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Appendix Figure S1

Appendix Figure S1. Phenotypic analysis of natural killer cell populations from pSS patients.

(A): Summarized proportions of circulating NK cell subsets defined in figure 1 including CD56^{dim} CD16$^+$ (II) and CD56^{hi} CD16$^-$ (IV) NK subsets in n= 56 healthy donors (HD; grey) and n= 42 total or n=17 HQ and n=25 No-HQ primary Sjögren´s syndrome (pSS; blue) patients.

(B-C): Proportions of cells expressing CD107a (B, C), and frequencies of total IFNγ$^+$, total TNFα$^+$, IFNγ$^+$ CD107a$^+$ (C) within the indicated circulating NK cell subsets from 16 HD (grey) and n= 19 total or HQ stratified (n=8 HQ, n=11 No-HQ) pSS patients (blue). Data information: Data is represented as box and whiskers plots with maximum and minimum range and a median value central band. Data points are representing biological replicates. Statistical significance was calculated using a two-tailed Mann Whitney test. *p<0.05; **p<0.01; ***p<0.001.

Appendix Figure S2

A
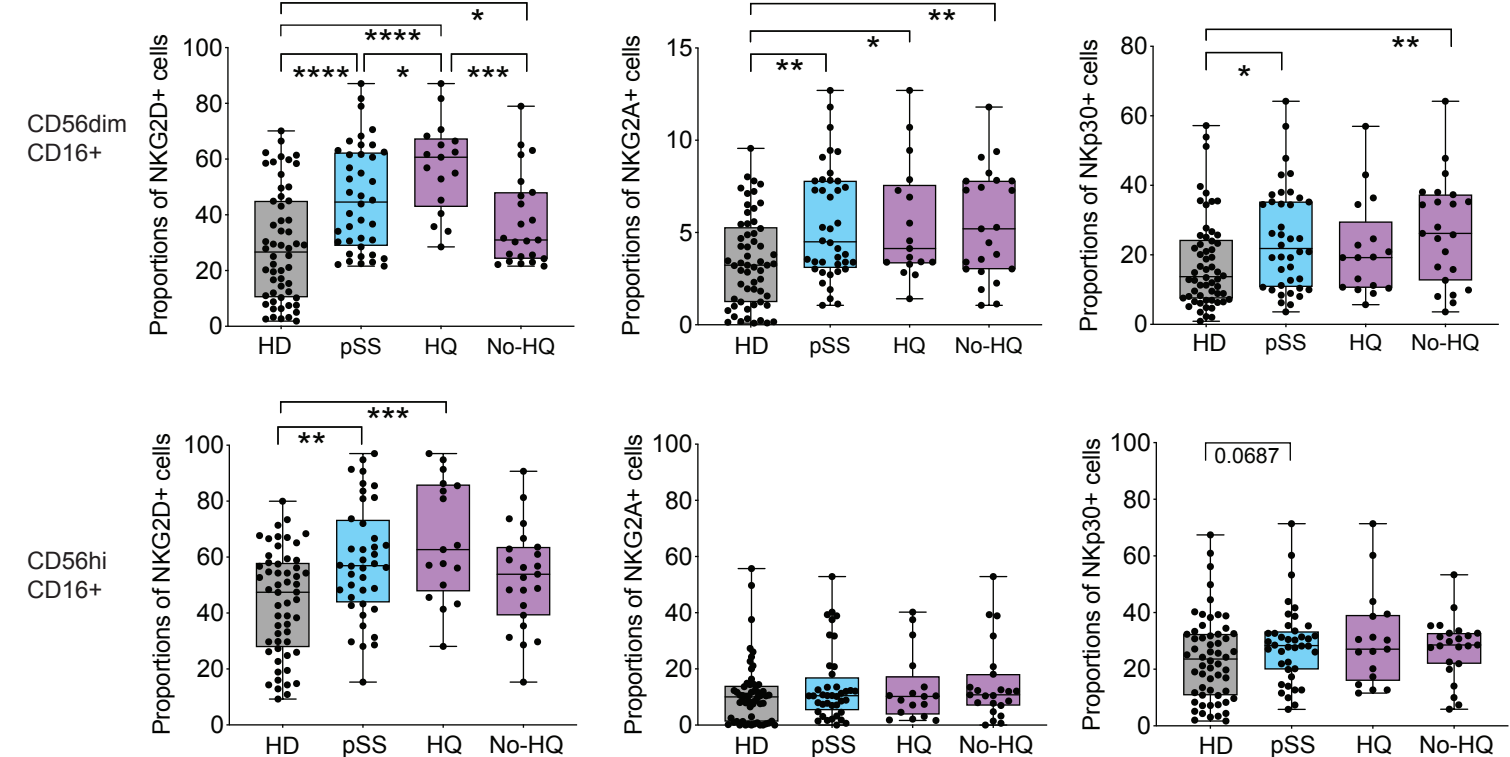
B

C

Appendix Figure S2. Characterization of activating and inhibitory receptors and functional analysis of NK cells from pSS patients.

(A): Proportions of NKG2D (left plot), NKG2A (middle plot) and NKp30 (right plot) receptors on de indicated NK cell subsets from primary Sjögren´s syndrome (total n=40 pSS; blue; HQ n=17; No-HQ n=23 purple) and healthy donors (n= 56 HD; grey).

(B): Flow cytometry gating strategy representing frequencies of dead K562-GFP after culture in medium alone or in the presence of isolated NK cells. K562 cells were identified as Violet Trace negative cells to exclude NK cells. Dead K562 were quantified as cells losing GFP expression and acquiring of staining of the viability dye marker.

(C): Eosin/hemotoxilin tissue sections from SG tissue of a representative patient to different magnifications 20x (left) and 40x (right), showing low (black stars) and highly (red stars) infiltrated areas with altered morphology.

Data information (A): Data is represented as box and whiskers plots with maximum and minimum range and a median value central band. Data points represented biological replicates. Statistical significance was calculated using a two-tailed Mann Whitney test. *$p<0.05$; **$p<0.01$; ***$p<0.001$; ****$p<0.0001$.
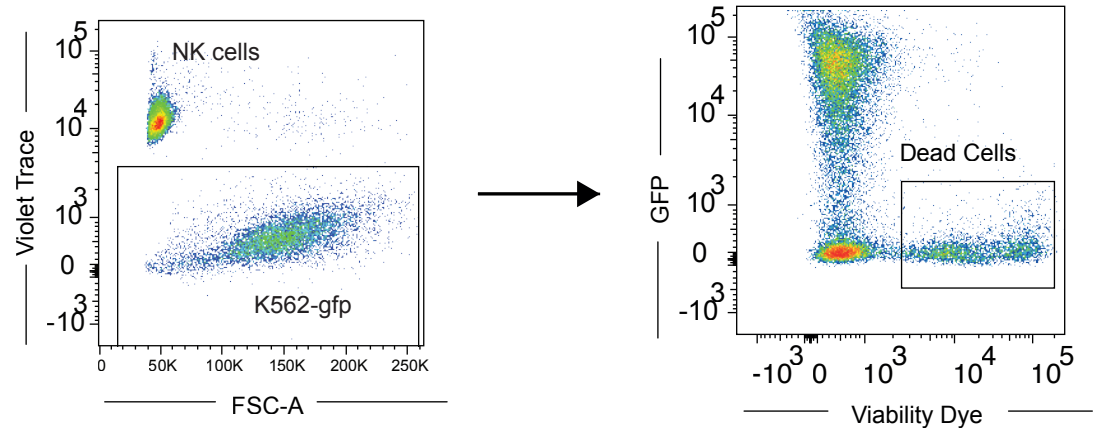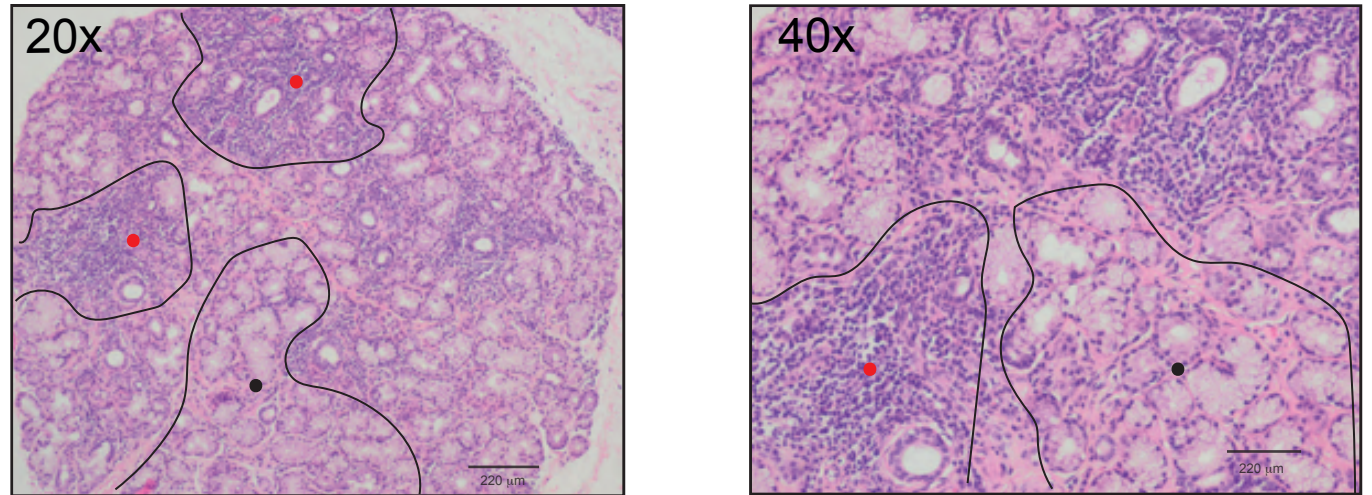
Appendix Figure S3

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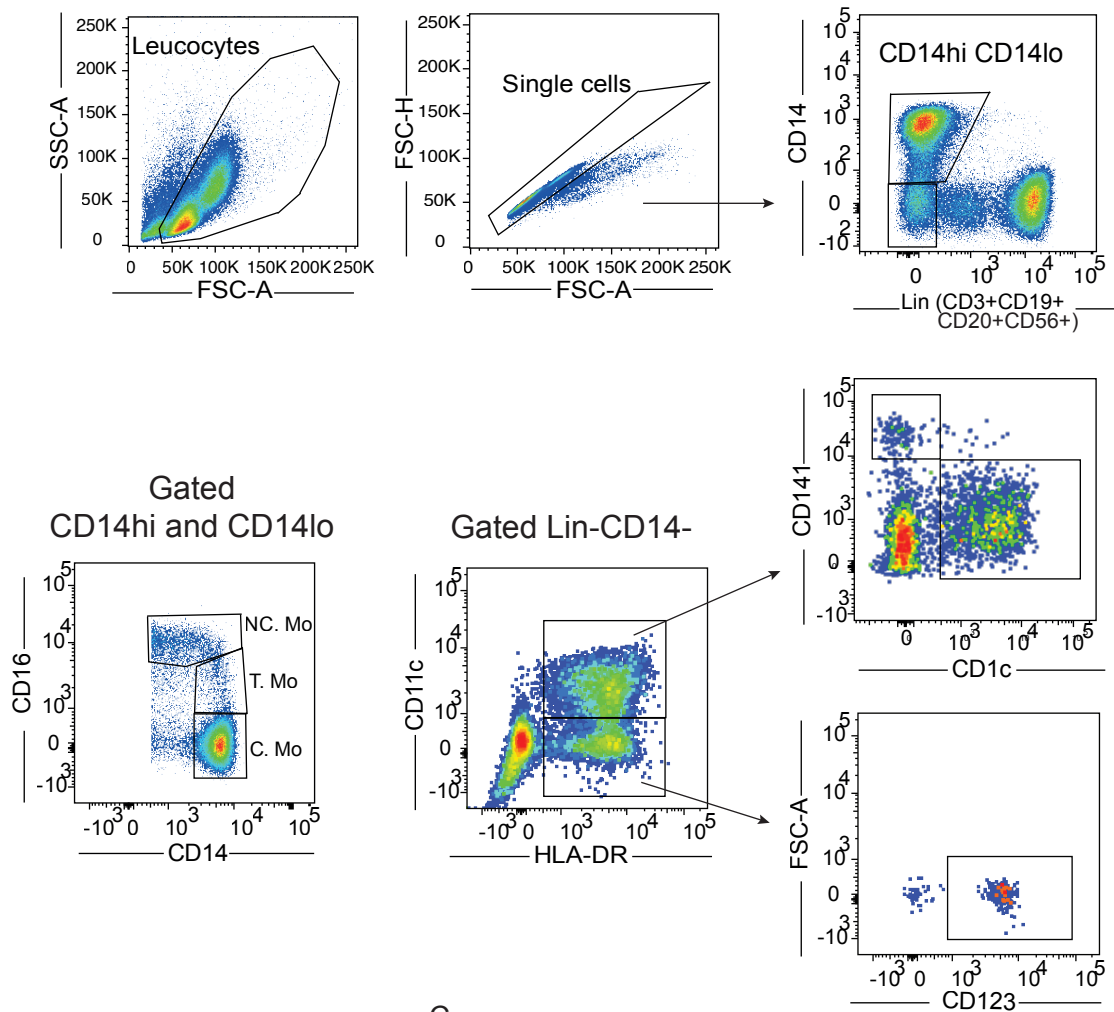
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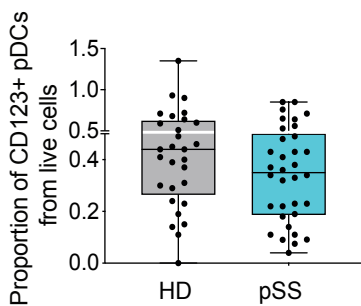
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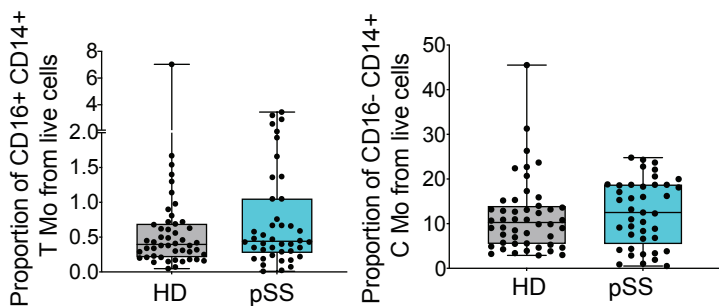
D

SMGL section from pSS
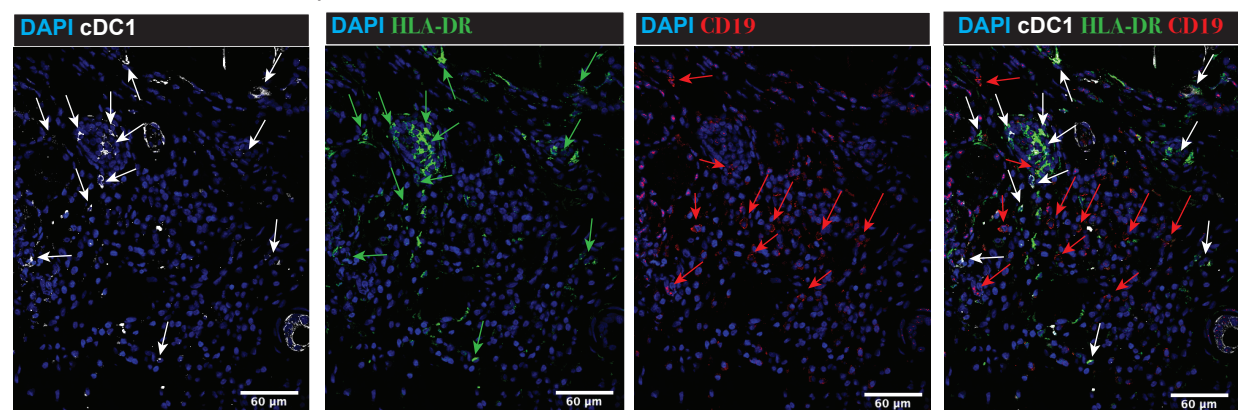
Appendix Figure S3. Identification and frequencies of circulating myeloid subsets from pSS patients.

(A): Flow cytometry gating strategy identifying CD14$^+$ Monocytes and HLA-DR$^+$ CD11c$^+$ conventional (cDC) subdivided into CD1c$^+$ cDC2 and CD141$^+$ cDC1 and CD11c$^-$ CD123$^+$ plasmacytoid (pDC) dendritic cells from Lineage (CD3, CD19, CD20, CD56) negative CD14$^-$ cells. CD14$^+$ Mo was further defined as CD14^{lo} CD16^{hi} non classical (NC), CD14$^+$ CD16$^+$ transitional (T) and CD14$^+$ CD16$^-$ classical (C) Mo on the basis of the expression of CD16.

