# SUPPLEMENTAL INFORMATION

## Ancestry-based differences in the immune phenotype are associated with lupus activity

**Authors:** Samantha Slight-Webb[†1], Kevin Thomas[†1,2], Miles Smith[1], Susan Macwana[1], Aleksandra Bylinska[1,2], Michele Donato[3,4], Mai Dvorak[3,4], Sarah Chang[3], Alex Kuo[5], Peggie Cheung[5], Laurynas Kalesinskas[3,4], Ananthakrishnan Ganesan[3,4], Denis Dermadi[3,4], Carla Guthridge[1], Wade Dejager[1], Christian Wright[1], Mariko Foecke[5], Joan T. Merrill[1], Eliza Chakravarty[1], Cristina Arriens[1,2], Holden T. Maecker[6], Purvesh Khatri[3,4], Paul J. Utz[5], Judith A. James[1,2‡], Joel M. Guthridge[1,2‡*]

**Affiliations:**
[1]Department of Arthritis and Clinical Immunology, Oklahoma Medical Research Foundation; Oklahoma City, OK, 73104, USA.

[2]Departments of Medicine and Pathology, University of Oklahoma Health Sciences Center; Oklahoma City, OK, 73104, USA.

[3]Institute for Immunity, Transplantation and Infection, Stanford University School of Medicine; Stanford, CA, 94305, USA.

[4]Center for Biomedical Informatics Research, Department of Medicine, Stanford University School of Medicine; Stanford, CA, 94305, USA.

[5]Division of Immunology and Rheumatology, Stanford University School of Medicine; Stanford, CA, 94305, USA.

[6]Institute for Immunity, Transplantation and Infection, Stanford University School of Medicine; Stanford, CA, 94305, USA.

†These authors contributed equally to the work.
‡ These authors jointly supervised this work.

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*Corresponding Author:
Joel M Guthridge, PhD
Arthritis and Clinical Immunology
Oklahoma Medical Research Foundation
825 N.E. 13th Street
Oklahoma City, OK 73104
Phone: (405) 271-4987
Fax: (405) 271-7063
Email: Joel-Guthridge@omrf.org

## SUPPLEMENTAL METHODS

**Single Cell RNA sequencing (scRNA-seq).** PBMCs were thawed at 37$^o$C and resuspended in complete RPMI supplemented with 5 U/mL benzonase. Complete RPMI consists of RPMI media 10% FBS, 100 U/mL Penicillin, 100 U/mL Streptomycin, and 2 mM glutamine. PBMCs were washed once in this media and resuspended in complete RPMI supplemented with benzonase and 3 µM actinomycin D. PBMCs were depleted of T cells and any remaining erythrocytes using CD2 and CD235a MicroBeads (Miltenyi Biotec). Depletion was carried out according to protocol by Miltenyi Biotec with MACS buffer supplemented with 3 µM actinomycin D.

### *CITE-seq and Cell Hashing*

Approximately two million post-depletion PBMCs from each sample were stained with a panel of oligo-tagged antibodies following CITE-seq and Cell Hashing as detailed by the New York Genome Center (NYGC); separately, one million NIH/3T3 cells (ATCC CRL-1658) were stained with the same antibody panel as a negative control. Staining buffer was supplemented with 3 µM actinomycin D, and the CITE-seq antibody panel consisted of TotalSeq-A antibodies (BioLegend) or were conjugated in house using the Thunder-Link® PLUS oligo antibody conjugation kit (Novus Biologicals). A full list of antibodies can be found in Figure 1 panel C. Cells were stained with 0.1 µg of each CITE-seq antibody in a total of 100 ul staining buffer. Cell hashing antibodies were also obtained from BioLegend. Cell numbers and viability were obtained on a Nexcelom Cellometer Auto 2000 using acridine orange/propidium iodine staining. Cells from 4-5 samples were combined with 3% NIH 3T3 cells in batches to a target total of 16,000 – 20,000 cells immediately before encapsulation.

### *Encapsulation, Library generation, and Sequencing*

Cells were captured and encapsulated using the Chromium Single Cell 3’ Gene Expression system, v2 (10X Genomics). Libraries for sequencing were prepared according to the manufacturer’s protocol (revision F); separately, CITE-seq and hashing libraries were prepared according to the CITE-seq and cell hashing protocol (version 2019-02-13). Gene expression, CITE-seq, and hashing libraries were pooled at an 85/10/5 mass ratio. Each library set was sequenced in a NextSeq HO PE75 lane according to recommendations by 10X Genomics and the NYGC to target approximately 50,000 reads per cell. Additional sequencing for runs 3a-5b was performed on one lane of a NovaSeq S4 PE150. All sequencing was performed by the OMRF Clinical Genomics Core.

### *Preprocessing*

Raw sequencing data was processed using the Cell Ranger v5.0.0 analysis pipeline on the OMRF High Performance Compute cluster. Sequences were aligned to the chimeric mm10 GRCh38 reference available from 10x Genomics (2020-A). Separate feature-cell matrices for gene expression and antibody feature libraries were generated for each sample pool. These matrices were further processed in R (4.1.1) using a custom pipeline running on the Google Cloud Engine platform. Ambient RNA was identified and removed using SoupX (1.5.2) (1). This was done separately for each sample pool using the set of hemoglobin genes to estimate contamination before assembling all batches into a single object with Seurat (4.0.4) (2). Mouse cells were separated from human cells in each batch by visual gating on biaxial plots of counts aligned to human and mouse genomes (Figure S10A). Assignment of hashtag IDs for sample deconvolution was done by applying two demultiplexing algorithms, HTODemux (Seurat) and MULTISeqDemux (DeMULTIplex [1.0.2] (3)), to the human cells in each batch and choosing the assignment based on which method gave the highest proportion of singlets (Figure S10B). After selection of identifiable singlets, quality control cutoffs for number of genes per cell and percent mitochondrial counts were set across all batches at 40 and 25%, respectively (Figure S10C).

