c^{+}GFP^{+}$ population or $CD11c^{+}GFP^{-}$ population. Flow cytometry figure is a representative image of 3 independent experiments.



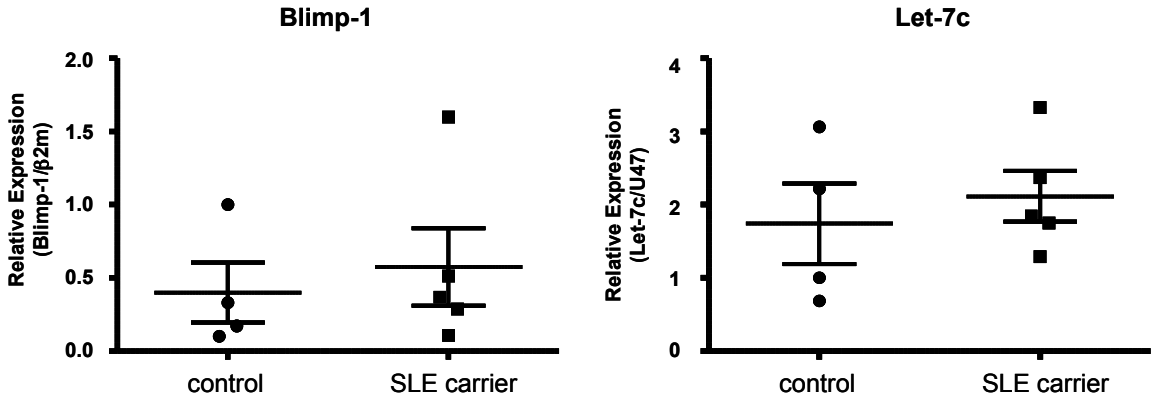
Supplementary figure 5. Immunofluorescence of SOCS-1 expression in DCs. BM-DCs were differentiated from either control or DCBlimp-1^{ko} mice in vitro. Lentivirus carrying either control gene or Blimp-1 was infected into Blimp-1^{ko} DCs and 24 h post infection, BM-DCs were counted and transferred to a chamber slide well for 2 additional days. LPS (1 μg) was added for overnight before staining to induce SOCS-1. Images were taken at 100x magnification and the bar represents 15 μm. Representative images are from 3 independent experiments.



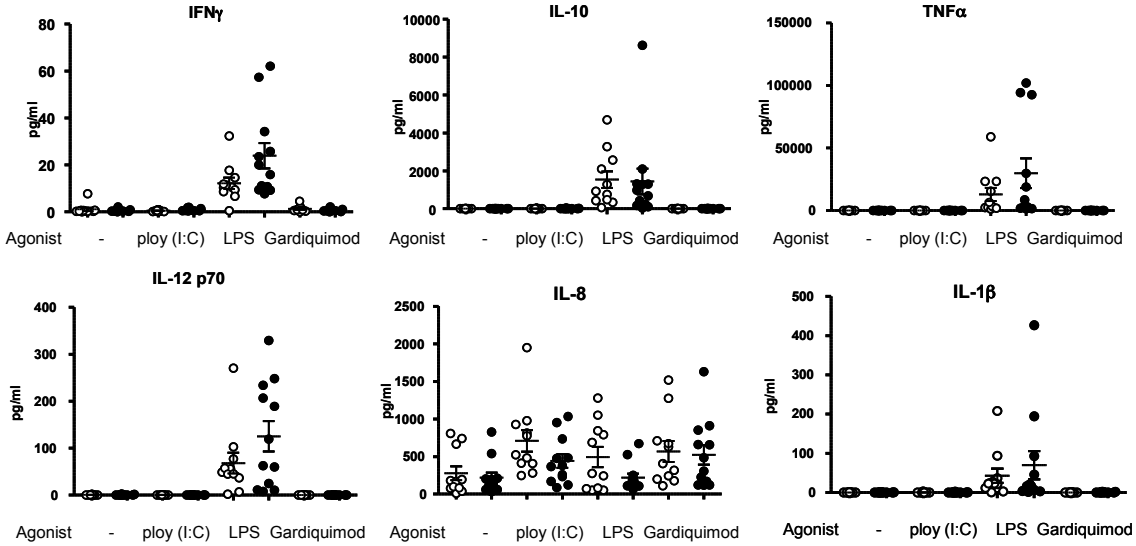
Supplementary figure 6. Flow cytometry image of human blood DC subsets and differentiation of Mo-DCs. (A) Flow cytometry diagram of monocytes and DC subsets in human blood. (B) $CD14^{+}$ monocytes were purified by Easysep, and cultured with recombinant GM-CSF and IL-4 for 7 days. After 7 days, most of monocytes were differentiated into immature DCs ($CD14^{-}CD1a^{+}$) (~ 90% of viable cells). The number of immature DCs was calculated and plotted. Each dot represents an individual samples and bar is mean.