(B-C): Box and whisker plots representing frequencies of Lin$^-$ HLA-DR$^+$ CD11c$^-$ CD123$^+$ pDCs (B), T Mo and C Mo subsets (C) in live mononuclear cells from PB from HD (grey, n=48) and total pSS patients (blue, n=44) obtained by flow cytometry.

(D): Representative confocal microscopy (40x magnification) showing immunofluorescence analysis of CD1c (white), HLADR (green) and CD19 (red) expression on a representative SG tissue section from a pSS patient. Cell nuclei were stained with DAPI (blue). cDC2 co-expressing CD1c and high levels of HLADR with dendritic cell morphology are highlighted with white arrows. CD19$^+$ cells expressing low levels of CD1c and HLA-DR are highlighted with red arrows. A 60μm Scale bar is included in each image.

Data information (B): Data is represented as box and whiskers plots with maximum and minimum range and a median value central band. Data points represented biological replicates.

Appendix Figure S4
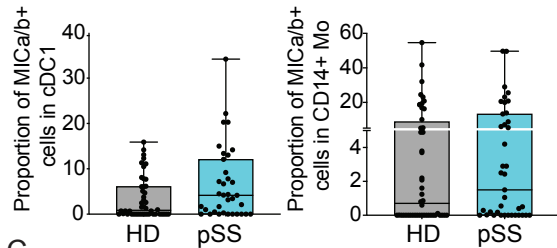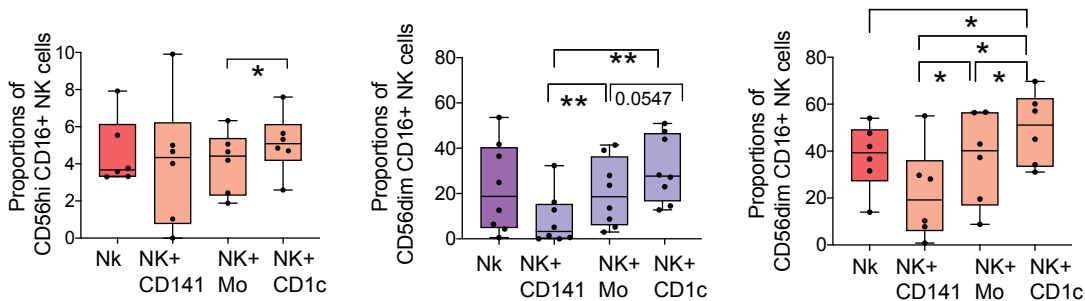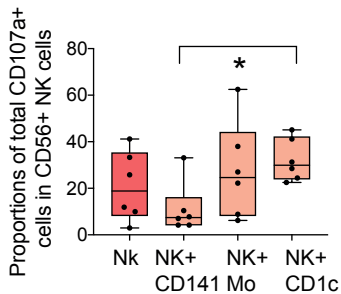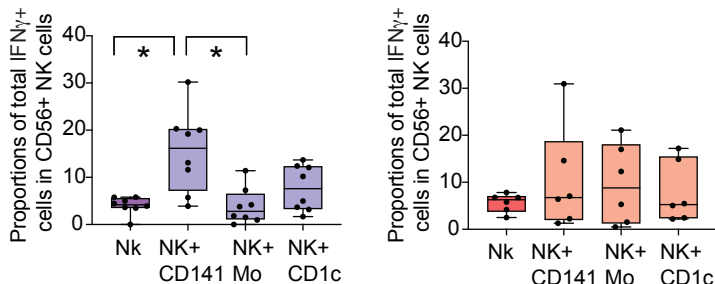
Appendix Figure S4. Functional ability of cDC2, cDC1 and Mo to stimulate NK cells

(A, B,C): Proportions of MICa/b$^+$ (A), ULBP1$^+$ (B) PCNA$^+$ (C) cells from circulating cDC1 and Mo in healthy donors (HD; grey n=46 A,B; n=24 C) and primary Sjögren´s syndrome (pSS; blue; n=42 A,B; n=34 C) individuals. Levels of PCNA on cDC2 are also included.

(D): Representative confocal microscopy (40x magnification) showing immunofluorescence analysis of CD1c (white), HLADR (green) and MICab (red) expression on a representative control SG tissue section from a non-autoimmune mechanical sialadenitis patient from a total of n=3 individuals tested. Cell nuclei were stained with DAPI (blue).

(E): Proportions of the CD56^{hi} CD16$^+$ (left) and CD56^{dim} CD16$^+$ (middle and right) NK cell subsets from HD (orange) and CD56^{dim} CD16$^+$ NK subset from pSS patients (purple), after 16h culture of sorted autologous CD56$^+$ NK cell in media alone or in the presence of sorted autologous circulating Mo, cDC2 and cDC1 from n=8 pSS patients and n=6 HD, at ratio 1:2 (myeloid cell:NK).

(F,G): Expression of CD107a from NK cells on HD (F; n=6 biological replicates) and proportions of IFNγ$^+$ NK cells from pSS patients and HD (G; n=8 biological replicates) in these functional assays is shown. Statistical significance was calculated using two-tailed Wilcoxon matched pairs signed rank test (*$p < 0.05$; **$p < 0.01$).

Data information (A, B, C, E, F, G): Data is represented as box and whiskers plots with maximum and minimum range and a median value central band. Data points are represented by biological replicates. (C): Statistical significance was calculated using a two-tailed Mann Whitney test. *$p < 0.05$. (E,F,G): Statistical significance was calculated using two-tailed Wilcoxon matched pairs signed rank test (*$p < 0.05$; **$p < 0.01$).
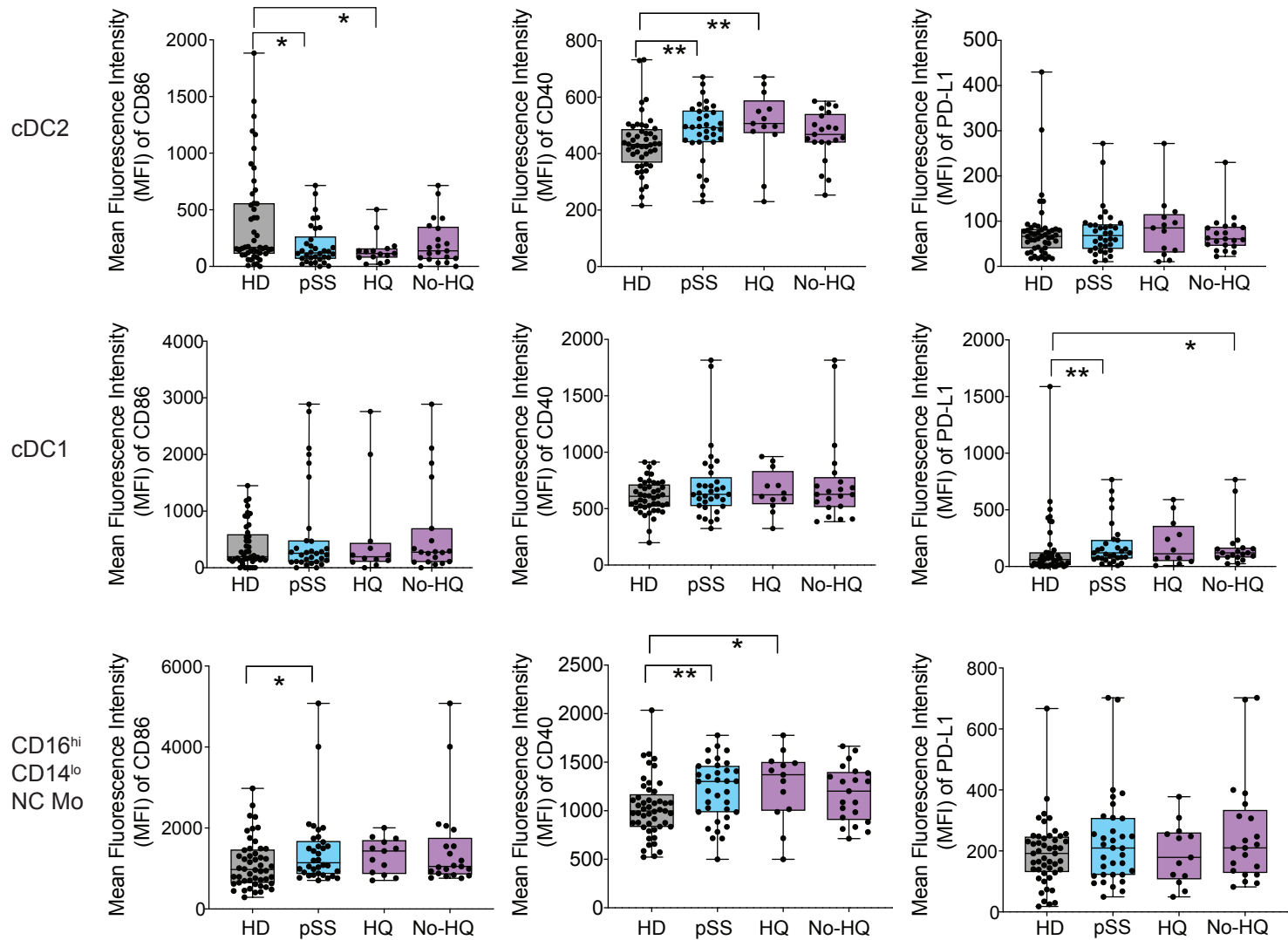
Appendix Figure S5. Phenotypic characteristics of circulating myeloid subsets from pSS patients.

(A-B): Mean Fluorescence Intensity (MFI) of expression of the indicated Interferon stimulated costimulatory molecules on circulating cDC1 and cDC2 and non-classical (NC) Mo from the blood of n=48 healthy donors (HD; grey) and n=34 total (blue) and n=13 HQ and n=21 No-HQ (purple) primary Sjögren´s syndrome (pSS) individuals.

Data information: (A-Data is represented as box and whiskers plots with maximum and minimum range and a median value central band. Data points are represented by biological replicates. Statistical significance was calculated using a two-tailed Mann Whitney test. *p<0.05; **p<0.01.
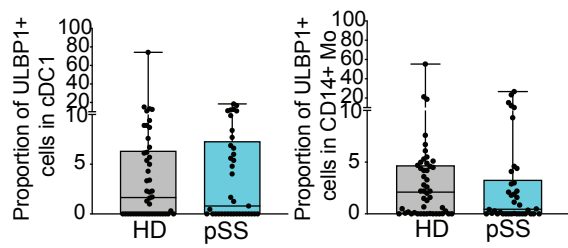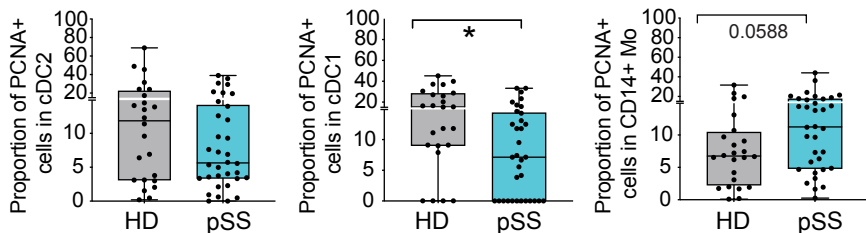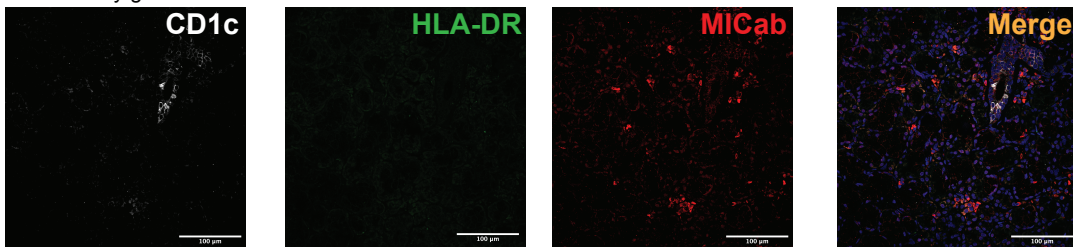
Appendix Figure S6

A

pSS ●
HD ●

cDC2 — PCA1 (35.22%), PCA2 (13.81 %)

Mo — PCA1 (41.03%), PCA2 (20.22%)

cDC1 — PCA1 (30.22%), PCA2 (18.02%)

B

ISGs

-3.00   -0.32 0.32   3.00

id	Mono	CD1c	CD141	Nombre
				IFIT2
				IFIT3
				IFIT1
				RSAD2
				IFIH1
				RTP4
				OAS3
				DDX58
				DDX60
				IFITM3
				GBP1
				IFI6
				MX2
				OAS1
				IFI44L
				IRF7
				MX1
				OAS2
				BST2
				TRIM5
				MS4A4A
				IFIT5
				CD74
				TREX1
				P2RY6
				ISG15
				ISG20
				EIF2AK2
				IFITM2
				IFITM1
				MOV10
				ADAR
				SSBP3
				PML
				GBP2
				SUN2
				SLC15A3
				TRIM25
				HPSE
				CGAS
				IRF1
				NAMPT
				MAP3K14
				SLC25A28
				ZC3HAV1
				OASL
				DDIT4

C

IFN PKR and IRF signalings Mo

blue= down regulated
red= up regulated

*** IFI35
*** IFI6
** IFIT1
** IFIT3
** IFITM1
*** IFITM3
**** JAK2
** MX1
*** OAS1

*** ISG15

** STAT1
** STAT2

* IFNGR1

*** DHX58
** IFIT2
**** TBK1

ATF3 **
CASP1 ***
CASP8 **
HSPA5 **
MAPK1 ***
NLRP12 **
NLRP3 ***
TAB2 ***
TNFRSF1A ****

DDX58 ****
IKBKB ***
IKBKE ***
MAVS ***
NFKBID **
REL ****

IFN 9, PKR 9, 1, 2, 6, IRF 3, 1

D

IFIT1 — IFIT-1 expression relative to β-actin; HD, pSS; *

DDX60 — DDX60 expression relative to β-actin; HD, pSS; **

RIGI — RIG-I expression relative to β-actin; HD, pSS

STAT1 — STAT-1 expression relative to β-actin; HD, pSS; *

Appendix Figure S6. Pathway analysis of differential transcriptional patterns of Mo and cDC subsets from the blood of pSS patients.

(A): Principal Component Analysis (PCA) representing transcriptional profiles in cDC2, cDC1 and Mo from the blood of n=4 primary Sjögren´s syndrome (pSS; green) and n=4 healthy donors (HD; red).

(B): Heatmap reflecting Log2FC in expression of 47 transcripts associated with IFN signaling or IFN Stimulated Genes (ISG) on Mo, cDC2 and cDC1 from the blood of 4 pSS patients compared to 4 HD. Highlighted Red show upregulated expression and blue, show downregulated pathways. Yellow dots size is proportional to statistical significance of DEG expression ($p < 0.05$ FDR corrected values).

(C): Venn´s diagram of overlapping significant DEG included in selected IFN, PKR and IRF canonical pathways in PB Mo from pSS individuals. Significant levels of differential expression are highlighted for each DEG. *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$; ****$p < 0.0001$.

(D): qPCR validation of the indicated transcript from sorted circulating Mo from n=7 pSS patients (blue) versus n=5 HD (grey) as biological replicates. Statistical significance was calculated using a two tailed U Mann Whitney test. *$p < 0.05$; **$p < 0.01$.

Data information (D): Data is represented as box and whiskers plots with maximum and minimum range and a median value central band.

Appendix Figure S7

A

Gated on CD64+   Gated on CD64-

70%   7%

MICa/b (y-axis)   CD11c (x-axis)

B

Proportions of MICa/b+ cells in CD14+ Mo

Med PI:C   Med PI:C
HD   pSS

*

C

Proportions of live HLA-DR+ CD11c+ cDCs

DC	+	+	+	+
NK	-	+	-	+
PI:C	-	-	+	+

D

IL-15 expression related to β-actin

Med   PI:C

E

Proportions of CD107a+ cells in CD56+ NK

Med | PI:C Iso Ab | PI:C αMICa/b | PI:C Iso Ab | PI:C αIL-15

*   *   0.0625

F

IFNγ (y-axis)   CD107a (x-axis)

Patient 1   Patient 2   Patient 3

NK Med

Total IFNy 72,7   Total IFNy 29,9   Total IFNy 29,4
Total CD107a 23,7   Total CD107a 41,7   Total CD107a 21,9

NK P:IC

Total IFNy 62,2   Total IFNy 33,3   Total IFNy 26,7
Total CD107a 25,5   Total CD107a 41   Total CD107a 18,4

Appendix Figure S7. MICa/b upregulation after poly I:C stimulation in myeloid cells from healthy and pSS individuals Sjögren patients. Impact in NK cell functional activation.

(A): Representative flow cytometry dot plots showing levels of MICa/b versus CD11c expression on gated cDC2 defined by $CD64^+$ and $CD64^-$ expression. Percentages of positive MICa/b$^+$ cells are highlighted on top of each box.