### *Analysis*

After preprocessing and quality control steps, the cells were scored for differences in the immunoglobulin heavy chain and light chain constant genes. These differences were regressed out along with mitochondrial content and hemoglobin content during normalization and scaling by SCTransform (Seurat). This was done to prevent B cell subsets from separating solely on the large differences between highly expressed immunoglobulin genes. CITEseq data for epitope expression was independently normalized with the dsb (denoised and scaled by background) package (0.2.0) (4), using the discarded mouse cells for background levels of all antibody barcodes. Principal component analysis (PCA) was performed on normalized gene expression and epitope matrices to generate dimensional reductions, and harmony (0.1.0) (5) was performed on both of these PCA reductions to eliminate batch effects. Batch-corrected PCAs of gene expression and epitope multimodal data were integrated using Seurat’s weighted nearest neighbor (WNN) analysis (2), with the number of PCs of each modality selected visually by the elbow method. Uniform manifold approximation and projection (UMAP) and clustering by the Leiden algorithm were performed on this weighted nearest neighbor network to generate an initial mapping of the dataset.

Resolution was selected based on the best separation of canonical cell type markers. Clusters were annotated by hand, with top gene and surface epitope markers generated by Wilcoxon rank sum tests. The two major populations of interest, B cells and myeloid cells, were isolated for further manual adjudication and quality control. These populations were re-analyzed independently of other cells, and clusters with canonical gene/epitope expression indicating doublets with low counts or large amounts of ambient RNA contamination were removed. Additionally, clusters that expressed high levels of hemoglobin transcripts or megakaryocytic genes were also removed from the final analysis. After manual quality control, a total of 88,053 cells were analyzed. Clusters were manually annotated by expression of canonical genes and epitopes, clusters smaller than 10 cells were merged into their nearest neighbors, and clusters containing multiple identifiable subpopulations were subclustered.

### *Gene Expression Analysis*

Differential expression of genes and epitopes between clusters (marker identification) was performed using Wilcoxon rank sum tests of the normalized expression values of genes and antibody tags. These identified markers by comparing each cluster to all other cells in the dataset. Benjamini-Hochberg correction for multiple comparisons was performed, with a cutoff threshold of 0.1.

Expression of interferon gene modules at the single-cell level was calculated using Seurat’s AddModuleScore function. These gene modules were previously identified and annotated as interferon response signatures in previous work (6, 7).

Within each cluster, differential expression of genes between study groups was carried out by Model-based Analysis of Single-cell Transcriptomics (MAST) (8). This package fits two-part linear models specifically adapted for single-cell gene expression data. Comparisons were done to contrast two study groups at a time, with a total of 12 comparisons total: all SLE INACT vs all Control, all SLE ACT vs all Control, all SLE ACT vs all SLE INACT, Black Control vs White Control, Black SLE INACT vs White SLE ACT, Black SLE ACT vs White SLE ACT, Black SLE INACT vs Black Control, Black SLE ACT vs Black Control, Black SLE ACT vs Black SLE INACT, White SLE INACT vs White Control, White SLE ACT vs White Control, White SLE ACT vs White SLE INACT. Each comparison was filtered for genes expressed in at least 5 percent of cells (a minimum of 10 cells) in one of the compared groups. For the models, fixed effect terms were included for the per-cell gene detection rate, batch, and race (as a blocking variable, for applicable comparisons). A random effect term was included for the subject identifier.

### *Ingenuity® Pathway Analysis*

Results from the differential expression testing of each comparison by MAST were used as input to individual core analyses in Qiagen's Ingenuity® Pathway Analysis (IPA). Genes from each comparison were filtered on a p-value less than 0.05 to provide the broadest possible analysis of differentially expressed genes. Depending on the cluster and comparison, these analyses included between 12 and 1360 molecules, with a median of 119 molecules. Upstream Regulator and Function Annotation results were displayed as networks connecting DEGs to the terms of interest. Results from comparison analyses are shown as heatmaps or tables of activation z-scores.

### Second phenotype cohort using a PBMC CYTOF dataset

This experiment was performed in accordance with the Helsinki Declaration and approved by the Institutional Review Board of the Oklahoma Medical Research Foundation. ANA-healthy controls and SLE patients were divided and analyzed by race and disease activity, which was self-reported and verified using genetic ancestry informative markers (AIMs) (9). SLE patients were divided by disease activity into either high (SLEDAI ≥4) or low disease activity (SLEDAI <4). Individuals were matched across 6 ancestry/disease groups (White Control, White SLE INACT, White SLE ACT, Black Control, Black SLE INACT, Black SLE ACT) by sex, age ± 5 years, and medication use. Black SLE and White SLE patients were also matched by disease activity using SELENA-SLEDAI (10). SLE patients fulfilled the American College of Rheumatology (ACR) and SLICC criteria for SLE classification (11). Peripheral blood mononuclear cells (PBMCs) were isolated using Lymphocyte Separation Medium (Mediatech, Inc. Manassas, VA) and stored in freezing media (20% human serum and 10% DMSO in RPMI) in liquid nitrogen until use.