Supplementary figure 7. Gene expression and IL-6 production in MO-DCs derived from either adult PB-MCs or cord blood samples. CD14+ monocyte-derived DCs were prepared from either adult blood or cord blood samples with same method described in Material and Methods. Total RNA was prepared and mRNA or miRNA was converted into cDNA. The relative expression of Blimp-1 or miRNA Let-7c was measured by real-time PCR. To measure the level of IL-6, 10^6 cells/ml of Mo-DCs were stimulated with LPS (1 μg/ml) overnight and IL-6 in the supernatants was quantified by MSD. Each dot represents an individual sample and the bar represents the mean ± SEM.



Supplementary figure 8. Gene expression of purified B cells from human blood. Total B cells were purified by negative selection kit (Stem cell technologies). Total RNA was prepared and mRNA or miRNA was converted into cDNA to measure Blimp-1 or miRNA Let-7c. Each dot represents an individual sample and the bar represents the mean ± SEM.



Supplementary figure 9. Cytokine expression from human Mo-DCs by MSD. Number of Mo-DCs differentiated from either the control or Blimp-1 SLE carrier individuals was calculated at day 7 culture, and plated to $1x10^6$/ml with or without TLR agonists (TLR3 agonist: poly (I:C), 5 μg/ml, TLR4 agonist: LPS, 1 μg/ml, and TLR7 agonist: Gardiquimod, 2 μg/ml) overnight. Supernatant was harvested and kept at -20 °C until use.

Coordinate	Target	Coordinate	Target
A1, A2	PC(+)	C17, C18	IL-16
A23, A24	PC(+)	C19, C20	IL-17
B1, B2	CXCL13	C21, C22	IL-23
B3, B4	C5a	C23, C24	IL-27
B5, B6	G-CSF	D1, D2	IP-10
B7, B8	GM-CSF	D3, D4	I-TAC
B9, B10	CCL1	D5, D6	KC
B11, B12	CCL11	D7, D8	M-CSF
B13, B14	sICAM1	D9, D10	CCL2
B15, B16	IFNg	D11, D12	CCL12
B17, B18	IL-1a	D13, D14	MIG
B19, B20	IL-1b	D15, D16	MIP-1a
B21, B22	IL-1ra	D17, D18	MIP-1b
B23, B24	IL-2	D19, D20	MIP-2
C1, C2	IL-3	D21, D22	RANTES
C3, C4	IL-4	D23, D24	SDF-1
C5, C6	IL-5	E1, E2	TARC
C7, C8	IL-6	E3, E4	TIMP-1
C9, C10	IL-7	E5, E6	TNF-a
C11, C12	IL-10	E7, E8	TREM-1
C13, C14	IL-13	F1, F2	PC(+)
C15, C16	IL-12 p70	F23, F24	NC(-)

Supplementary Table 1: Table for the cytokine array coordinates