(B): Proportions of cells expressing MICa/b in Mo from the blood of HD (black; n=7 biological replicates) or pSS individuals (red; n=9 biological replicates), after 16h of culture in the presence of poly I:C (PI:C) compared to cells cultured in media only (Med).

(C): Proportions of live $CD11c^+$ $HLADR^+$ cDC2 precultured in media or PI:C and co-cultured in the absence or the presence of autologous NK cells. Mortality was determined by FACS with a viability dye in different biological replicates.

(D): RT-qPCR analysis of IL-15 transcriptional levels relative to beta-actin in cDC2 from HD (grey; n=4) and pSS patients (blue; n=6) as biological replicates, cultured for 16h in Med or PI:C.

(E): Proportions of CD107a$^+$ NK cells in PBMC after culture for 16h in Med or with PI:C and in the absence or the presence of neutralizing antibodies against MICa/b, IL-15 or the corresponding isotypic controls.

(F): Flow cytometry analysis of IFNγ versus CD107a expression on isolated NK cells from three representative healthy donors cultured for 16h in the presence of Med alone or PI:C. Proportions of total IFNγ$^+$ and CD107a$^+$ cells are highlighted on the corresponding gates.

Data information (B, C, E): Data is represented as box and whiskers plots with maximum and minimum range and a median value central band. Statistical significance was calculated using two-tailed Wilcoxon matched pairs signed rank test (*p<0.05).
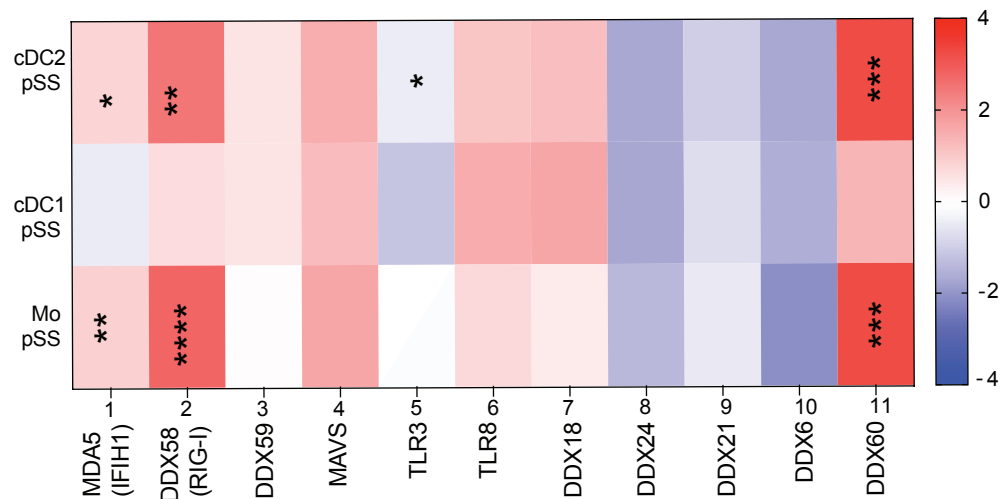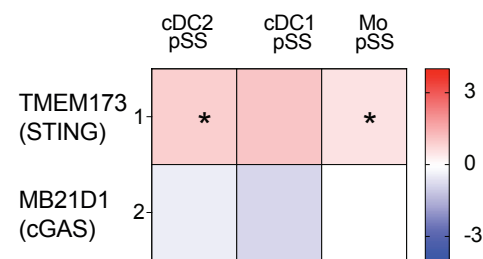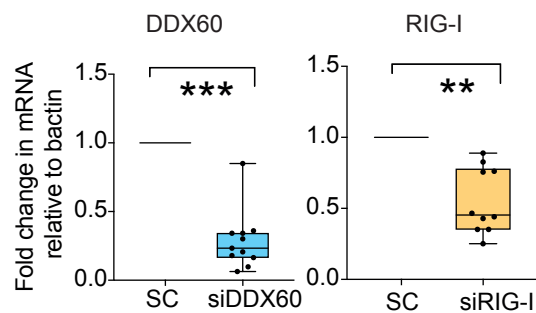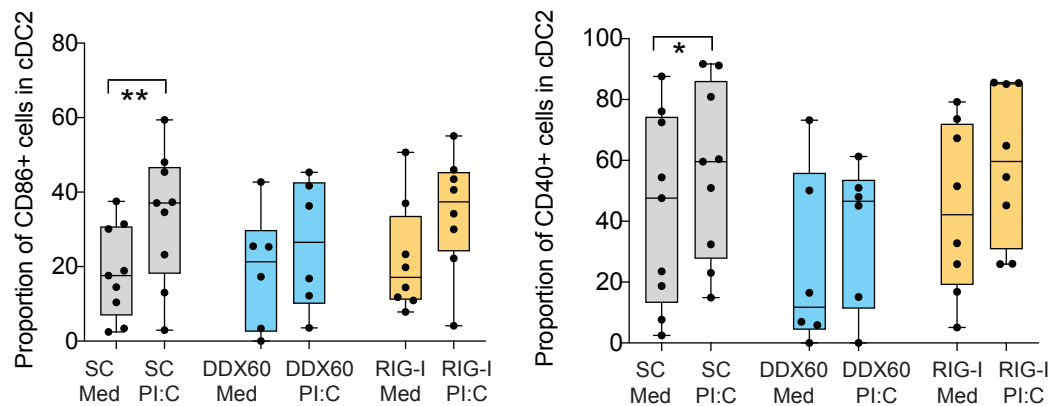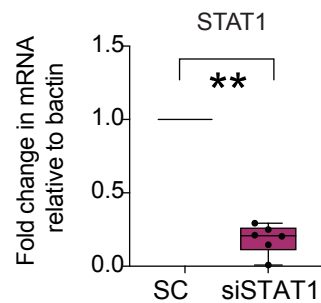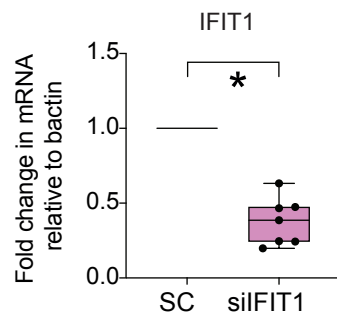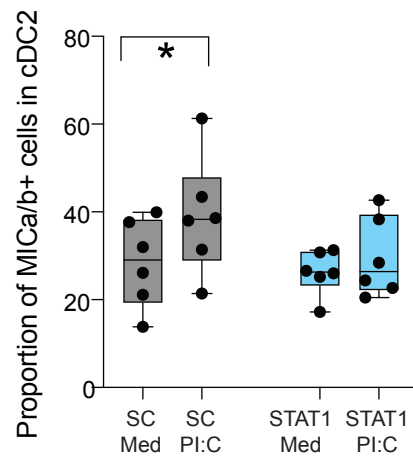
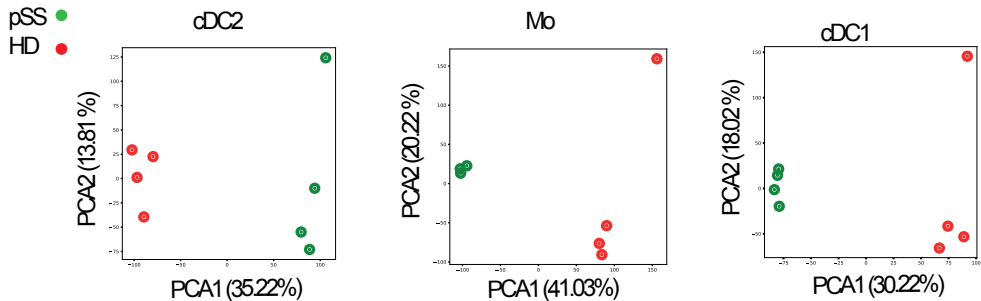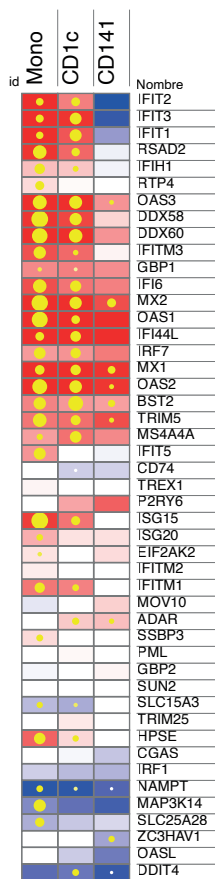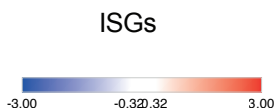**Appendix Figure S8. Expression of innate sensors and si-RNA knock down of DDX60/RIG-I and STAT1 on cDC2.**

(A): Heatmap reflecting fold change in transcriptional expression of the indicated RNA helicases in cDC2, cDC1 and Mo from pSS compared to HD. Significant changes are highlighted. Red upregulated, blue downregulated.

(B): Heatmap reflecting log2FC in transcription of innate DNA sensors in cDC2 and cDC1 and in Mo of n=4 primary Sjögren´s syndrome (pSS) and n=4 healthy donor (HD). (C, E, F): Fold change in transcriptional levels of DDX60 (C; left), DDX58 (C; RIG-I, right), STAT1 (E) and IFIT1 (F) analyzed by RT-qPCR and normalized by endogenous β-Actin levels in cDC2 nucleofected with the corresponding siRNAs. RT-qPCR values were normalized to those in cells nucleofected with control scramble (SC) siRNAs. (D, G): Proportions of cells expressing CD86 (left), CD40 (right) (D) or MICa/b within cDC2 nucleofected with either SC-siRNA (biological replicates n=9 in D and n=6 in G) or DDX60 (biological replicates n=6) or DDX58 (biological replicates n=8) (D) or STAT1 (G) (biological replicates n=6)-specific siRNAs and cultured in the presence of Med or PI:C for 16h (D). In some experiments (n=6) the impact of siRNA specific for STAT1 was also studied (G).

Data information (C, D, E, G): Data is represented as box and whiskers plots with maximum and minimum range and a median value central band. Data points are represented by biological replicates. (A,B): Statistical significant differences in differential expression in indicated genes from heatmaps is highlighted. *p<0.05; **p<0.01; ***p<0.001; ****p<0.0001.(C,D,E,F,G): Statistical significance was calculated using a two-tailed Wilcoxon matched pairs test (*p<0.05; **p<0.01; ***p<0.001).

Appendix Figure S9
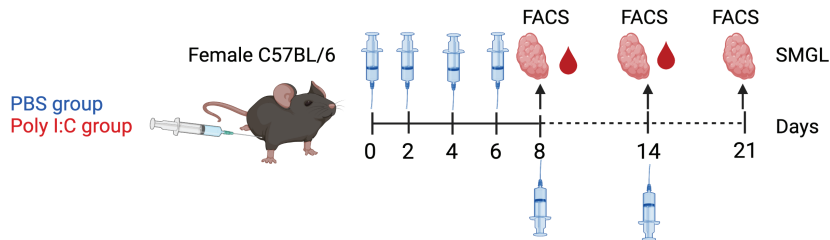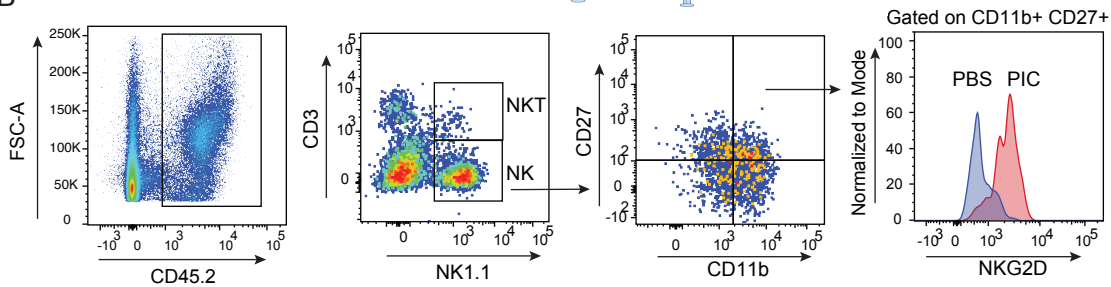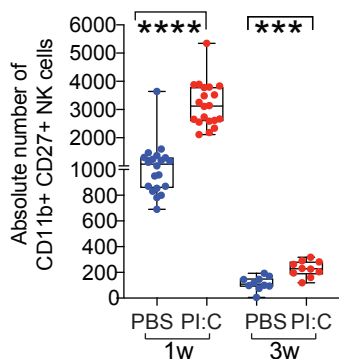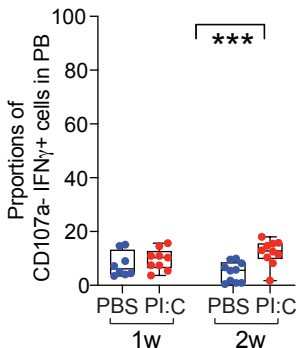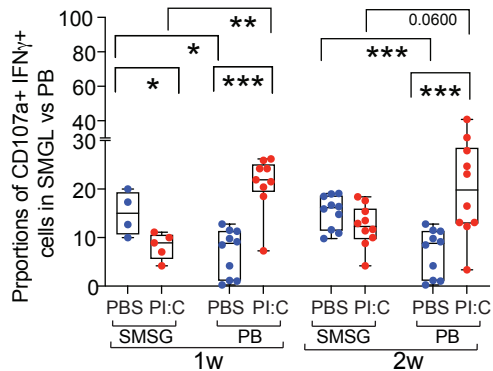
Appendix Figure S9. *In vivo* analysis of NK cells after intraperitoneal injection of poly I:C in mice.

(A): Schematic representation of the experimental design for the *in vivo* experiments where myeloid and NK cell subsets were studied in the submandibular salivary gland (SMSG) after the injection of mice with poly I:C (PI:C) or PBS.

(B): Representative flow cytometry gating strategy defining NK cell subsets in the SMSG and the expression of the indicated markers on these cells. Expression of NKG2D on gated NK cells is also shown.

(C): Absolute numbers of $CD11b^+$ $CD27^+$ cells present in the SMSG after 1 and 3 weeks post-injection with PBS (blue, biological replicates n=19 at week 1 and n=10 at week 3) and PI:C (n=19 and n=10 biological replicates at 1 and 3 weeks, respectively).

(D, E): Proportions of the $CD107a^-$ $IFN\gamma^+$ (n=8; PBS, n=9; PI:C at 1 week; n=10 PBS and PI:C at week 2)ñ in PB (D) and $CD107a^+$ $IFN\gamma^+$ cells (E) on gated $CD11b^+$ $CD27^+$ NK cell subset present in the SMSG and PB (SMSG biological replicates: n=4, n=10 in PBS at week 1 and week2; n=5 and n=10 in PI:C at week 1 and week 2; PB biological replicates: n=10 for both week 1 and 2 in PBS, n=9 and n=10 in PI:C at week 1 and 2, respectively) of the indicated experimental groups at 1 and 2 weeks after treatment initiation.
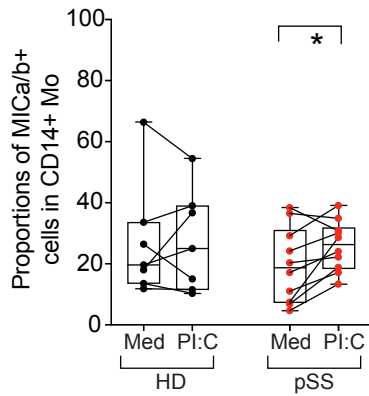
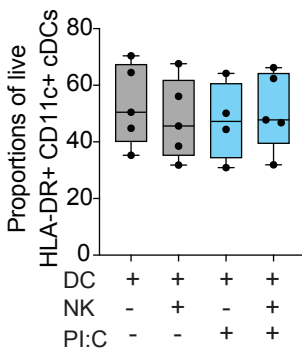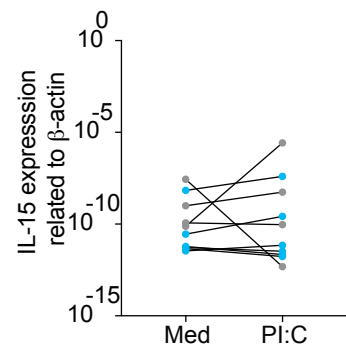Data information (C, D, E): Data is represented as box and whiskers plots with maximum and minimum range and a median value central band. Data points are re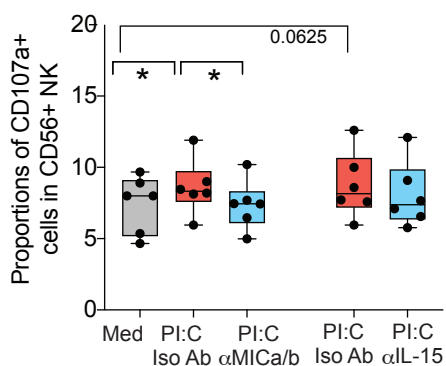presented by biological replicates. (C,D,E): Statistical significance was calculated with a two tailed Mann Whitney test. *p<0.05; **p<0.01; ***p<0.001; ****p<0.0001.