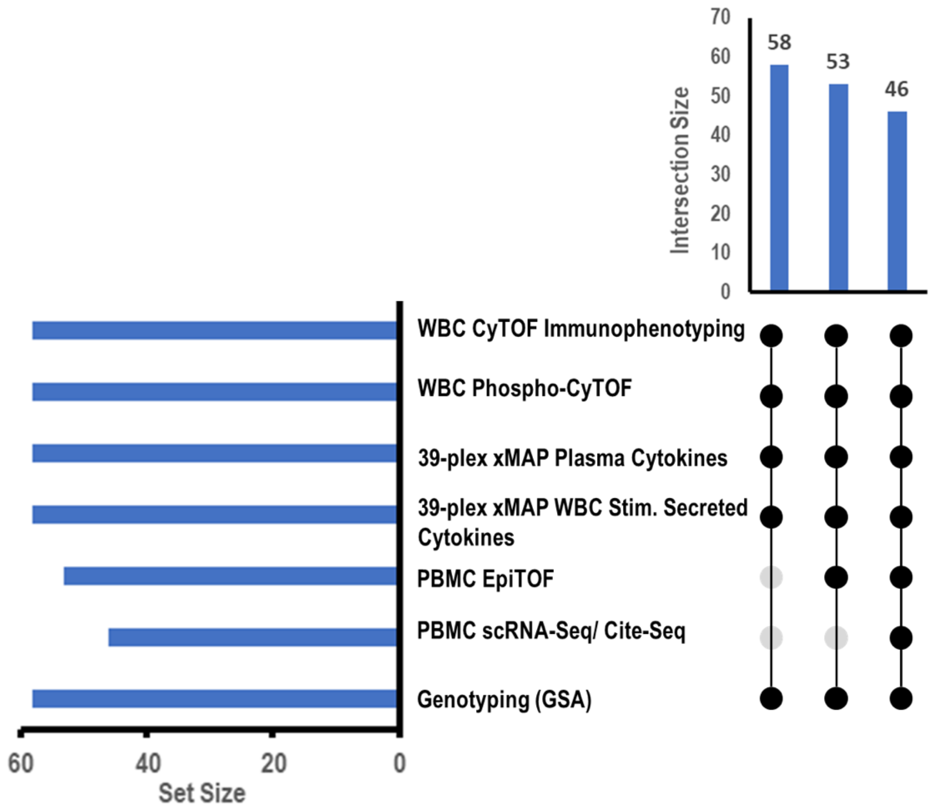
Assays were performed in the Human Immune Monitoring Center at Stanford University. Antibody clones, staining protocols, and gating strategies are previously described(12). Briefly, PBMCs were thawed, washed, and resuspended in CyFACS buffer (PBS supplemented with 2% BSA, 2 mM EDTA, and 0.1% sodium azide), and viable cells were counted by Vicell. Viable cells (1.5 million cells/well) were stained with antibody-polymer conjugate cocktail (Supplemental Table 9). All antibodies were unconjugated and carrier free, and conjugated using polymer and metal isotopes from Fluidigm. Cells were washed and resuspensed in CyFACS buffer. The cells were resuspended in 2 ug/mL Live-Dead (DOTA-maleimide [Macrocyclics] containing naturalabundance indium). The cells were washed and resuspended in 2% paraformaldehyde in PBS and placed at 4$^o$C overnight. The next day, cells were washed and placed in eBiosciences/ThermoFischer permeabilization buffer (1x in PBS) and incubated on ice. Cells were then washed twice in PBS and acquired on CyTOF (Fluidigm, San Francisco, CA). Data analysis was performed using Cytobank by gating on intact cells based on the iridium isotopes from the intercalator, then on singlets by Ir191 vs cell length, then on live cells (Indium-LiveDead minus population), followed by cell subset-specific gating as shown by tSNE and manually, as previously published(12) and described here in Supplemental Figure 2. Cells frequencies were back-calculated as if from whole blood using complete blood count (CBC) frequency information using neutrophils, lymphocytes, and monocyte information. Data was combined with the 58 subjects in primary cohort.

### Confirmatory analysis in a second single cell dataset

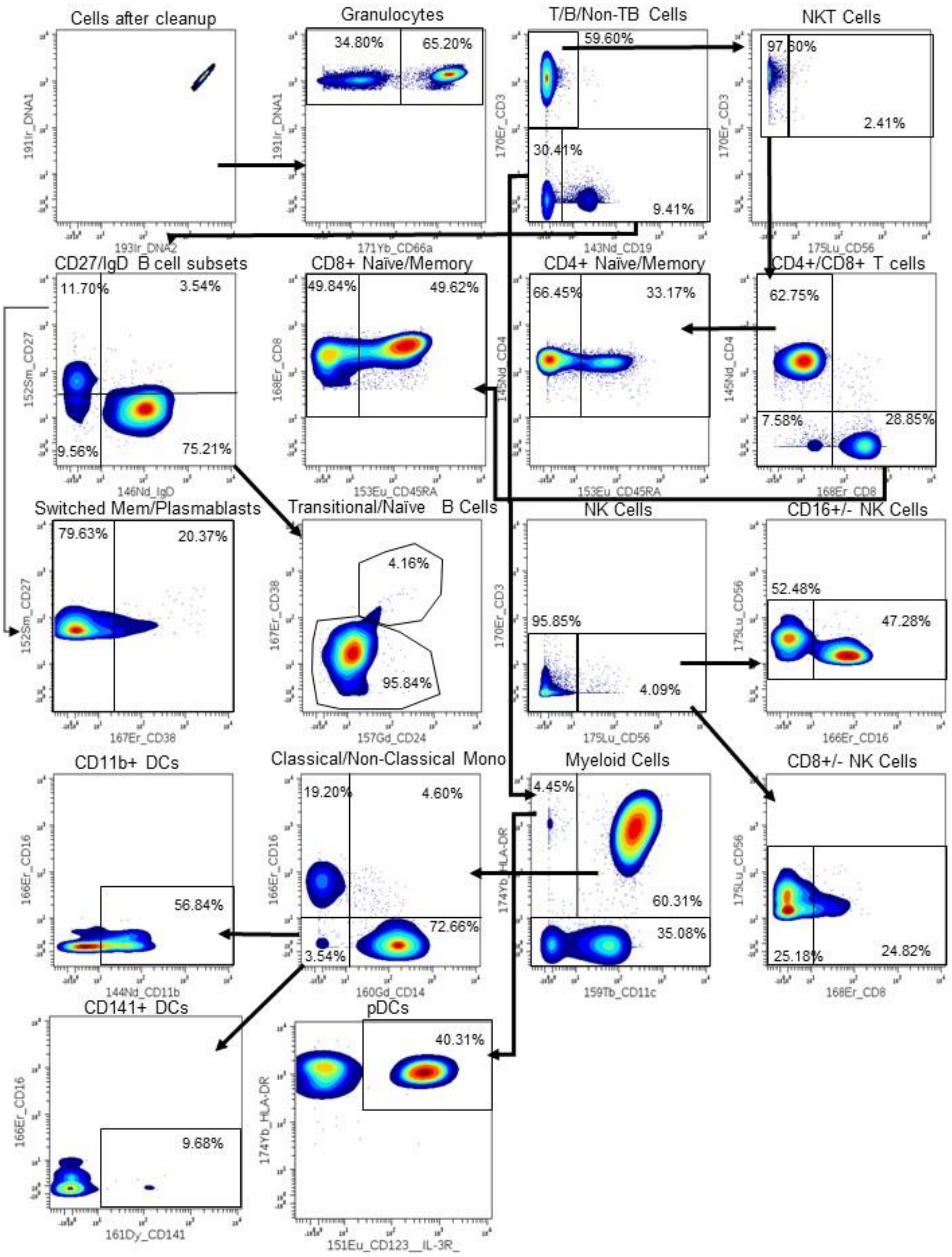
An analysis of the single cell data from GSE135779(13) was carried out to confirm our findings. Analysis of PBMC immunophenotypes was performed on the combined pediatric and adult SLE dataset with the 21 clusters reported in the original manuscript. Individuals were restricted to reported non-Hispanic Black or White ancestry. A reported SLEDAI value was also required for lupus patients, who were classified as either inactive (SLEDAI < 4) or active (SLEDAI ≥ 4) SLE. This resulted in a final dataset of ~174,000 total PBMCs from 29 individuals (6 White CTRL, 3 White SLE INACT, 2 White SLE ACT, 6 Black CTRL, 4 Black SLE INACT, 8 Black SLE ACT). Immunophenotypes were calculated as percentages of each broad cell type or cluster of total PBMCs. For analysis of gene expression, scRNA-seq count data was obtained from the Gene Expression Omnibus and processed using the python (version 3.9)-based scanpy(14) (version 1.8.1) generally as described in the methods section of Nehar-Belaid et al(13). Once processed, B cell and monocyte clusters were isolated for independent analysis in R as described above. Cells were filtered for only the individuals matching our ancestry and disease activity criteria. Downstream analysis was carried out by the same methods used on our own dataset. Interferon module scoring was done with Seurat's AddModuleScores function. Within each identified cluster, differential expression of genes between study groups was carried out by MAST. Differentially expressed genes in B cell and monocyte clusters were fed into IPA for analysis of Upstream Regulators and Function Annotations.

**SDY40 Intracellular Cytokine Staining.** To assess a second cohort for changing in TLR signaling, seven Black controls and 7 White controls were age and sex matched. As described previously (15). Briefly, all subjects from 21-30 years of age were enrolled at Yale Health Services. Immunocompromised subjects were excluded and anyone with a self-reported infection within 2 weeks of enrollment. Human PBMCs were isolated using Ficoll-Hisopaque (Sigma-Aldrich, St. Louis, MO) gradient centrifugation. PBMCs were suspended in RPMI 1640 medium plus 10% FBS and adjusted to a concentration of $2 \times 10^6$ cells/ml. The following ligands in medium were added to PBMCs: TLR1/2 ligand (Pam3CSK4, 10 μg/ml), TLR2/6 ligand (lipoteichoic acid [LTA], 2 μg/ml), TLR3 ligand (polyinosinic:polycytidylic acid [poly I:C], 10 μg/ml), TLR5 ligand (flagellin, 5 μg/ml), TLR7/8 ligand (R848 0.5 μg/ml), and TLR9 ligand (CpG-ODN2216, 3 μg/ml). RPMI 1640 medium plus FBS alone was used in control cultures. All ligands were purchased from Invivogen (San Diego, CA). Cells were incubated for 6 h, and brefeldin A (GolgiStop, BD Biosciences) was added for the last 4 h of incubation to retain intracellular cytokines. Cell suspensions were labeled with primary antibodies (Abs) for surface staining as follows: lineage mixture (CD3 [Clone SK7], CD14 [Clone MphiP9], CD16 [3G8], and CD19 [SJ25C1]-APC-Cy7, HLA-DR–PE-Cy7, CD11c [B-ly6]-APC, and CD123 [9F5]–PE-Cy5). For analysis for CD80/86 molecules, antibodies against CD80 [2D10.4]-FITC and CD86 [IT2.2]-PE were used. All Abs were purchased from BD Biosciences, except for anti–CD11c and anti-CD86 antibodies, which were from BD Biosciences PharMingen.