Appendix Figure S10
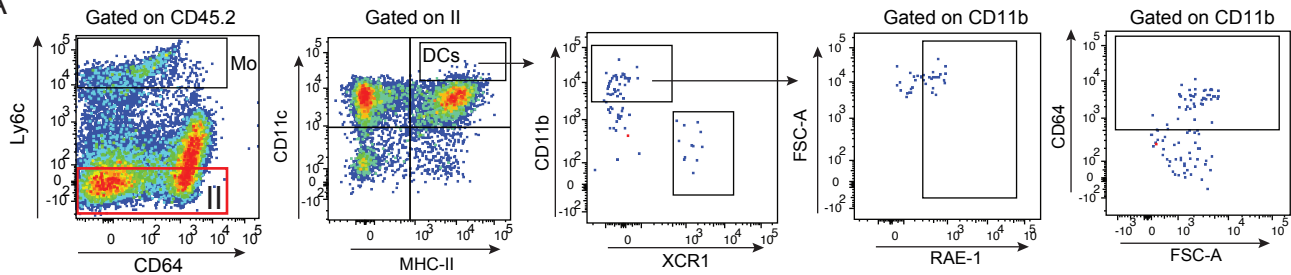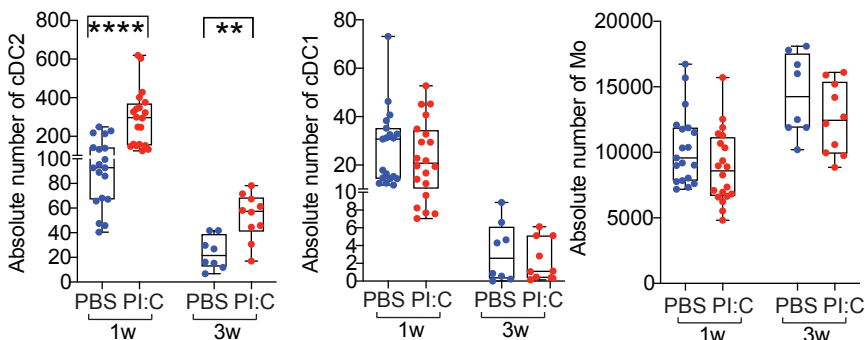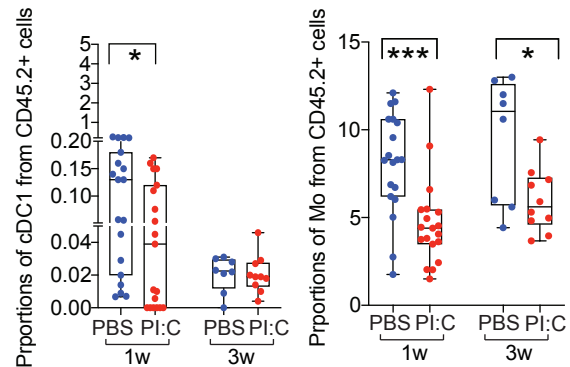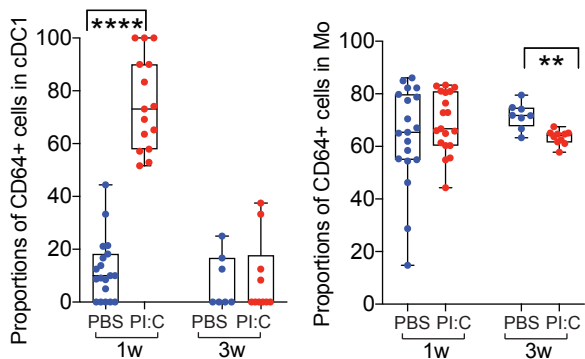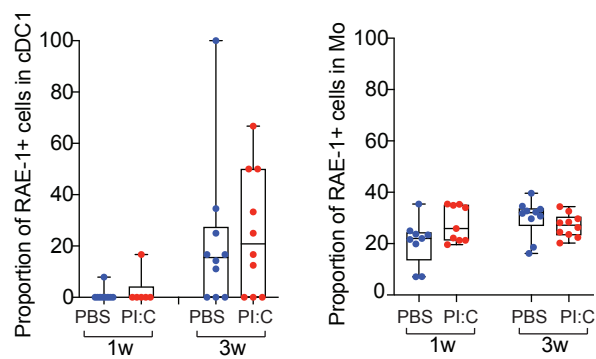
Appendix Figure S10. *In vivo* **analysis of cDC subsets and Mo after intraperitoneal injection of poly I:C in mice.**

(A): Representative flow cytometry gating strategy defining cDC1 and cDC2 subsets defined as $CD11^{hi}$ $MHC-II^+$ cells differing on expression of XCR1 and CD11b in the SMSG. Expression of CD64 and RAE-1 on gated cDC2 is also shown.

(B-C): Absolute numbers (B) and frequencies (C) of $XCR1^+$ $CD11c^{hi}$ cDC1 and $Ly6^+$ Mo in the SMSG of mice injected with PBS (blue) or PI:C (red) at 1 and 3 weeks after treatment initiation. Absolute numbers of cDC2 are also included. Biological replicates n=19 PBS and PI:C in B, C at 1 week and n=8 in PBS and n=10 PI:C at 3 weeks in B,C.

(D-E): Proportions of $CD64^+$ (n= 19 PBS and PI:C in Mo and cDC1; n=16 PI:C cDC1 at 1 week; n=8 PBS and n=10 PI:C in both subsets at 3 weeks) (D) and $RAE-I^+$ (n=9 PBS, n=6 PI:C cDC1; n=9 PBS, PI:C Mo at 1 week; n=10 PBS, PI:C in cDC1 and Mo at 3 weeks) (E) cells included in $XCR1^+$ cDC1 and $Ly6C^+$ Mo in the SMSG from the two mice groups at the indicated timepoints are also shown.

Data information (B, C, D, E): Data is represented as box and whiskers plots with maximum and minimum range and a median value central band. Data points are represented by biological replicates. Statistical significance was calculated with a two tailed Mann Whitney test. *p<0.05; **p<0.01; ***p<0.001; ****p<0.0001.

|	HD	pSS	pSS HQ	pSS Non-HQ	OT	*p-value* HQ vs non-HQ	*p-value* HQ vs OT
Number of patients (n)	**56**	**48**	**17**	**25**	**6**		
Mean Age *(years, Min-Max)*	59 (25-75)	60 (23-88)	66 (44-88)	64 (23-87)	64 (42-70)	0.3667	0.2468
Sex (% Female)	100%	98%	100%	97%	100%	0.0810	n.d
Severity n (%)							
Mild	n.d	31 (64%)	11 (64%)	21 (84%)	0	0.0013**	<0.0001****
Severe	n.d	10 (21%)	6 (35%)	4 (16%)	6 (100%)	0.002**	<0.0001****
HQ treatment		17 (35%)	17 (100%)	0	0	<0.0001****	<0.0001****
Extra-glandular manifestations n (%)	n.d						
Any extra-glandular manifestations		27 (56%)	13 (76%)	8 (32%)	6 (100%)	<0.0001****	<0.0001****
Arthritis		16 (33%)	7 (41%)	6 (24%)	3 (50%)	0.0377*	0.063
Raynaud		4 (8.3%)	3 (18%)	1 (4%)	0	0.0016**	<0.0001****
Oral ulcers		1 (2.1%)	0	0	1 (16.6%)	n.d	<0.0001****
Vasculitis process		2 (4.2%)	1 (5.8%)	0	0	0.0129*	0.0129
Polyneuropathy		1 (2.1%)	0	0	1 (16.6%)	n.d	<0.0001****
Pulmonary involvement		1 (2.1%)	0	0	1 (16.6%)	n.d	<0.0001****
Kidney disease		1 (2.1%)	0	1 (3.2%)	0	0.0810	n.d
Lymphoma		2 (4.2%)	2 (11.8%)	0	0	0.0004***	0.0004***
Laboratory values *Median (Min-Max)*	n.d						
RF (UI/ml)		24 (8-209)	20 (8-209)	18 (10-104)	13 (10-30)	0.3051	0.1359
ESR		27 (3-79)	29 (6-59)	31 (3-79)	17 (4-28)	0.7710	0.0455*
CRP (mg/dl)		0.16 (0.03-1.7)	0.16 (0.03-0.69)	0.18 (0-1.7)	0.1 (0.03-0,25)	0.5107	0.2931
Lymphocyte (Count/mm^3)		1545 (490-5190)	1390 (900-2480)	1565 (490-5190)	2070 (4400-9970)	0.1769	0.0023**
Gammaglobulin (g/l)		1.43 (0.41-2.79)	1.5 (0.41-2.79)	1.43 (1.05-2.68)	1.3 (0.8-1.9)	0.914	0.4826
IgG (mg/dl)		1680 (591-3430)	1930 (591-3430)	1555 (1060-2700)	1150 (877-2260)	0.2666	0.3097
C3 (mg/dl)		105 (78.9-165)	95.4 (80.7-124)	108 (57-165)	101 (81-145)	0.0306*	0.3075
C4 (mg/dl)		20 (11-29)	19.2 (13.4-33.6)	19.3 (9.1-30.6)	23 (18-29)	0.4511	0.3631

Appendix Table S1. Clinical characteristics of Sjögren´s syndrome patients

Abbreviations: HQ: Hydroxychloroquine; OT: other treatments (GC: glucocorticoids; MTX: methotrexate; B.T: biological therapy); RF: rheumatoid factor; ESR: erythrocyte sedimentation rate; CRP: C-reactive protein; IgG: immunoglobulin type G; C3: fraction 3 of complement; C4: fraction 4 of complement; n: number; n.d.= no date.

	HD	pSS	HQ pSS	Non-HQ pSS	p-value (HD vs pSS)	p-value (HD vs HQ pSS)	p-value (HD vs non-HQ pSS)	p-value (HQ vs non-HQ pSS)
Median proportions of CD56- CD16+ (min-max)	5.5 (1.3-25)	5.8 (1.2-35)	4.2 (1.2-19)	6.5 (2.4-35)	0.3654	0.9456	0.1733	0.2228
Median of CD107a on CD56- CD16+ (min-max)	12.2 (1.8-54)	22.4 (7-53)	28.6 7-53)	19.4 (10-52)	0.0479*	0.1531	0.0797	0.9039
Median of IFNγ on CD56- CD16+ (min-max)	9 (2.5-25)	15 (6-48)	14.3 (6-41)	15.5 (6-48)	0.0171*	0.0191*	0.1123	0.8404
Median of CD107a+ IFNγ+ on CD56- CD16+ (min-max)	1.5 (0-6.7)	3.3 (0-12)	3.2 (0-12)	3.5 (0.8-11)	0.085	0.5488	0.0417*	0.4778
Median of TNFα on CD56- CD16+ (min-max)	9.6 (1-50)	5.6 (0-74)	5.7 (0.2-74)	4.3 (0-58)	0.7074	0.955	0.5528	0.7242
Median of NKG2D on CD56- CD16+ (min-max)	25.5 (1.3-68)	47 (16-82)	53 (26-82)	34 (16-75)	0.0007***	<0.0001****	0.0995	0.0034**
Median of NKG2A on CD56- CD16+ (min-max)	2 (0-12)	3.3 (0.4-15)	2.9 (0.4-15)	3.45 (0.4-12)	0.0381*	0.0970	0.1054	0.8764
Median of NKp30 on CD56- CD16+ (min-max)	16.2 (1.5-58)	17.5 (2.7-55)	12.7 (3-50)	22.8 (2.7-55)	0.8032	0.1666	0.1395	0.0486*
Median of NKG2D on CD56hi CD16- (min-max)	40 (2.7-86)	49 (15-92)	59 (15-92)	46 (22-76)	0.0305*	0.0133*	0.2719	0.0913
Median of NKG2A on CD56hi CD16- (min-max)	11.5 (0-42)	14.5 (0.8-40)	13.6 (1.4-40)	16 (0.8-38)	0.1133	0.2835	0.1623	0.7712
Median of NKp30 on CD56hi CD16- (min-max)	14 (0-56)	19 (3-44)	20,3 (3-44)	16,5 (5.3-30)	0.0392*	0.0706	0.1384	0.4603

Appendix Table S2. Phenotype of different NK cell populations related with HQ (hydroxychloroquine) treatment in pSS patients.
Statistical significance was calculated using a two tailed U Mann Whitney test. *p<0.05; **p<0.01; ***p<0.001; ****p<0.0001.

	HD	pSS	HQ pSS	Non-HQ pSS	p-value (HD vs pSS)	p-value (HD vs HQ pSS)	p-value (HD vs non-HQ pSS)	p-value (HQ vs non-HQ pSS)
Median proportions of CD123+ pDCs (min-max)	0.44 (0-1.3)	0.36 (0-0.9)	0.23 (0-0.9)	0.3225 (0.1-0.9)	0.2413	0.1108	0.66	0.3352
Median MFI of CD86 on pDCs (min-max)	147 (10-391)	245 (5-4080)	306 (33-4080)	166 (5-1513)	0.0451*	0.0221*	0.2506	0.5305
Median MFI of PDL-1 on pDCs (min-max)	12 (0.4-84)	20.6 (0.2-91)	8.2 (0.8-48)	27.4 (0.2-91)	0.044*	0.9779	0.0033**	0.0345*
Median MFI of CD40 on pDCs (min-max)	389 (151-558)	457 (149-724)	471 (149-724)	409 (268-724)	0.1798	0.5556	0.1387	0.4952
Median MFI of CD64 on pDCs (min-max)	66 (12-574)	200 (62-685)	246,5 (63-516)	200 (62-685)	<0.0001****	0.001**	0.0004***	0.9670
Median proportions of T Mo (min-max)	0.4 (0-7)	0.4 (0-3.5)	0.4 (0.1-3.5)	0.5 (0-3)	0.4783	0.5624	0.5711	0.9930
Median MFI of CD86 on T Mo (min-max)	809 (135-3371)	827 (398-4270)	689 (477-1721)	873 (398-4270)	0.7436	0.7040	0.4132	0.2882
Median MFI of PDL-1 on T Mo (min-max)	301 (70-1303)	320 (123-1453)	266 (123-639)	388 (141-1453)	0.1597	0.4891	0.0105*	0.0260*
Median MFI of CD40 on T Mo (min-max)	1059 (430-2275)	1309 (485-2077)	1264 (485-2077)	1309 (541-2018)	0.0414*	0.1681	0.0721	0.9272
Median MFI of CD64 on T Mo (min-max)	2919 (337-7791)	3929 (1136-9061)	4418 (1136-9061)	3409 (1298-7010)	0.0177*	0.0537	0.0661	0.9165
Median proportions of C Mo (min-max)	10,3 (3-46)	11,6 (0.8-24)	15,7 (0.8-23)	8,9 (1.1-24)	0.6347	0.1345	0.6576	0.1925
Median MFI of CD86 on C Mo (min-max)	376 (17-1976)	383 (0-3066)	363 (0-783)	452 (40-3066)	0.6435	0.5352	0.8612	0.7532
Median MFI of PDL-1 on C Mo (min-max)	423 (96-1124)	524 (134-1612)	417 (134-754)	617 (217-1612)	0.2731	0.6539	0.0623	0.0840
Median MFI of CD40 on C Mo (min-max)	770 (208-1285)	793 (288-1557)	802 (288-1557)	793 (306-1075)	0.5741	0.5476	0.7482	0.9141
Median MFI of CD64 on C Mo (min-max)	6835 (1146-19059)	8213 (1712-12940)	8644 (1712-12940)	7836 (2398-12235)	0.073	0.2159	0.1216	0.7006

Appendix Table S3. Proportion of different myeloid cell populations related with HQ (hydroxychloroquine) treatment in pSS patients.
Abbreviations: T Mo: Transitional Monocytes; C Mo: Classical Monocytes; MFI: Mean Fluorescence Intensity. Statistical significance was calculated using a two tailed U Mann Whitney test. *p<0.05; **p<0.01; ***p<0.001; ****p<0.0001.