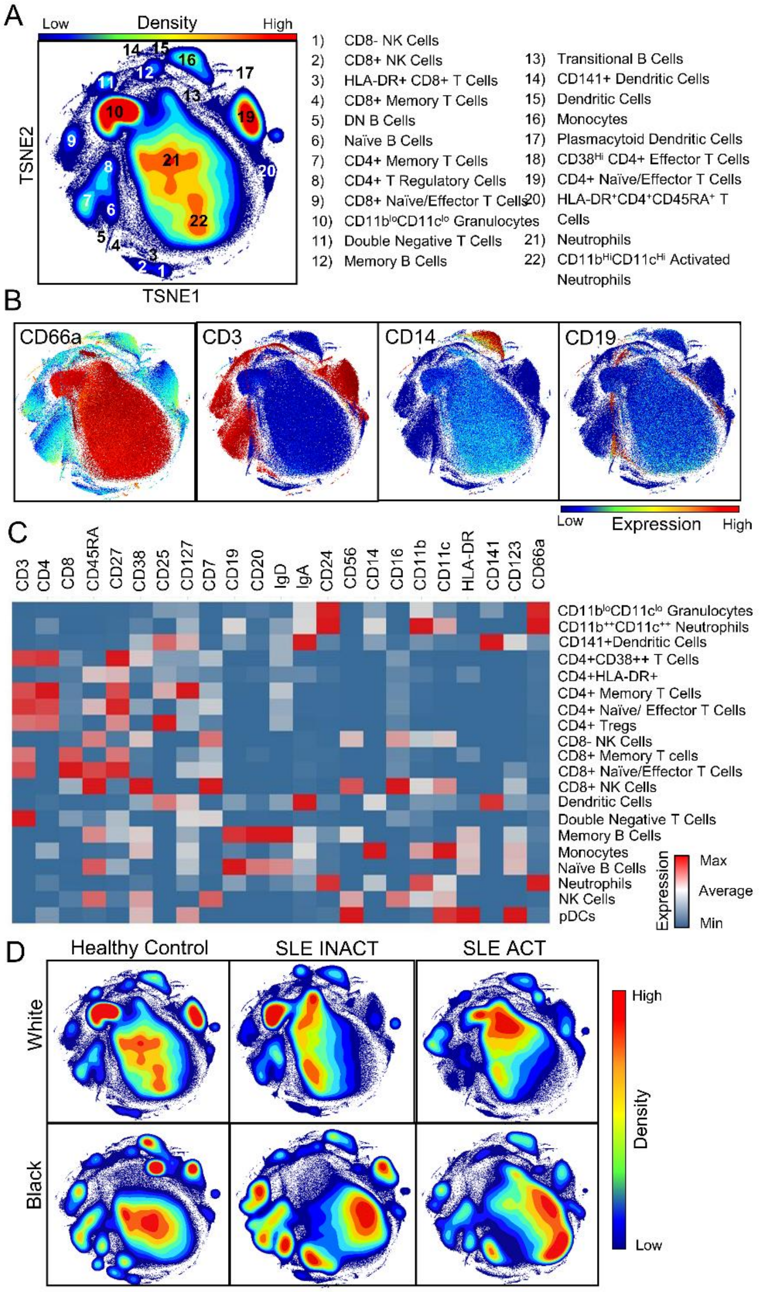
On the day of analysis, cells were thawed, permeabilized in BD Perm/Wash buffer (BD Pharmingen, San Diego, CA), pelleted at 500 × *g* for 10 min at 4°C, and resuspended in BD Perm/Wash buffer containing Abs for intracellular staining of cytokines or intracellular TLRs as follows: IL-6–PE (Clone MQ2-6A3), TNF-α Alexa 700 (Clone MAb11), IL-12 (p40)-Pacific Blue (Clone C8.6), IFN-α–FITC (Clone 225.2C), with appropriate isotype controls. A biotinylated isotype control plus streptavidin-FITC was used for all experiments employing biotinylated Abs. IL-6, IL-12, and TNF-α Abs were purchased from BD Pharmingen. Abs to IFN-α were purchased from Chromaprobe (Maryland Heights, MO). Approximately 0.5–1 million total events were collected per sample using an LSR II instrument (BD Biosciences), with analysis using Cytobank.



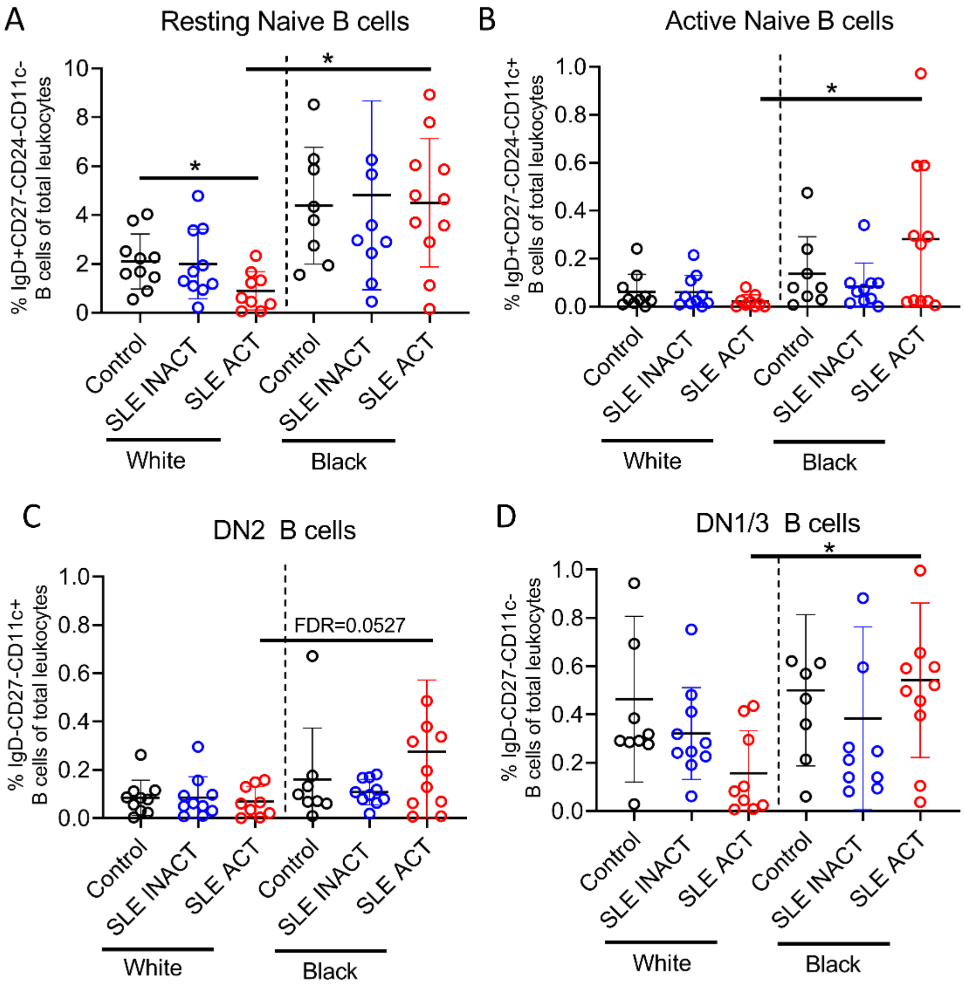
**Supplemental Figure 1. Systems overview of overlapping samples.** A total of 58 subjects including White and Black controls, SLE INACT, and SLE ACT patients were used as the primary study subset for this study. The majority of systems analyses included all 58 subjects. The set size is indicated on the left for each data platform and the intersection size of subjects across datasets is indicated on the top. Additional public datasets were used for a replication set of scRNA-sequencing (GSE135779) and intracellular signaling set on IMMPORT (SDY40). Further, a second CyTOF dataset was combined with the immunophenotyping data of this 58-sample set as described in the text.