Appendix table S4: DEGs on cDC2, cDC1 and Mo (Log2 FC cutoff upregulated >1.5; downregulated <-1.5)

DEG CD1c+ cDCs pSS *versus* HD

| Transcipt ID	Gene name	Log2(FC)	FDR < 0.05
ENSG00000137959	IFI44L	4.16535789	0.00167388
ENSG00000111335	OAS2	4.15678392	0.00068553
ENSG00000182578	CSF1R	3.93436922	0.00186519
ENSG00000168329	CX3CR1	3.83812944	0.01267943
ENSG00000177409	SAMD9L	3.76415944	0.00072853
ENSG00000157601	MX1	3.7111664	0.00190217
ENSG00000089127	OAS1	3.52032768	0.00433679
ENSG00000111913	RIPOR2	3.51241416	0.0040364
ENSG00000121807	CCR2	3.51168175	0.02587417
ENSG00000132530	XAF1	3.48286431	0.00089939
ENSG00000101347	SAMHD1	3.45232655	0.00847993
ENSG00000249437	NAIP	3.42167956	0.04887038
ENSG00000111331	OAS3	3.41018922	0.00057232
ENSG00000133706	LARS	3.38958469	0.0026949
ENSG00000183486	MX2	3.32443198	0.00080111
ENSG00000140749	IGSF6	3.31354682	0.0026949
ENSG00000137628	DDX60	3.2680394	0.00045076
ENSG00000110876	SELPLG	3.24737994	0.00155933
ENSG00000139970	RTN1	3.22749388	0.00272842
ENSG00000092964	DPYSL2	3.14283953	0.00253643
ENSG00000163683	SMIM14	3.14167309	0.00668554
ENSG00000170581	STAT2	3.13212829	0.00080302
ENSG00000005020	SKAP2	3.1231954	0.00186707
ENSG00000088827	SIGLEC1	3.04532683	0.01503232
ENSG00000138449	SLC40A1	2.95156286	0.00108396
ENSG00000088986	DYNLL1	2.93772619	0.00233277
ENSG00000158488	CD1E	2.89042691	0.00562529
ENSG00000110077	MS4A6A	2.86675942	0.01645689
ENSG00000082074	FYB1	2.8576699	0.00513019
ENSG00000133835	HSD17B4	2.82579063	0.00365669
ENSG00000240065	PSMB9	2.81532891	0.00096838
ENSG00000119917	IFIT3	2.81308894	0.00098988
ENSG00000117676	RPS6KA1	2.79970312	0.00089939
ENSG00000178927	C17orf62	2.79591345	0.00088661
ENSG00000038427	VCAN	2.76743251	0.00536505
ENSG00000167220	HDHD2	2.74889964	0.00261709

ENSG00000006715	VPS41	2.73934221	0.00068553
ENSG00000107551	RASSF4	2.73092693	0.00329946
ENSG00000093072	ADA2	2.72385816	0.00251682
ENSG00000165168	CYBB	2.70586786	0.00264376
ENSG00000181381	DDX60L	2.69717824	0.00052149
ENSG00000148110	MFSD14B	2.63197719	0.00520463
ENSG00000196975	ANXA4	2.61333737	0.00077204
ENSG00000197713	RPE	2.60713676	0.01153698
ENSG00000179639	FCER1A	2.59644663	0.00882281
ENSG00000175567	UCP2	2.59370025	0.00563712
ENSG00000197043	ANXA6	2.58953409	0.00467602
ENSG00000135218	CD36	2.58500504	0.00349422
ENSG00000134326	CMPK2	2.56634923	0.00203231
ENSG00000133574	GIMAP4	2.5651703	0.02150282
ENSG00000110031	LPXN	2.55736628	0.00563329
ENSG00000188641	DPYD	2.53918064	0.00935057
ENSG00000169385	RNASE2	2.53792206	0.00498953
ENSG00000196209	SIRPB2	2.52111187	0.01585679
ENSG00000107201	DDX58	2.51544972	0.00080302
ENSG00000105281	SLC1A5	2.49745673	0.00099236
ENSG00000133943	DGLUCY	2.49512886	0.00155927
ENSG00000035403	VCL	2.47427384	0.0012446
ENSG00000170915	PAQR8	2.4699681	0.00200912
ENSG00000197142	ACSL5	2.46991698	0.00362829
ENSG00000161929	SCIMP	2.45193688	0.00709936
ENSG00000105483	CARD8	2.43912494	0.00089939
ENSG00000154930	ACSS1	2.43622234	0.00230358
ENSG00000138119	MYOF	2.4320701	0.0040802
ENSG00000165795	NDRG2	2.40671028	0.00744894
ENSG00000177575	CD163	2.39869809	0.00650305
ENSG00000146192	FGD2	2.39240703	0.00246913
ENSG00000075303	SLC25A40	2.39230879	0.00230358
ENSG00000050344	NFE2L3	2.39130111	0.00292999
ENSG00000163220	S100A9	2.38949301	0.02885702
ENSG00000165672	PRDX3	2.38019003	0.00142465
ENSG00000121281	ADCY7	2.37163873	0.00167388
ENSG00000136631	VPS45	2.37092946	0.00286187
ENSG00000188554	NBR1	2.36778573	0.0012446
ENSG00000134986	NREP	2.35723992	0.00237378
ENSG00000106785	TRIM14	2.3368806	0.00576925
ENSG00000084733	RAB10	2.32913481	0.00108396
ENSG00000184432	COPB2	2.32693742	0.00467602

ENSG00000169413	RNASE6	2.32692653	0.0010458
ENSG00000151702	FLI1	2.31890751	0.00081022
ENSG00000104974	LILRA1	2.29125844	0.00474195
ENSG00000127951	FGL2	2.2824011	0.00089939
ENSG00000166801	FAM111A	2.26969444	0.00208192
ENSG00000111269	CREBL2	2.26874304	0.00458456
ENSG00000164414	SLC35A1	2.26564961	0.0022793
ENSG00000170458	CD14	2.25623821	0.01184035
ENSG00000185745	IFIT1	2.2531576	0.00089939
ENSG00000068079	IFI35	2.25305844	0.00098988
ENSG00000258659	TRIM34	2.24478854	0.00339437
ENSG00000164125	FAM198B	2.24095776	0.01271911
ENSG00000065413	ANKRD44	2.23995368	0.00068553
ENSG00000138459	SLC35A5	2.23385815	0.00360081
ENSG00000204131	NHSL2	2.23097905	0.00406198
ENSG00000125703	ATG4C	2.23095256	0.0047099
ENSG00000107929	LARP4B	2.22788083	0.00358122
ENSG00000178685	PARP10	2.22287319	0.00015003
ENSG00000155097	ATP6V1C1	2.21598765	0.00433873
ENSG00000186088	GSAP	2.21576679	0.00261709
ENSG00000082996	RNF13	2.21087655	0.00073864
ENSG00000072501	SMC1A	2.20979185	0.00376598
ENSG00000096968	JAK2	2.20812913	0.00130443
ENSG00000198771	RCSD1	2.20709862	0.00457885
ENSG00000145781	COMMD10	2.20515315	0.00155034
ENSG00000136485	DCAF7	2.19735281	0.01586099
ENSG00000004455	AK2	2.19351353	0.0008952
ENSG00000115415	STAT1	2.17610829	0.00211531
ENSG00000102699	PARP4	2.17444696	0.00340571
ENSG00000025708	TYMP	2.17024743	0.00563582
ENSG00000103381	CPPED1	2.16814525	0.00150263
ENSG00000090861	AARS	2.16649736	0.00043805
ENSG00000093144	ECHDC1	2.16126628	0.00419863
ENSG00000143624	INTS3	2.15695705	0.01343737
ENSG00000113845	TIMMDC1	2.15354406	0.00720168
ENSG00000168310	IRF2	2.15086059	0.0041688
ENSG00000103313	MEFV	2.14612293	0.00418017
ENSG00000102893	PHKB	2.14216041	0.00131723
ENSG00000138413	IDH1	2.14150089	0.00290205
ENSG00000160593	JAML	2.14039823	0.00460845
ENSG00000145416	MARCH1	2.13486128	0.00931242
ENSG00000133106	EPSTI1	2.13206205	0.00068553

ENSG00000159228	CBR1	2.13014578	0.00045076
ENSG00000116455	WDR77	2.12930733	0.00358122
ENSG00000137965	IFI44	2.12777848	0.00876064
ENSG00000166326	TRIM44	2.1270268	0.00261709
ENSG00000163606	CD200R1	2.12284896	0.00152415
ENSG00000112367	FIG4	2.12218668	0.00167388
ENSG00000103051	COG4	2.1204803	0.00180663
ENSG00000138078	PREPL	2.12006781	0.01270208
ENSG00000173821	RNF213	2.11768767	0.00553015
ENSG00000138246	DNAJC13	2.11570284	0.00068553
ENSG00000159131	GART	2.11358372	0.00326645
ENSG00000081087	OSTM1	2.11289772	0.01186229
ENSG00000101336	HCK	2.09767392	0.00418283
ENSG00000074706	IPCEF1	2.09384519	0.02342212
ENSG00000175857	GAPT	2.08765079	0.00150263
ENSG00000095585	BLNK	2.08376627	0.00803214
ENSG00000144218	AFF3	2.08136827	0.01047324
ENSG00000136279	DBNL	2.07401784	0.00439901
ENSG00000158517	NCF1	2.06949637	0.02847331
ENSG00000166888	STAT6	2.06811372	0.00224048
ENSG00000102189	EEA1	2.06093793	0.00236146
ENSG00000280153	AC133065.6	2.06005278	0.01070935
ENSG00000163563	MNDA	2.05970748	0.0043897
ENSG00000116824	CD2	2.0576007	0.00073864
ENSG00000117054	ACADM	2.05707859	0.00152894
ENSG00000162736	NCSTN	2.05415475	0.00194739
ENSG00000150681	RGS18	2.05320806	0.00130443
ENSG00000131844	MCCC2	2.0530904	0.01886776
ENSG00000107099	DOCK8	2.0516027	0.00570959
ENSG00000198814	GK	2.04963172	0.00350313
ENSG00000148634	HERC4	2.04789706	0.00411384
ENSG00000134851	TMEM165	2.04511559	0.00084979
ENSG00000136040	PLXNC1	2.04407099	0.00885173
ENSG00000139641	ESYT1	2.02820528	0.00268199
ENSG00000048052	HDAC9	2.02033464	0.01399335
ENSG00000124357	NAGK	2.01980368	0.0012446
ENSG00000158714	SLAMF8	2.01655113	0.02493296
ENSG00000090863	GLG1	2.01630472	0.00703198
ENSG00000134321	RSAD2	2.01046868	0.00489118
ENSG00000130021	PUDP	2.00722498	0.00419863
ENSG00000031081	ARHGAP31	2.00094561	0.00235967
ENSG00000164062	APEH	1.99681356	0.00478686

ENSG00000158467	AHCYL2	1.98490934	0.01332182
ENSG00000184979	USP18	1.98276515	0.00785233
ENSG00000116990	MYCL	1.98235502	0.00516637
ENSG00000180353	HCLS1	1.98216761	0.00090802
ENSG00000121210	TMEM131L	1.98071161	0.00224427
ENSG00000142089	IFITM3	1.97921372	0.01850953
ENSG00000100364	KIAA0930	1.97310857	0.00090772
ENSG00000070785	EIF2B3	1.97182446	0.00068553
ENSG00000163565	IFI16	1.97135082	0.00322266
ENSG00000134955	SLC37A2	1.97090771	0.00376598
ENSG00000079950	STX7	1.96308556	0.00166984
ENSG00000058668	ATP2B4	1.96027503	0.00934972
ENSG00000103544	C16orf62	1.96011824	0.00248227
ENSG00000141510	TP53	1.9574839	0.00284279
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ENSG00000196233	LCOR	-1.7918862	0.00394084
ENSG00000076053	RBM7	-1.790178	0.00425431
ENSG00000280254	AC233723.2	-1.7897342	0.02069455
ENSG00000177733	HNRNPA0	-1.7892427	0.01337033
ENSG00000169826	CSGALNACT2	-1.7868556	0.0020197
ENSG00000196850	PPTC7	-1.7814752	0.00205451
ENSG00000108960	MMD	-1.7806926	0.00622658
ENSG00000114126	TFDP2	-1.780669	0.00340571
ENSG00000163605	PPP4R2	-1.7794263	0.00328847
ENSG00000111711	GOLT1B	-1.7781447	0.00057232
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ENSG00000135241	PNPLA8	-1.7567401	0.01448055
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ENSG00000140299	BNIP2	-1.7020802	0.00112968
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ENSG00000071243	ING3	-1.5273524	0.00428193
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ENSG00000171222	SCAND1	-1.5258209	0.0029729
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ENSG00000215472	RPL17-C18orf32	-1.5251675	0.00778627
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ENSG00000139433	GLTP	-1.5192312	0.00458456
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ENSG00000015479	MATR3	-1.5153627	0.00107181
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ENSG00000198755	RPL10A	-1.5053093	0.01354723
ENSG00000142541	RPL13A	-1.5037966	0.00599034
ENSG00000137770	CTDSPL2	-1.5035044	0.00973379
ENSG00000101146	RAE1	-1.5029774	0.00898743
ENSG00000170779	CDCA4	-1.5020035	0.02440814
ENSG00000111666	CHPT1	-1.50194	0.00232828
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DEG CD141+ cDCs pSS *versus* HD

Transcipt ID	Gene name	Log2(FC)	FDR < 0.05
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ENSG00000101347	SAMHD1	3.54846982	0.00530244
ENSG00000197713	RPE	3.49566248	0.00231608
ENSG00000196975	ANXA4	3.44180679	0.00373194
ENSG00000163683	SMIM14	3.41399309	0.00329769
ENSG00000240065	PSMB9	3.34825852	0.00771252
ENSG00000177409	SAMD9L	3.34415245	0.04700928
ENSG00000151702	FLI1	3.26794279	0.0071252
ENSG00000088986	DYNLL1	3.20207297	0.00718932
ENSG00000197142	ACSL5	3.18105019	0.01686697
ENSG00000131203	IDO1	3.17237199	0.04053815
ENSG00000131844	MCCC2	3.08943003	0.00809412
ENSG00000117676	RPS6KA1	3.08369812	0.00373378
ENSG00000178927	C17orf62	3.01908121	0.00231608
ENSG00000178175	ZNF366	3.00669325	0.01156951
ENSG00000175567	UCP2	2.97576587	0.00942001
ENSG00000167797	CDK2AP2	2.97169671	0.00695581
ENSG00000092964	DPYSL2	2.9662081	0.01733544
ENSG00000133835	HSD17B4	2.95560908	0.00373194
ENSG00000004455	AK2	2.88436107	0.00450671
ENSG00000184432	COPB2	2.85168951	0.00373194
ENSG00000073849	ST6GAL1	2.84253331	0.04936695
ENSG00000108946	PRKAR1A	2.82726055	0.00785938
ENSG00000157601	MX1	2.81221268	0.00643515
ENSG00000117054	ACADM	2.8098934	0.01038122
ENSG00000133943	DGLUCY	2.80765017	0.00939014
ENSG00000111335	OAS2	2.79151142	0.02409658
ENSG00000118855	MFSD1	2.77966236	0.00231608
ENSG00000111913	RIPOR2	2.77926568	0.0164224
ENSG00000188404	SELL	2.7711235	0.00683094
ENSG00000112118	MCM3	2.75448581	0.04775931
ENSG00000127951	FGL2	2.70464858	0.00471655
ENSG00000165672	PRDX3	2.68982116	0.018607
ENSG00000136518	ACTL6A	2.6770965	0.03205559

ENSG00000133106	EPSTI1	2.6728163	0.00427995
ENSG00000143390	RFX5	2.64713348	0.00411253
ENSG00000103381	CPPED1	2.64591863	0.02817193
ENSG00000116455	WDR77	2.62619068	0.00939014
ENSG00000113845	TIMMDC1	2.61924211	0.00498634
ENSG00000170581	STAT2	2.61603253	0.01890536
ENSG00000217555	CKLF	2.61565748	0.01017501
ENSG00000138459	SLC35A5	2.61037387	0.00574457
ENSG00000093072	ADA2	2.61031333	0.01118101
ENSG00000105483	CARD8	2.58053041	0.00366462
ENSG00000146192	FGD2	2.57459956	0.03185424
ENSG00000214114	MYCBP	2.54384693	0.0123091
ENSG00000111481	COPZ1	2.53491668	0.00092215
ENSG00000103018	CYB5B	2.53412838	0.03940052
ENSG00000115415	STAT1	2.51436658	0.00714668
ENSG00000103423	DNAJA3	2.48171181	0.00369871
ENSG00000133739	LRRCC1	2.47022279	0.00427995
ENSG00000058668	ATP2B4	2.46603127	0.01140717
ENSG00000136631	VPS45	2.4455971	0.00669336
ENSG00000101336	HCK	2.43572212	0.00414186
ENSG00000165934	CPSF2	2.42895524	0.02319321
ENSG00000166801	FAM111A	2.42695116	0.04149208
ENSG00000170854	RIOX2	2.42306435	0.01017501
ENSG00000082074	FYB1	2.40640034	0.01889942
ENSG00000166002	SMCO4	2.39157552	0.02742631
ENSG00000174123	TLR10	2.39131619	0.01831296
ENSG00000197471	SPN	2.38349931	0.01377676
ENSG00000132256	TRIM5	2.37573124	0.02259125
ENSG00000174500	GCSAM	2.36971573	0.02056281
ENSG00000162736	NCSTN	2.36845665	0.01972577
ENSG00000155097	ATP6V1C1	2.36729947	0.04652814
ENSG00000183486	MX2	2.3666934	0.00366462
ENSG00000181192	DHTKD1	2.36357046	0.00643515
ENSG00000154511	FAM69A	2.35841198	0.02481535
ENSG00000113522	RAD50	2.35497808	0.00375346
ENSG00000109684	CLNK	2.34232203	0.01516728
ENSG00000107551	RASSF4	2.33187847	0.02021428
ENSG00000161929	SCIMP	2.32602311	0.01801069
ENSG00000133706	LARS	2.32397223	0.00643515
ENSG00000145781	COMMD10	2.32140285	0.02056247