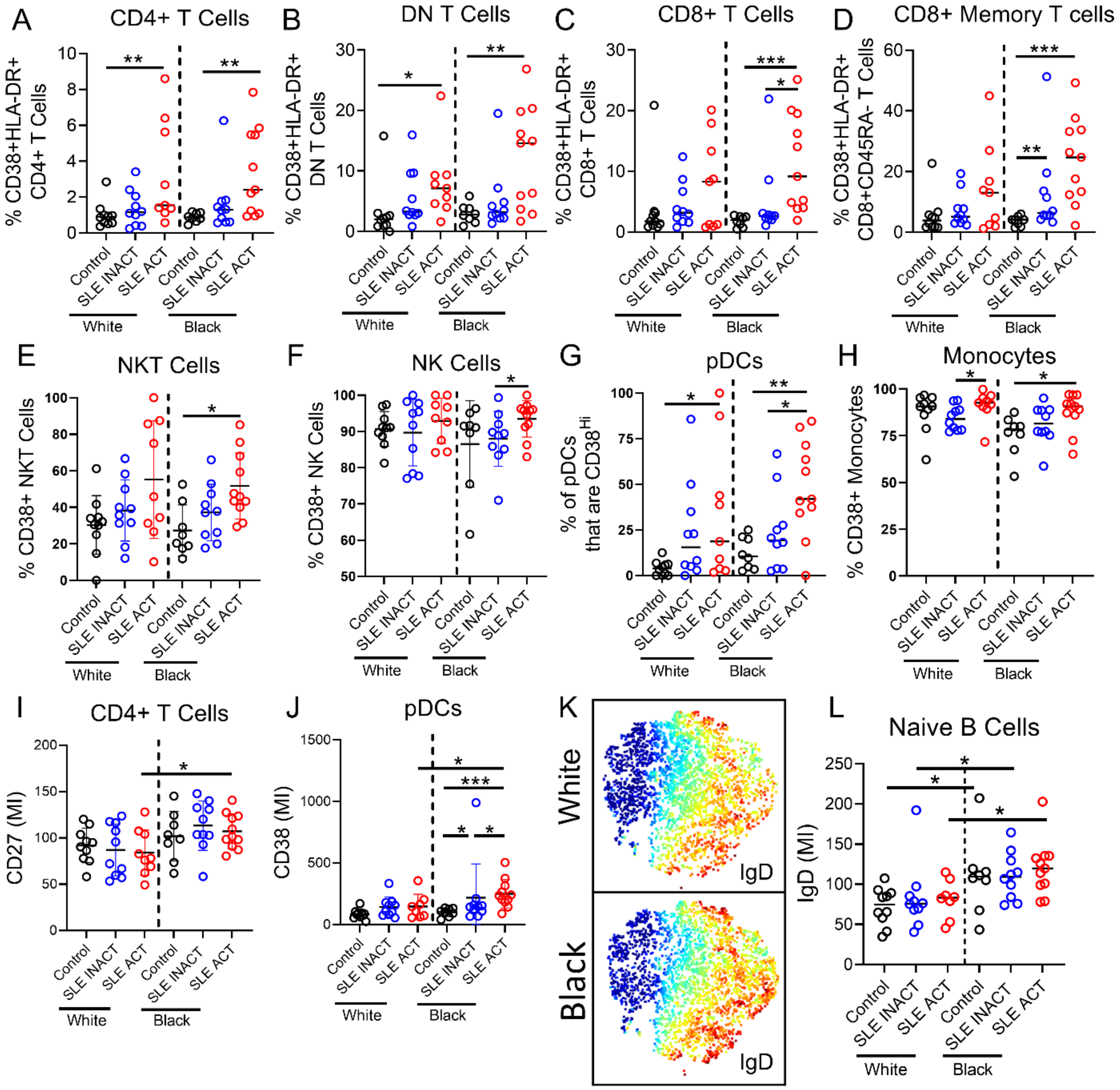
**Supplemental Figure 2. Representative gating hierarchies for mass cytometry phenotyping analysis.** Bivariate gating hierarchy was used to confirm and access tSNE results of whole blood phenotyping from 58 subjects. Cells went through an initial cleanup strategy following the manufacturer recommended cleanup gates to remove aggregates, debris, beads, and doublets as found in the Fluidigm Maxpar manual. In addition, unsupervised clustering and cell identification were done via tSNE as shown in Supplemental Figure 3.