ENSG00000188554	NBR1	2.31683543	0.02110815
ENSG00000134910	STT3A	2.31416843	0.03073439
ENSG00000197043	ANXA6	2.30138687	0.01333465
ENSG00000100442	FKBP3	2.30137712	0.03950432
ENSG00000198951	NAGA	2.30017514	0.01778545
ENSG00000178537	SLC25A20	2.29976075	0.00683094
ENSG00000145907	G3BP1	2.28657148	0.00366462
ENSG00000159131	GART	2.27895148	0.02160911
ENSG00000137513	NARS2	2.27413426	0.0164287
ENSG00000102699	PARP4	2.26160551	0.02565202
ENSG00000108798	ABI3	2.26085742	0.0417526
ENSG00000093144	ECHDC1	2.25935241	0.01346053
ENSG00000166797	FAM96A	2.25395611	0.01382958
ENSG00000028528	SNX1	2.2481123	0.00366462
ENSG00000138073	PREB	2.23899359	0.00427995
ENSG00000196511	TPK1	2.23484766	0.00853143
ENSG00000145982	FARS2	2.23187495	0.01599822
ENSG00000197943	PLCG2	2.2254161	0.01382958
ENSG00000169220	RGS14	2.22529372	0.00471655
ENSG00000143252	SDHC	2.22432491	0.00369871
ENSG00000168310	IRF2	2.21941679	0.01142001
ENSG00000138185	ENTPD1	2.21332138	0.01889942
ENSG00000115204	MPV17	2.21312672	0.00910123
ENSG00000258659	TRIM34	2.20303708	0.02833544
ENSG00000136100	VPS36	2.20130245	0.04311957
ENSG00000068079	IFI35	2.20055085	0.00471655
ENSG00000028116	VRK2	2.19526545	0.00366462
ENSG00000138660	AP1AR	2.18304632	0.02083863
ENSG00000136279	DBNL	2.1820547	0.00897674
ENSG00000103051	COG4	2.18108613	0.01480602
ENSG00000175792	RUVBL1	2.18096182	0.01382958
ENSG00000170915	PAQR8	2.17855823	0.03259356
ENSG00000159228	CBR1	2.17642933	0.01778545
ENSG00000198771	RCSD1	2.15975098	0.03365728
ENSG00000065413	ANKRD44	2.14995458	0.00414186
ENSG00000137509	PRCP	2.14767494	0.02417588
ENSG00000180353	HCLS1	2.14375858	0.00795821
ENSG00000140968	IRF8	2.1415942	0.01040756
ENSG00000110063	DCPS	2.13097937	0.01065996
ENSG00000134152	KATNBL1	2.12442073	0.002059

ENSG00000026751	SLAMF7	2.122695	0.00414186
ENSG00000128513	POT1	2.11684276	0.03724185
ENSG00000153064	BANK1	2.11592711	0.01948002
ENSG00000166326	TRIM44	2.10872196	0.03214462
ENSG00000176087	SLC35A4	2.10613373	0.00783832
ENSG00000159063	ALG8	2.09621344	0.00772963
ENSG00000072501	SMC1A	2.0873365	0.00388963
ENSG00000130021	PUDP	2.08334842	0.02254971
ENSG00000133313	CNDP2	2.08310086	0.00674003
ENSG00000182511	FES	2.08124765	0.00585693
ENSG00000090863	GLG1	2.07175674	0.00686317
ENSG00000006715	VPS41	2.06786491	0.0058823
ENSG00000123106	CCDC91	2.06575858	0.01849331
ENSG00000149084	HSD17B12	2.06249852	0.00329769
ENSG00000014138	POLA2	2.05890883	0.03087971
ENSG00000138768	USO1	2.05724479	0.01698373
ENSG00000155660	PDIA4	2.05661756	0.01046554
ENSG00000067704	IARS2	2.05190677	0.00683094
ENSG00000167220	HDHD2	2.05170364	0.0074401
ENSG00000170876	TMEM43	2.05022357	0.01202718
ENSG00000139641	ESYT1	2.04007922	0.00706653
ENSG00000159445	THEM4	2.03370264	0.00238242
ENSG00000162704	ARPC5	2.031856	0.00621715
ENSG00000243943	ZNF512	2.02404075	0.01764812
ENSG00000075239	ACAT1	2.02336357	0.00678127
ENSG00000164308	ERAP2	2.00102837	0.01747714
ENSG00000102524	TNFSF13B	1.99467751	0.02972242
ENSG00000014216	CAPN1	1.99448283	0.00798766
ENSG00000087263	OGFOD1	1.99421872	0.01403954
ENSG00000255833	TIFAB	1.99346242	0.00212779
ENSG00000138758	SEPT11	1.99278602	0.0159471
ENSG00000135317	SNX14	1.99277301	0.02398012
ENSG00000134996	OSTF1	1.98817748	0.04949211
ENSG00000156587	UBE2L6	1.98563628	0.01659642
ENSG00000166888	STAT6	1.98342839	0.00366462
ENSG00000128340	RAC2	1.98281961	0.0291451
ENSG00000103544	C16orf62	1.97865123	0.04701596
ENSG00000130429	ARPC1B	1.96710688	0.0060948
ENSG00000088035	ALG6	1.9664866	0.03133879
ENSG00000143314	MRPL24	1.9661189	0.02259125

ENSG00000137845	ADAM10	1.96078759	0.0239978
ENSG00000128915	ICE2	1.95925998	0.0053814
ENSG00000177054	ZDHHC13	1.95914759	0.018607
ENSG00000178057	NDUFAF3	1.95822904	0.00834834
ENSG00000035687	ADSS	1.95778237	0.01565564
ENSG00000084733	RAB10	1.95772064	0.00366462
ENSG00000115234	SNX17	1.95654784	0.00450671
ENSG00000147905	ZCCHC7	1.94631911	0.03575874
ENSG00000102710	SUPT20H	1.94521725	0.00471655
ENSG00000272047	GTF2H5	1.94299036	0.00748852
ENSG00000164062	APEH	1.94196538	0.02589679
ENSG00000198736	MSRB1	1.93727756	0.01216395
ENSG00000136874	STX17	1.93569262	0.00373378
ENSG00000112367	FIG4	1.93328907	0.0499912
ENSG00000119203	CPSF3	1.93234535	0.03489201
ENSG00000108651	UTP6	1.93055903	0.02083891
ENSG00000109814	UGDH	1.9275224	0.03064301
ENSG00000120925	RNF170	1.92584144	0.01371457
ENSG00000159596	TMEM69	1.91866781	0.01698373
ENSG00000169116	PARM1	1.91831262	0.01283324
ENSG00000080189	SLC35C2	1.91532369	0.02259125
ENSG00000141510	TP53	1.91435441	0.02477928
ENSG00000138363	ATIC	1.9089075	0.01065996
ENSG00000116133	DHCR24	1.90747385	0.04834494
ENSG00000183597	TANGO2	1.90622629	0.03474393
ENSG00000121691	CAT	1.90505411	0.00366462
ENSG00000121281	ADCY7	1.90312789	0.01321415
ENSG00000101464	PIGU	1.89949586	0.00498718
ENSG00000167272	POP5	1.89909548	0.04297077
ENSG00000162600	OMA1	1.89457122	0.00563522
ENSG00000185973	TMLHE	1.89071014	0.02052985
ENSG00000256043	CTSO	1.89027423	0.03288142
ENSG00000197157	SND1	1.88915776	0.02428243
ENSG00000032389	EIPR1	1.87940006	0.01208677
ENSG00000119321	FKBP15	1.87712459	0.00538725
ENSG00000181924	COA4	1.87138696	0.04404324
ENSG00000070269	TMEM260	1.87022464	0.02813121
ENSG00000155957	TMBIM4	1.86478753	0.01382958
ENSG00000138246	DNAJC13	1.86384869	0.04149208
ENSG00000090861	AARS	1.85873057	0.01863023

ENSG00000131236	CAP1	1.85861215	0.00366462
ENSG00000004468	CD38	1.85798611	0.00715816
ENSG00000168385	SEPT2	1.85482962	0.00505093
ENSG00000110435	PDHX	1.85051266	0.0159471
ENSG00000108984	MAP2K6	1.84232405	0.0088983
ENSG00000122694	GLIPR2	1.83979317	0.00623347
ENSG00000228223	HCG11	1.8396572	0.04682276
ENSG00000172775	FAM192A	1.83064498	0.03279199
ENSG00000138796	HADH	1.82793971	0.00373378
ENSG00000184992	BRI3BP	1.82782933	0.03259356
ENSG00000174243	DDX23	1.82695117	0.01920078
ENSG00000135336	ORC3	1.82458007	0.02598878
ENSG00000196189	SEMA4A	1.82371466	0.04199847
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ENSG00000170006	TMEM154	1.8145082	0.00695581
ENSG00000085871	MGST2	1.81235608	0.02052985
ENSG00000110768	GTF2H1	1.8076399	0.04916572
ENSG00000143624	INTS3	1.80407194	0.01491734
ENSG00000100938	GMPR2	1.80191394	0.00718932
ENSG00000122033	MTIF3	1.79769178	0.03842738
ENSG00000139278	GLIPR1	1.79725051	0.02046969
ENSG00000128654	MTX2	1.79453089	0.01831296
ENSG00000213983	AP1G2	1.79205768	0.00771252
ENSG00000136270	TBRG4	1.79087807	0.01740138
ENSG00000136485	DCAF7	1.79043521	0.03743491
ENSG00000205765	C5orf51	1.78837985	0.04794577
ENSG00000181804	SLC9A9	1.78735554	0.01740138
ENSG00000165795	NDRG2	1.78565459	0.03860348
ENSG00000176102	CSTF3	1.78210992	0.00498634
ENSG00000108528	SLC25A11	1.7809832	0.0225146
ENSG00000138964	PARVG	1.77976448	0.00783112
ENSG00000077232	DNAJC10	1.77674394	0.03956014
ENSG00000182247	UBE2E2	1.77383984	0.02213213
ENSG00000120860	WASHC3	1.77325401	0.04700928
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ENSG00000168906	MAT2A	1.76732256	0.0184155
ENSG00000083535	PIBF1	1.76639128	0.01986989
ENSG00000134215	VAV3	1.76456928	0.04485765
ENSG00000131374	TBC1D5	1.7600876	0.0070359
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ENSG00000089063	TMEM230	1.75554914	0.02435736
ENSG00000188452	CERKL	1.75073598	0.01764523
ENSG00000073969	NSF	1.74689502	0.04337462
ENSG00000006744	ELAC2	1.7451714	0.03815034
ENSG00000138071	ACTR2	1.74218255	0.00471655
ENSG00000092531	SNAP23	1.74089869	0.02373064
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ENSG00000149089	APIP	1.72848666	0.00695581
ENSG00000117632	STMN1	1.72686	0.02567634
ENSG00000177628	GBA	1.72678781	0.04466065
ENSG00000273749	CYFIP1	1.72137066	0.04149208
ENSG00000138413	IDH1	1.71448061	0.01517814
ENSG00000131652	THOC6	1.70927481	0.00718932
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ENSG00000113312	TTC1	1.70394262	0.0102919
ENSG00000136628	EPRS	1.70315632	0.037056
ENSG00000088451	TGDS	1.70293082	0.04806862
ENSG00000182551	ADI1	1.69931137	0.00329769
ENSG00000096968	JAK2	1.69650899	0.04491806
ENSG00000131828	PDHA1	1.69645807	0.00471655
ENSG00000140395	WDR61	1.69609591	0.03676234
ENSG00000122986	HVCN1	1.68983788	0.04685849
ENSG00000104812	GYS1	1.6895187	0.00548871
ENSG00000110108	TMEM109	1.6848329	0.01936255
ENSG00000031081	ARHGAP31	1.68019503	0.00718932
ENSG00000188321	ZNF559	1.67943891	0.04733928
ENSG00000145348	TBCK	1.6758879	0.04543213
ENSG00000141959	PFKL	1.67301115	0.01734575
ENSG00000088205	DDX18	1.66292701	0.02034028
ENSG00000141349	G6PC3	1.65694636	0.00509902
ENSG00000249915	PDCD6	1.65438062	0.01607135
ENSG00000094914	AAAS	1.65321137	0.02178995
ENSG00000148634	HERC4	1.65091532	0.04120458
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ENSG00000204619	PPP1R11	1.64151227	0.00751565
ENSG00000117280	RAB29	1.64123066	0.02513578
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ENSG00000169019	COMMD8	1.61957748	0.02882527
ENSG00000156110	ADK	1.61949922	0.00366462
ENSG00000162813	BPNT1	1.61931129	0.01918626
ENSG00000147471	PLPBP	1.61714025	0.01972577
ENSG00000120053	GOT1	1.61486095	0.00414186
ENSG00000198814	GK	1.61386071	0.00771252
ENSG00000066583	ISOC1	1.61272735	0.01836102
ENSG00000105676	ARMC6	1.61269789	0.00709631
ENSG00000163346	PBXIP1	1.61145872	0.02274656
ENSG00000156973	PDE6D	1.60933264	0.0108102
ENSG00000125703	ATG4C	1.6090627	0.02248772
ENSG00000124702	KLHDC3	1.6080931	0.00373194
ENSG00000108622	ICAM2	1.60770762	0.00809412
ENSG00000100201	DDX17	1.60554428	0.04949211
ENSG00000182179	UBA7	1.60384845	0.0287894
ENSG00000187688	TRPV2	1.60332056	0.00798925
ENSG00000149196	HIKESHI	1.59916945	0.01636258
ENSG00000162946	DISC1	1.59411755	0.00785938
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ENSG00000129691	ASH2L	1.59058308	0.02886473
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ENSG00000175938	ORAI3	1.58502623	0.00373194
ENSG00000134452	FBXO18	1.58402095	0.00906886
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ENSG00000125877	ITPA	1.58025065	0.00373194
ENSG00000170248	PDCD6IP	1.57926176	0.0080564
ENSG00000102316	MAGED2	1.57519043	0.00897674
ENSG00000136271	DDX56	1.57485191	0.00892823
ENSG00000119616	FCF1	1.57422682	0.01778545
ENSG00000147592	LACTB2	1.57350347	0.01491734
ENSG00000109572	CLCN3	1.57237796	0.03724185
ENSG00000108389	MTMR4	1.57116178	0.00885073
ENSG00000138629	UBL7	1.57055584	0.03327519
ENSG00000100714	MTHFD1	1.56665968	0.03205559