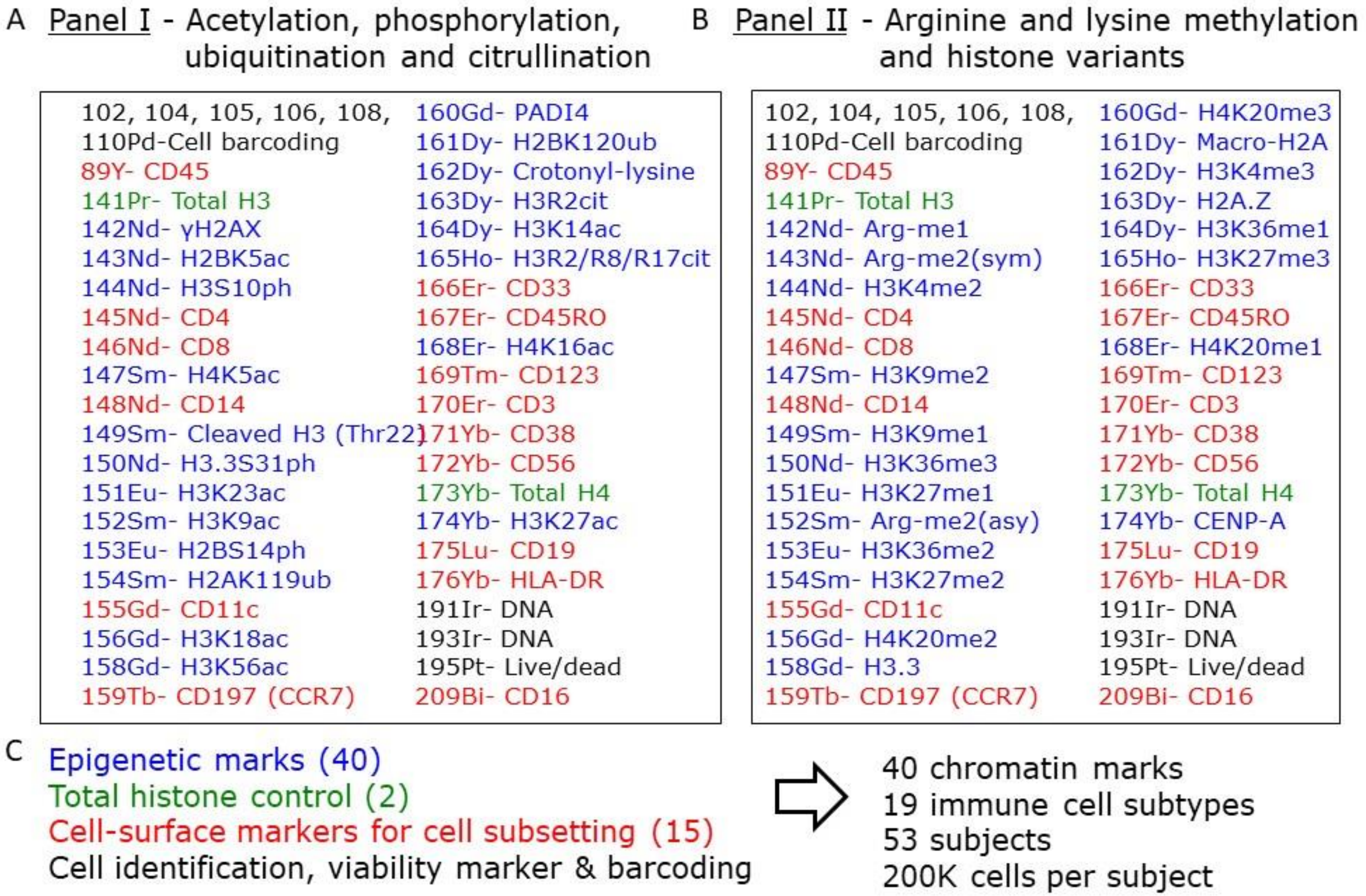
**Supplemental Figure 3. Whole blood tSNE plots in White and Black patients.** Mass cytometry data was visualized using the Cytobank platform. (A) Using dimensionality reduced t-SNE plots from PBMC data (1.3 million cells) derived from 58 samples. tSNE analyses identified 22 distinct cell populations. Cell surface expression of major lineage markers was used to name cell subsets via (B) tSNE marker expression plots with CD66a, CD3, CD14, and CD19 shown and (C) a heatmap summary of the average expression values of all 23 surface markers assessed. Marker values are displayed on a color scale ranging from blue (levels below the mean) through White (levels equal to the mean) to red (levels greater than the mean) using a column Z-score. (D) Density maps depicting White and Black healthy controls, SLE INACT, and SLE ACT patients whole blood t-SNE plots were created using all 23 surface markers. All plots were derived from cumulative data from 8-11 individuals per group.



**Supplemental Figure 4. Naïve and DN B cell subset frequencies in Black and White SLE ACT patients.** All cell subsets were manually gated and back calculated for total frequency of leukocytes. B cell frequencies on White and Black control, SLE INACT, and SLE ACT patient are shown for (A) IgD+CD27-CD24-CD11c- resting naïve B cells, (B) IgD+CD27-CD24-CD11c+ active naïve B cells, (C) IgD-CD27-CD11c+ DN2 B cells, and (D) IgD-CD27-CD11c- DN1/3 B cells. Statistical significance was determined using a Mann-Whitney U test and FDR *p<0.05, Mean± SD shown. (n=58)



**Supplemental Figure 5. Cell activation in Black and White SLE ACT patients.** All cell subsets were manually gated and assessed for frequencies and differences in metal intensity (MI) of activation and regulatory surface markers (A-D) CD38+HLA-DR+ frequencies on White and Black control, SLE INACT, and SLE ACT patient (A) CD4+ T cells, (B) DN T cells, (C) CD8+ T cells, and (D) CD8+ memory T cells. CD38 frequencies on (E) NKT cells, (F) NK cells, (G) pDCs, and (H) monocytes, (I) CD27 metal intensity on CD4+ T cells, and (J) CD38 metal intensity on pDCs is shown by disease. t-SNE plots were used to illustrate specific expression differences among B cells showing (K) IgD expression and (L) IgD metal intensity in naïve B cells. tSNE plots use red to indicate elevated expression and blue to indicate low expression. *p<0.05, **p<0.01, ***p<0.001, by Kruskal-Wallis test with two-tailed Mann-Whitney for multiple comparisons. Mean± SD shown. (n=58)



A **Panel I** - Acetylation, phosphorylation, ubiquitination and citrullination

102, 104, 105, 106, 108, 110Pd-Cell barcoding
89Y- CD45
141Pr- Total H3
142Nd- γH2AX
143Nd- H2BK5ac
144Nd- H3S10ph
145Nd- CD4
146Nd- CD8
147Sm- H4K5ac
148Nd- CD14
149Sm- Cleaved H3 (Thr22)
150Nd- H3.3S31ph
151Eu- H3K23ac
152Sm- H3K9ac
153Eu- H2BS14ph
154Sm- H2AK119ub
155Gd- CD11c
156Gd- H3K18ac
158Gd- H3K56ac
159Tb- CD197 (CCR7)
160Gd- PADI4
161Dy- H2BK120ub
162Dy- Crotonyl-lysine
163Dy- H3R2cit
164Dy- H3K14ac
165Ho- H3R2/R8/R17cit
166Er- CD33
167Er- CD45RO
168Er- H4K16ac
169Tm- CD123
170Er- CD3
171Yb- CD38
172Yb- CD56
173Yb- Total H4
174Yb- H3K27ac
175Lu- CD19
176Yb- HLA-DR
191Ir- DNA
193Ir- DNA
195Pt- Live/dead
209Bi- CD16