ENSG00000135457	TFCP2	1.56555175	0.002059
ENSG00000129480	DTD2	1.56436779	0.02044521
ENSG00000160310	PRMT2	1.56277539	0.04787676
ENSG00000108479	GALK1	1.56201279	0.00706653
ENSG00000100395	L3MBTL2	1.56123945	0.01666316
ENSG00000160213	CSTB	1.56071938	0.01530022
ENSG00000140262	TCF12	1.55900951	0.00366462
ENSG00000223501	VPS52	1.55486214	0.0069917
ENSG00000157637	SLC38A10	1.55228723	0.00808263
ENSG00000198252	STYX	1.55066317	0.00373194
ENSG00000180370	PAK2	1.54978257	0.00678127
ENSG00000163344	PMVK	1.54958534	0.04949211
ENSG00000124508	BTN2A2	1.54923435	0.01040756
ENSG00000204261	PSMB8-AS1	1.54647747	0.01382796
ENSG00000165609	NUDT5	1.5464016	0.01920078
ENSG00000077380	DYNC1I2	1.54433065	0.00719913
ENSG00000135624	CCT7	1.54087321	0.01530022
ENSG00000013364	MVP	1.53339149	0.01298825
ENSG00000110871	COQ5	1.53185169	0.01698373
ENSG00000131473	ACLY	1.53045419	0.02615942
ENSG00000129317	PUS7L	1.52568904	0.04483242
ENSG00000134851	TMEM165	1.52339767	0.00678127
ENSG00000033050	ABCF2	1.52272164	0.04794577
ENSG00000241468	ATP5J2	1.52189757	0.0095478
ENSG00000112079	STK38	1.5184563	0.04133962
ENSG00000223960	AC009948.1	1.51472539	0.00719913
ENSG00000085491	SLC25A24	1.51410362	0.037056
ENSG00000165476	REEP3	1.5113931	0.03067089
ENSG00000150753	CCT5	1.50788036	0.01638433
ENSG00000102309	PIN4	1.50580323	0.04940805
ENSG00000171155	C1GALT1C1	1.50396023	0.01677843
ENSG00000160551	TAOK1	1.50351125	0.04395127
ENSG00000163154	TNFAIP8L2	1.50292149	0.01607135
ENSG00000127948	POR	1.50205485	0.0473165
ENSG00000186594	MIR22HG	-4.1138605	0.037056
ENSG00000169895	SYAP1	-3.6935282	0.04888382
ENSG00000175197	DDIT3	-3.6292117	0.01786554
ENSG00000104312	RIPK2	-3.5049456	0.02687948
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ENSG00000120690	ELF1	-3.3945734	0.02594793
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ENSG00000122406	RPL5	-1.6300295	0.02259125
ENSG00000133226	SRRM1	-1.6299634	0.01882969
ENSG00000114125	RNF7	-1.6273242	0.03343504
ENSG00000151332	MBIP	-1.6225855	0.01681343
ENSG00000155508	CNOT8	-1.6224458	0.03766087
ENSG00000163374	YY1AP1	-1.6221834	0.02562787
ENSG00000138032	PPM1B	-1.613043	0.02578823
ENSG00000139572	GPR84	-1.6119569	0.04491806
ENSG00000091527	CDV3	-1.6111565	0.00715816
ENSG00000175348	TMEM9B	-1.6109897	0.01067079
ENSG00000106245	BUD31	-1.6072295	0.00366462
ENSG00000132334	PTPRE	-1.6041146	0.01101924
ENSG00000234745	HLA-B	-1.6021945	0.02302363
ENSG00000006634	DBF4	-1.6018116	0.0287894
ENSG00000179295	PTPN11	-1.6006623	0.01017501
ENSG00000156030	ELMSAN1	-1.5993026	0.00366462
ENSG00000061936	SFSWAP	-1.5980879	0.03455066
ENSG00000132388	UBE2G1	-1.5863168	0.00427995
ENSG00000100982	PCIF1	-1.586076	0.00458777
ENSG00000164032	H2AFZ	-1.5829662	0.02358364
ENSG00000117523	PRRC2C	-1.5823651	0.00421696
ENSG00000168615	ADAM9	-1.5815231	0.04551538
ENSG00000168137	SETD5	-1.5803551	0.04087958
ENSG00000116752	BCAS2	-1.5794338	0.04794577
ENSG00000033030	ZCCHC8	-1.5790862	0.04297077
ENSG00000163624	CDS1	-1.5761092	0.04870387
ENSG00000119048	UBE2B	-1.5728153	0.03917306
ENSG00000166747	AP1G1	-1.5719046	0.0383737
ENSG00000255112	CHMP1B	-1.5712458	0.04448535
ENSG00000143079	CTTNBP2NL	-1.5684593	0.01403954
ENSG00000146232	NFKBIE	-1.5668712	0.02052812
ENSG00000151461	UPF2	-1.5632883	0.0037268

ENSG00000180596	HIST1H2BC	-1.5602294	0.023638
ENSG00000054267	ARID4B	-1.5600476	0.0080564
ENSG00000179094	PER1	-1.5596991	0.03414375
ENSG00000147604	RPL7	-1.5523558	0.03067089
ENSG00000056097	ZFR	-1.5443294	0.02861146
ENSG00000090061	CCNK	-1.5435958	0.0108102
ENSG00000185043	CIB1	-1.5420194	0.00526983
ENSG00000177879	AP3S1	-1.5417923	0.00517546
ENSG00000170889	RPS9	-1.5371501	0.04672437
ENSG00000145414	NAF1	-1.5358676	0.00939014
ENSG00000134248	LAMTOR5	-1.535767	0.01905624
ENSG00000267165	CHMP1B-AS1	-1.53324	0.03839989
ENSG00000205937	RNPS1	-1.531859	0.01764812
ENSG00000137955	RABGGTB	-1.5311364	0.02187734
ENSG00000147526	TACC1	-1.5295004	0.00817443
ENSG00000271869	AC026979.3	-1.5276153	0.01698373
ENSG00000144848	ATG3	-1.5257477	0.02328206
ENSG00000198160	MIER1	-1.5249849	0.00783832
ENSG00000166266	CUL5	-1.5246382	0.02315457
ENSG00000138326	RPS24	-1.5235435	0.0495915
ENSG00000101166	PRELID3B	-1.5209207	0.01745368
ENSG00000187514	PTMA	-1.5196051	0.00812086
ENSG00000102409	BEX4	-1.5147338	0.00366462
ENSG00000204178	TMEM57	-1.5111317	0.04977237
ENSG00000184014	DENND5A	-1.5096529	0.0311748
ENSG00000109220	CHIC2	-1.5092584	0.02274656
ENSG00000143256	PFDN2	-1.5092422	0.02230772
ENSG00000168036	CTNNB1	-1.5081516	0.0488667
ENSG00000259884	AC025259.3	-1.5079142	0.0291451
ENSG00000156735	BAG4	-1.507731	0.03297477
ENSG00000119844	AFTPH	-1.5075552	0.0383737
ENSG00000137185	ZSCAN9	-1.5056565	0.04795835
ENSG00000184922	FMNL1	-1.5042614	0.00427995
ENSG00000203644	AC083799.1	-1.5031031	0.00604041
ENSG00000129484	PARP2	-1.5019141	0.01498374
ENSG00000172062	SMN1	-1.5017795	0.00809412
ENSG00000114354	TFG	-1.5006429	0.02308955
ENSG00000090905	TNRC6A	-1.5001209	0.01786554

DEG Mo pSS versus HD

Transcipt ID	Gene name	Log2(FC)	FDR < 0.05
ENSG00000088827	SIGLEC1	4.81222715	0.00061969
ENSG00000127951	FGL2	4.63307294	3.69E-05
ENSG00000177409	SAMD9L	4.48867916	7.2716E-05
ENSG00000111331	OAS3	4.42230211	0.00037088
ENSG00000111335	OAS2	4.41241143	0.00023971
ENSG00000182578	CSF1R	4.12149732	0.00018821
ENSG00000111913	RIPOR2	4.05133531	5.6748E-05
ENSG00000204131	NHSL2	3.98423953	8.698E-05
ENSG00000089127	OAS1	3.88177349	0.00014848
ENSG00000082074	FYB1	3.86940796	0.00011131
ENSG00000168329	CX3CR1	3.66901016	0.00346942
ENSG00000132530	XAF1	3.57786021	0.00019855
ENSG00000137959	IFI44L	3.56620595	0.00405956
ENSG00000106780	MEGF9	3.50812058	0.00020506
ENSG00000110876	SELPLG	3.45149629	3.725E-05
ENSG00000119917	IFIT3	3.41478814	0.00578098
ENSG00000157601	MX1	3.40051191	0.00273973
ENSG00000093072	ADA2	3.30929409	0.00035785
ENSG00000137628	DDX60	3.26174787	0.00017728
ENSG00000119922	IFIT2	3.15400711	0.00698448
ENSG00000096968	JAK2	3.1171167	4.002E-05
ENSG00000183486	MX2	3.0908071	0.00012058
ENSG00000203747	FCGR3A	3.05824159	0.00908083
ENSG00000185745	IFIT1	3.04472512	0.00769807
ENSG00000092964	DPYSL2	3.03157003	0.00036453
ENSG00000179583	CIITA	2.97329048	3.69E-05
ENSG00000178927	C17orf62	2.95098495	0.00011008
ENSG00000146192	FGD2	2.94266455	3.69E-05
ENSG00000171115	GIMAP8	2.91127768	0.00035769
ENSG00000121858	TNFSF10	2.90815474	0.00085748
ENSG00000101347	SAMHD1	2.8875798	0.00020568
ENSG00000107551	RASSF4	2.86741339	0.00020286
ENSG00000133706	LARS	2.85358246	0.00024204
ENSG00000157637	SLC38A10	2.83559968	4.0167E-05
ENSG00000105483	CARD8	2.82180872	0.00010905
ENSG00000134321	RSAD2	2.8216868	0.00044978
ENSG00000166801	FAM111A	2.82114926	4.0167E-05

ENSG00000133574	GIMAP4	2.80831292	0.00205538
ENSG00000005020	SKAP2	2.80342257	0.00011131
ENSG00000107201	DDX58	2.79847046	7.6564E-05
ENSG00000139970	RTN1	2.79625262	0.00161234
ENSG00000143624	INTS3	2.76935299	0.00025431
ENSG00000135218	CD36	2.7687755	0.00441468
ENSG00000121807	CCR2	2.76812231	0.00459916
ENSG00000134326	CMPK2	2.76441331	7.007E-05
ENSG00000124491	F13A1	2.76137384	0.0436662
ENSG00000038427	VCAN	2.76089778	0.00031344
ENSG00000139278	GLIPR1	2.75148728	3.69E-05
ENSG00000188641	DPYD	2.7460871	0.00016589
ENSG00000160593	JAML	2.73785141	1.5464E-05
ENSG00000129003	VPS13C	2.72450583	0.00042793
ENSG00000177575	CD163	2.7119008	0.00130504
ENSG00000101336	HCK	2.69647494	4.6204E-05
ENSG00000196975	ANXA4	2.68121227	0.00013137
ENSG00000143546	S100A8	2.67257265	0.00020529
ENSG00000133835	HSD17B4	2.66258299	5.2951E-05
ENSG00000103381	CPPED1	2.65717733	0.00031447
ENSG00000181381	DDX60L	2.6567232	0.00050571
ENSG00000105953	OGDH	2.64511854	0.00021448
ENSG00000130449	ZSWIM6	2.63544798	7.2413E-05
ENSG00000187608	ISG15	2.62966453	0.00010145
ENSG00000165168	CYBB	2.62649243	0.00017515
ENSG00000163683	SMIM14	2.584365	0.00013629
ENSG00000215458	AATBC	2.57203412	5.6247E-05
ENSG00000196209	SIRPB2	2.55920596	0.00116963
ENSG00000073849	ST6GAL1	2.550513	0.00048075
ENSG00000249437	NAIP	2.54772158	0.03856131
ENSG00000138119	MYOF	2.52298352	0.00116629
ENSG00000133106	EPSTI1	2.51730507	0.00024243
ENSG00000163563	MNDA	2.51154611	0.00019527
ENSG00000240065	PSMB9	2.49985703	0.00043175
ENSG00000134256	CD101	2.49461745	0.00672014
ENSG00000185722	ANKFY1	2.4915029	0.00017719
ENSG00000006756	ARSD	2.456905	0.00034289
ENSG00000068079	IFI35	2.45084083	0.00011131
ENSG00000102524	TNFSF13B	2.4295903	0.00016701
ENSG00000110665	C11orf21	2.42600156	4.3201E-05
ENSG00000142405	NLRP12	2.42233631	0.0011604
ENSG00000213203	GIMAP1	2.40060946	0.00029261

ENSG00000250138	AC139495.3	2.39948877	0.00070469
ENSG00000127954	STEAP4	2.39860441	0.02252014
ENSG00000138246	DNAJC13	2.38403223	0.00029419
ENSG00000178685	PARP10	2.38363732	1.8312E-05
ENSG00000128872	TMOD2	2.38333014	0.00011131
ENSG00000163565	IFI16	2.37871911	5.9604E-05
ENSG00000165092	ALDH1A1	2.36838002	0.00200702
ENSG00000149131	SERPING1	2.36410268	0.0017831
ENSG00000100364	KIAA0930	2.3531638	7.9831E-05
ENSG00000135636	DYSF	2.35302925	0.00056476
ENSG00000126709	IFI6	2.35060464	0.00045242
ENSG00000111961	SASH1	2.34814151	0.04833761
ENSG00000050344	NFE2L3	2.33003379	5.9604E-05
ENSG00000142089	IFITM3	2.32819656	0.00076829
ENSG00000146592	CREB5	2.32706132	0.00069182
ENSG00000119638	NEK9	2.32309385	8.2108E-05
ENSG00000140575	IQGAP1	2.30892835	0.00026643
ENSG00000105967	TFEC	2.30676328	8.2108E-05
ENSG00000081189	MEF2C	2.29629681	0.00037032
ENSG00000142687	KIAA0319L	2.28793993	0.0002003
ENSG00000137965	IFI44	2.27380106	0.00211031
ENSG00000138413	IDH1	2.27237293	0.00056064
ENSG00000168310	IRF2	2.27032454	0.00101781
ENSG00000229754	CXCR2P1	2.26268149	0.0008627
ENSG00000106785	TRIM14	2.26268053	0.00011864
ENSG00000135709	KIAA0513	2.26070245	0.00011131
ENSG00000140749	IGSF6	2.25914668	0.00110115
ENSG00000188554	NBR1	2.24022924	0.00011131
ENSG00000058668	ATP2B4	2.23782734	0.00196697
ENSG00000165071	TMEM71	2.22947868	0.00013137
ENSG00000175567	UCP2	2.2209786	0.00179198
ENSG00000031081	ARHGAP31	2.21924073	0.00241362
ENSG00000133943	DGLUCY	2.21857708	4.0167E-05
ENSG00000187554	TLR5	2.21767842	0.00029084
ENSG00000188404	SELL	2.21406286	0.00152087
ENSG00000102189	EEA1	2.21309813	0.00046523
ENSG00000180357	ZNF609	2.21122874	6.6556E-05
ENSG00000138646	HERC5	2.21122579	0.00014889
ENSG00000103313	MEFV	2.20838651	0.00024218
ENSG00000139687	RB1	2.20778929	9.703E-05
ENSG00000115232	ITGA4	2.1977504	0.00066046
ENSG00000081087	OSTM1	2.18697561	5.2951E-05

ENSG00000115155	OTOF	2.17916828	0.04578118
ENSG00000110077	MS4A6A	2.17144347	0.00035769
ENSG00000173821	RNF213	2.16238113	0.00043225
ENSG00000198734	F5	2.15850947	0.00025416
ENSG00000198951	NAGA	2.1583494	0.00023076
ENSG00000150867	PIP4K2A	2.15794943	0.00017634
ENSG00000071967	CYBRD1	2.15624005	0.00158569
ENSG00000074706	IPCEF1	2.15391304	0.00079352
ENSG00000166326	TRIM44	2.15103466	0.00011131
ENSG00000121210	TMEM131L	2.15055037	0.00080531
ENSG00000108771	DHX58	2.12712832	0.00088319
ENSG00000112367	FIG4	2.11750045	2.6941E-05
ENSG00000165672	PRDX3	2.11413223	0.00011131
ENSG00000138756	BMP2K	2.10876117	0.00014473
ENSG00000183023	SLC8A1	2.10770505	0.00140107
ENSG00000161929	SCIMP	2.10518218	0.00054607
ENSG00000082996	RNF13	2.1003053	0.00042489
ENSG00000107099	DOCK8	2.09599002	0.00042323
ENSG00000025708	TYMP	2.09573646	0.00353048
ENSG00000160551	TAOK1	2.0948519	0.00031447
ENSG00000163946	FAM208A	2.08670497	0.00025562
ENSG00000179144	GIMAP7	2.08182365	0.01499835
ENSG00000138496	PARP9	2.07771882	0.00058507
ENSG00000135838	NPL	2.07449096	0.00096657
ENSG00000173083	HPSE	2.06771702	0.00112582
ENSG00000119321	FKBP15	2.06242754	0.00027781
ENSG00000166927	MS4A7	2.06134147	0.00363434
ENSG00000143970	ASXL2	2.05713821	0.0002004
ENSG00000124942	AHNAK	2.05330381	0.00037122
ENSG00000145246	ATP10D	2.04835108	0.00039682
ENSG00000149311	ATM	2.04810493	3.69E-05
ENSG00000165476	REEP3	2.04794403	0.0002967
ENSG00000133561	GIMAP6	2.04177072	0.00071202
ENSG00000163220	S100A9	2.03585241	0.00044987
ENSG00000084733	RAB10	2.03363615	0.0001934
ENSG00000197043	ANXA6	2.02891787	0.0074927
ENSG00000100342	APOL1	2.02806304	0.00710375
ENSG00000088986	DYNLL1	2.02678083	3.69E-05
ENSG00000180370	PAK2	2.02592389	0.00021444
ENSG00000073969	NSF	2.02382863	0.00021098
ENSG00000133313	CNDP2	2.02318759	0.00070469
ENSG00000129566	TEP1	2.02316324	0.00094714

ENSG00000170006	TMEM154	2.02228185	0.00033278
ENSG00000128815	WDFY4	2.01621146	0.0007939
ENSG00000280153	AC133065.6	2.01591236	0.00098903
ENSG00000130589	HELZ2	2.01531518	0.00059211
ENSG00000203710	CR1	2.00968798	0.00167253
ENSG00000111269	CREBL2	1.99637291	0.0004298
ENSG00000160216	AGPAT3	1.9931901	0.00080171
ENSG00000188906	LRRK2	1.99158214	0.00021321
ENSG00000168010	ATG16L2	1.99121182	0.00011877
ENSG00000040933	INPP4A	1.99048334	8.82E-05
ENSG00000186088	GSAP	1.98529176	0.00022632
ENSG00000123213	NLN	1.98353142	0.01069252
ENSG00000122986	HVCN1	1.98183554	0.00017899
ENSG00000135457	TFCP2	1.97973391	5.9604E-05
ENSG00000136485	DCAF7	1.97954393	0.0003913
ENSG00000065413	ANKRD44	1.97584367	3.4895E-05
ENSG00000131374	TBC1D5	1.97247733	0.00033575
ENSG00000084070	SMAP2	1.97215259	0.00518494
ENSG00000155957	TMBIM4	1.97188602	4.9812E-05
ENSG00000169220	RGS14	1.9697004	5.9265E-05
ENSG00000104133	SPG11	1.96773469	8.698E-05
ENSG00000116237	ICMT	1.96760299	5.4121E-05
ENSG00000145416	MARCH1	1.96445135	0.00108021
ENSG00000198585	NUDT16	1.96325971	0.00025638
ENSG00000153936	HS2ST1	1.96273796	5.4121E-05
ENSG00000137752	CASP1	1.95801983	0.00041379
ENSG00000133216	EPHB2	1.94999142	0.00037151
ENSG00000158517	NCF1	1.9496836	0.00084495
ENSG00000197548	ATG7	1.94397589	0.00018547
ENSG00000121281	ADCY7	1.93336445	0.00041634
ENSG00000170581	STAT2	1.93316979	0.00175064
ENSG00000151466	SCLT1	1.93308209	0.00075271
ENSG00000145287	PLAC8	1.93174465	0.00184434
ENSG00000166888	STAT6	1.93017847	0.00051901
ENSG00000136040	PLXNC1	1.92853493	0.00025416
ENSG00000156587	UBE2L6	1.92681789	0.00130163
ENSG00000122694	GLIPR2	1.92658528	0.00020061
ENSG00000226137	BAIAP2-AS1	1.92619115	0.00170844
ENSG00000136631	VPS45	1.92511228	0.00010269
ENSG00000166272	WBP1L	1.92179463	0.00031743
ENSG00000107929	LARP4B	1.91918736	0.00013762
ENSG00000090863	GLG1	1.90303374	3.69E-05

ENSG00000010810	FYN	1.90139286	0.00012627
ENSG00000072501	SMC1A	1.90091004	0.00024409
ENSG00000093144	ECHDC1	1.90087661	0.00020061
ENSG00000155660	PDIA4	1.89991655	5.8839E-05
ENSG00000150681	RGS18	1.89711599	0.00022322
ENSG00000104974	LILRA1	1.89627793	0.00225028
ENSG00000198771	RCSD1	1.89415863	0.00013674
ENSG00000105501	SIGLEC5	1.89344721	0.0002242
ENSG00000103479	RBL2	1.88225062	0.00011163
ENSG00000091106	NLRC4	1.88025166	0.00037654
ENSG00000103335	PIEZO1	1.87511955	0.00136249
ENSG00000010292	NCAPD2	1.869991	0.00013089
ENSG00000008130	NADK	1.86881805	0.000305
ENSG00000162946	DISC1	1.86805719	0.00253017
ENSG00000138640	FAM13A	1.86643031	0.00278912
ENSG00000140090	SLC24A4	1.86540488	8.2108E-05
ENSG00000129675	ARHGEF6	1.85487557	0.00021321
ENSG00000157827	FMNL2	1.85417167	0.00017617
ENSG00000110031	LPXN	1.84675535	0.00058189
ENSG00000112419	PHACTR2	1.83062034	0.0002053
ENSG00000137478	FCHSD2	1.82957906	0.00059545
ENSG00000020577	SAMD4A	1.82723663	6.8112E-05
ENSG00000166197	NOLC1	1.82686298	0.00019633
ENSG00000181192	DHTKD1	1.82658412	0.00095394
ENSG00000164054	SHISA5	1.82575246	0.00014848
ENSG00000171853	TRAPPC12	1.82407323	0.00038272
ENSG00000134996	OSTF1	1.82067029	0.0001277
ENSG00000132182	NUP210	1.81876085	0.0006356
ENSG00000184979	USP18	1.81821607	0.00018668
ENSG00000154930	ACSS1	1.81709923	0.00043615
ENSG00000167220	HDHD2	1.81576718	0.0001277
ENSG00000159339	PADI4	1.8129343	0.00127516
ENSG00000151702	FLI1	1.81161047	0.00062992
ENSG00000250510	GPR162	1.81124772	0.00281025
ENSG00000166928	MS4A14	1.80676496	0.00387978
ENSG00000213648	SULT1A4	1.80594935	0.00220992
ENSG00000177853	ZNF518A	1.80539933	0.00031839
ENSG00000145703	IQGAP2	1.80357672	0.00900436
ENSG00000120594	PLXDC2	1.79914964	0.00207841
ENSG00000121691	CAT	1.79908906	0.00030322
ENSG00000132256	TRIM5	1.79834867	0.00041435
ENSG00000064763	FAR2	1.79614448	0.0001848

ENSG00000197629	MPEG1	1.79410737	0.00348206
ENSG00000108389	MTMR4	1.79292546	4.0167E-05
ENSG00000258659	TRIM34	1.78714573	1.5464E-05
ENSG00000101346	POFUT1	1.78666583	0.00019592
ENSG00000263528	IKBKE	1.78215843	0.00013089
ENSG00000133816	MICAL2	1.77999999	0.00965276
ENSG00000105281	SLC1A5	1.77845426	0.00096657
ENSG00000138449	SLC40A1	1.77795244	0.00044978
ENSG00000185885	IFITM1	1.77549121	0.00195944
ENSG00000164808	SPIDR	1.77402505	4.6204E-05
ENSG00000164414	SLC35A1	1.76140878	6.077E-05
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ENSG00000168066	SF1	-1.5711265	0.00248889
ENSG00000160179	ABCG1	-1.5694762	0.00069117
ENSG00000064961	HMG20B	-1.5673559	0.00040591
ENSG00000154124	OTULIN	-1.5673035	0.00123872

ENSG00000181222	POLR2A	-1.566575	0.00159885
ENSG00000076108	BAZ2A	-1.5661032	0.00076885
ENSG00000076604	TRAF4	-1.5658535	0.01836102
ENSG00000074416	MGLL	-1.5650616	0.02306784
ENSG00000159082	SYNJ1	-1.5626197	0.00604553
ENSG00000153561	RMND5A	-1.5626103	0.00119944
ENSG00000186469	GNG2	-1.5612618	0.01606603
ENSG00000152700	SAR1B	-1.5608848	0.00029457
ENSG00000239857	GET4	-1.559559	0.0017433
ENSG00000113712	CSNK1A1	-1.5593144	0.00022731
ENSG00000260708	AL118516.1	-1.5586566	0.00633623
ENSG00000102007	PLP2	-1.5573676	0.00035647
ENSG00000112033	PPARD	-1.5559943	0.00175002
ENSG00000147439	BIN3	-1.555449	0.00188738
ENSG00000198833	UBE2J1	-1.5532614	0.00794965
ENSG00000137817	PARP6	-1.5530293	0.00011008
ENSG00000105968	H2AFV	-1.5522882	0.00025717
ENSG00000117614	SYF2	-1.5513175	8.5435E-05
ENSG00000155508	CNOT8	-1.5510955	0.001272
ENSG00000162923	WDR26	-1.5504078	0.00013674
ENSG00000116285	ERRFI1	-1.5503939	0.00773351
ENSG00000164169	PRMT9	-1.5500579	0.00051771
ENSG00000113575	PPP2CA	-1.5499641	0.00062165
ENSG00000197780	TAF13	-1.5496012	0.00091009
ENSG00000262246	CORO7	-1.5483429	0.00958444
ENSG00000166233	ARIH1	-1.5479744	0.00015176
ENSG00000244486	SCARF2	-1.5463953	0.0210235
ENSG00000128989	ARPP19	-1.5457656	0.00077102
ENSG00000164543	STK17A	-1.5455914	0.0392918
ENSG00000131759	RARA	-1.5448456	0.01590993
ENSG00000276107	AC037198.2	-1.5440499	0.00238135
ENSG00000139636	LMBR1L	-1.5439465	0.00464824
ENSG00000167604	NFKBID	-1.5436091	0.00256234
ENSG00000197405	C5AR1	-1.542184	0.00477562
ENSG00000070495	JMJD6	-1.5394051	0.0030835
ENSG00000092847	AGO1	-1.5393011	0.00526619
ENSG00000105821	DNAJC2	-1.5391475	0.00675342
ENSG00000119048	UBE2B	-1.5368156	0.00043714
ENSG00000156671	SAMD8	-1.5360163	0.00349533
ENSG00000139505	MTMR6	-1.5350177	0.00115962
ENSG00000164548	TRA2A	-1.5338747	0.00011163
ENSG00000029993	HMGB3	-1.5316349	0.01029999

ENSG00000185947	ZNF267	-1.5298207	0.00454279
ENSG00000273356	LINC02019	-1.5292778	0.00119944
ENSG00000141985	SH3GL1	-1.5280713	0.00588359
ENSG00000128272	ATF4	-1.5280042	5.2951E-05
ENSG00000172216	CEBPB	-1.527772	0.02014986
ENSG00000158669	GPAT4	-1.5268625	0.00166041
ENSG00000188070	C11orf95	-1.5266466	0.02506593
ENSG00000111252	SH2B3	-1.5263865	0.00860229
ENSG00000065357	DGKA	-1.5260897	0.0002973
ENSG00000167671	UBXN6	-1.5259656	0.00109223
ENSG00000169905	TOR1AIP2	-1.5249436	0.00597502
ENSG00000147119	CHST7	-1.5236811	0.00789381
ENSG00000167034	NKX3-1	-1.5236105	0.00062255
ENSG00000161638	ITGA5	-1.5223195	4.6944E-05
ENSG00000154359	LONRF1	-1.5210642	0.00063116
ENSG00000143067	ZNF697	-1.5168708	7.6536E-05
ENSG00000230551	AC021078.1	-1.5167031	0.00229423
ENSG00000166974	MAPRE2	-1.5133908	0.00017899
ENSG00000179119	SPTY2D1	-1.512944	0.00042489
ENSG00000067596	DHX8	-1.512099	0.00033588
ENSG00000137876	RSL24D1	-1.5114195	0.00105092
ENSG00000137947	GTF2B	-1.510406	0.00011985
ENSG00000108669	CYTH1	-1.505954	0.00110115
ENSG00000149782	PLCB3	-1.5047599	0.00626591
ENSG00000144711	IQSEC1	-1.50364	0.0020674
ENSG00000133794	ARNTL	-1.5018533	0.00050819
ENSG00000067900	ROCK1	-1.5006315	0.00019992

Appendix Table S5. Reagents and Tools Table

Reagent/Resource	Reference or Source	Identifier or Catalog Number
Experimental Models		
C57BL/6 Tyk2-/- mice	Dr. M. Müller, Viena, Austria	
C57BL/6 mice	Jackson Lab.	
K562-GFP line cell	NIH Reagent Program	116799
Recombinant DNA		
Antibodies		
Anti-human CD3	Biolegend	300327
Anti-human CD19	Biolegend	363015
Anti-human CD20	Biolegend	302325
Anti-human CD56	Biolegend	362505
Anti-human CD14	BD Bioscience	557831
Anti-human CD16	Biolegend	302021
Anti-human CD56	Biolegend	362524
Anti-human HLA-DR	Biolegend	307623
Anti-human CD11c	Biolegend	301625
Anti-human MICA/B	Biolegend	320912
Anti-human CD40	Biolegend	334306
Anti-human CD86	Biolegend	374210
Anti-human IFNγ	Biolegend	554551
Anti-human CD141	Biolegend	344105
Anti-human TNFa	Biolegend	502923
Anti-human CD107a	Biolegend	328620
Anti-human CD1c	Biolegend	331515
Anti-human CD64	Biolegend	305131
Anti-human ULBP1	RyD systems	FAB1380P
Anti-human CD1c	BD Bioscience	564900
Anti-human PCNA	Biolegend	307904
Streptavidin	BD Bioscience	561419
Anti-human HLADR	Biolegend	307618
Anti-human CD3	Biolegend	300317
Anti-human CD19	Biolegend	302217
Anti-human NKG2A	RyD Systems	FAB1059C-025
Anti-human NKG2D	Biolegend	320819

Anti-human NKp30	Biolegend	325213
Anti-human PD-L1	Biolegend	329721
Anti-human CD14	Biolegend	367113
Anti-human CD123	BD Bioscience	560087
Anti-human CD86	Biolegend	305427
Anti-human CD16	Biolegend	302045
Ghost DyeTM	Tonbo Biosciences	13-0865-T100
Yellow fluorescent reactive dye	Invitrogen	L34959 A
Anti-mouse MHCII	Biolegend	107652
Anti-mouse CD3	Tonbo Biosciences	35-0031
Anti-mouse CD11b	Tonbo Biosciences	75-0112
Anti-mouse CD27	Biolegend	124216
Anti-mouse NK1.1	Tonbo Biosciences	50-5941
Anti-mouse CD45.2	eBioscience	17-0454-81
Anti-mouse CD64	BD Bioscience	558539
Anti-mouse MHCII	BD Bioscience	553623
Anti-mouse CD11c	BD Bioscience	565452
Anti-mouse CD11b	eBioscience	25-0112-81
Anti-mouse XCR1	Biolegend	148224
Anti-mouse Ly6C	BD Bioscience	560525
Anti-mouse CD3	BD Bioscience	563123
Anti-mouse CD107a	Biolegend	121610
Anti-mouse IFNγ	eBioscience	11-7311-82
Anti-mouse CD45.2	BD Bioscience	563686
Anti-mouse NKG2D	ThermoFisher	46-5882-82
Anti-mouse RAE-1	Biolegend	748218
Goat anti-human MICa/b	RyD Systems	MAB13001
Human IL-15 Antibody	RyD - Biotechne	MAB2471-100
IgG2b Isotype Control	BioLegend	402202
IgG1 Isotype Control	BioLegend	401402
Violet Cell Proliferation Tracker	ThermoFisher	C34557
Mouse anti-human CD56	Invitrogen	MA1-06801
Goat anti-human CD56	RyD Systems	AF2408
Mouse anti-human CD1c	abcam	Ab156708
Rabbit anti-human HLA Class II	abcam	Ab133578
Rat anti-human CD19	Invitrogen	14-0194-80
Goat anti-human IL-17a	RyD Systems	AF-317-SP
Goat anti-human MICa/b	RyD Systems	MAB13001

Granzyme B antibody	Thermo Fisher	14-8889-80
Donkey anti-rabbit AF488	Thermo Fisher	R37118
Donkey anti-goat AF488	Thermo Fisher	A-11055
Donkey anti-rat AF594	Jackson ImmunoResearch	712-586-150
Donkey anti-goat AF568	Thermo Fisher	A-11057
Donkey anti-goat AF647	Thermo Fisher	A-21447
Donkey anti-mouse AF647	Thermo Fisher	A-31571
Rabbit anti-mouse PAX5 antibody	Abcam	Ab109443
Oligonucleotides and other sequence-based reagents		
Human DDX60	This study	Methods
Human DDX58 (RIG-I)	This study	Methods
Human IFIT1	This study	Methods
Human STAT1	This study	Methods
Human IL-15	This study	Methods
Human DDX60 siRNA SMART pool	Dharmacon	L-017664-01-0005
Human DDX58 (RIG-I) siRNA SMART pool	Dharmacon	L-012511-00-0005
Human IFIT1 siRNA SMART pool	Dharmacon	L-019616-00-0005
Human STAT1 *siRNA SMART pool*	Dharmacon	L-003543-00-0005
Chemicals, Enzymes and other reagents		
Polyinosinic-polycytidylic acid sodium salt (poly I:C)	Merck- Sigma	P1530
Brefeldin A	Sigma-Aldrich (Merck)	B7651
Monensin	Sigma-Aldrich (Merck)	
Liberase TL	Roche	5401020001
DNAase I	Roche	11284932001
Pilocarpine hydrochloride	Sigma-Aldrich (Merck)	54-71-7
Ketamina 100 mg/ml	Pfizer	47034
Xilacina 20mg/ml	CALIER	Ref. 20100-005
Anti-PE MicroBeads	Miltenyi Biotec	130-048-801
Easy step human NK cell Isolation Kit	Stemcell	17955
Easy step™ human myeloid DC enrichment kit	Stemcell	19061
CD11c MicroBeads UltraPure, mouse	Miltenyi Biotec	130-108-338
PMA	Sigma Aldrich (Merck)	P1585
Ionomicin	Sigma Aldrich (Merck)	I0634-1MG
Software		
QuPath v0.4.3		
FlowJo v10		
Image J		
Gradpad Prism 9.0		

Other		
Illumina NextSeq	San Diego, CA	
Zeiss microscopy		
Leica TCS SP5 confocal	Leica	