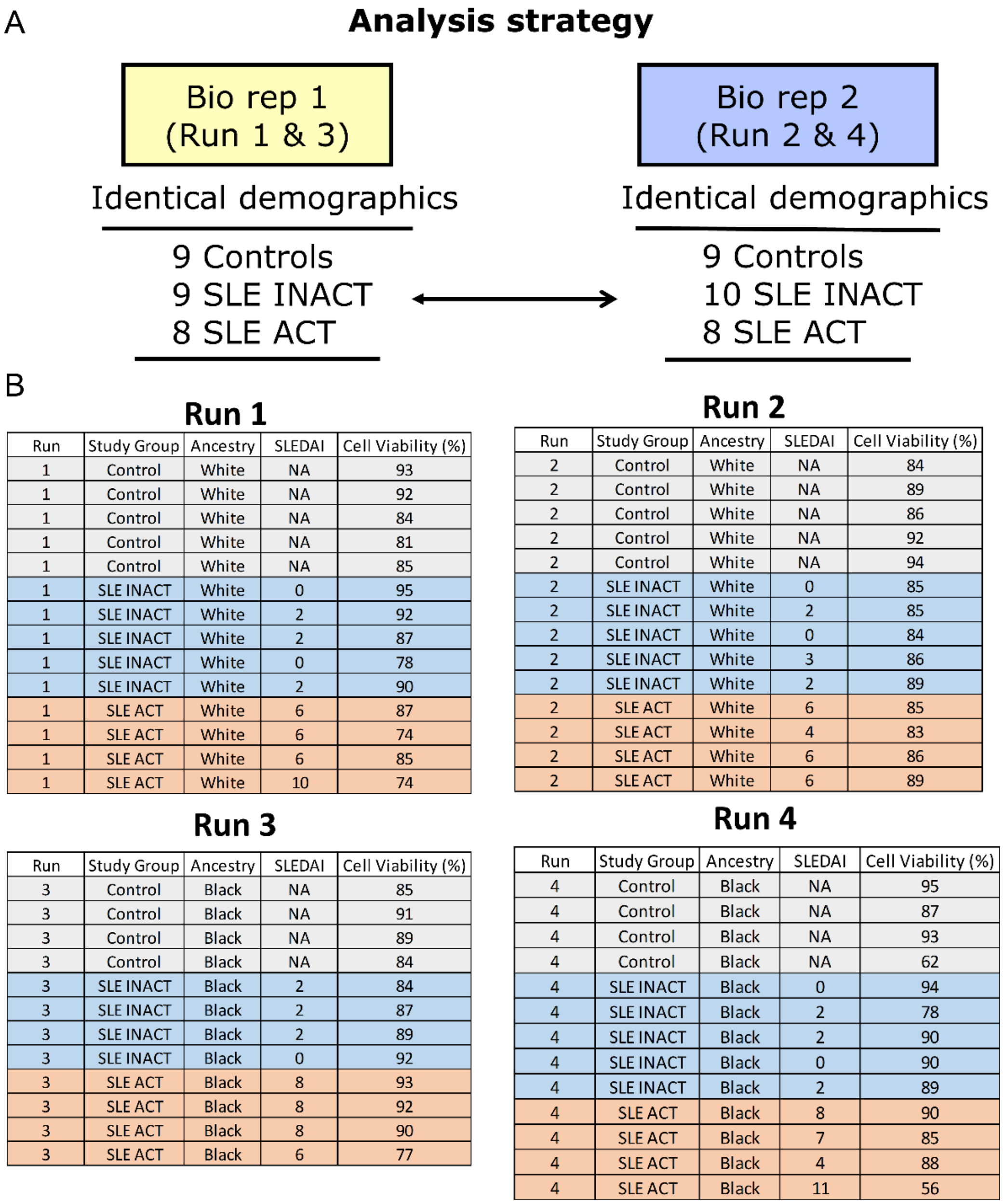
B **Panel II** - Arginine and lysine methylation and histone variants

102, 104, 105, 106, 108, 110Pd-Cell barcoding
89Y- CD45
141Pr- Total H3
142Nd- Arg-me1
143Nd- Arg-me2(sym)
144Nd- H3K4me2
145Nd- CD4
146Nd- CD8
147Sm- H3K9me2
148Nd- CD14
149Sm- H3K9me1
150Nd- H3K36me3
151Eu- H3K27me1
152Sm- Arg-me2(asy)
153Eu- H3K36me2
154Sm- H3K27me2
155Gd- CD11c
156Gd- H4K20me2
158Gd- H3.3
159Tb- CD197 (CCR7)
160Gd- H4K20me3
161Dy- Macro-H2A
162Dy- H3K4me3
163Dy- H2A.Z
164Dy- H3K36me1
165Ho- H3K27me3
166Er- CD33
167Er- CD45RO
168Er- H4K20me1
169Tm- CD123
170Er- CD3
171Yb- CD38
172Yb- CD56
173Yb- Total H4
174Yb- CENP-A
175Lu- CD19
176Yb- HLA-DR
191Ir- DNA
193Ir- DNA
195Pt- Live/dead
209Bi- CD16

C
Epigenetic marks (40)
Total histone control (2)
Cell-surface markers for cell subsetting (15)
Cell identification, viability marker & barcoding

40 chromatin marks
19 immune cell subtypes
53 subjects
200K cells per subject

**Supplemental Figure 6. EpiTOF antibody panel.** Two panels (A) and (B) were used to assess 40 different chromatin marks to observed differences in acetylation, phosphorylation, ubiquitination, citrullination, arginine and lysine methylation, and histone variants across White and Black controls, SLE INACT, and SLE ACT patients. (C) This panel allowed us to assess 40 chromatin marks and 19 immune cell subsets using 200,000 cells/subject.



**Run 1**

| Run | Study Group | Ancestry | SLEDAI | Cell Viability (%) |
|---|---|---|---|---|
| 1 | Control | White | NA | 93 |
| 1 | Control | White | NA | 92 |
| 1 | Control | White | NA | 84 |
| 1 | Control | White | NA | 81 |
| 1 | Control | White | NA | 85 |
| 1 | SLE INACT | White | 0 | 95 |
| 1 | SLE INACT | White | 2 | 92 |
| 1 | SLE INACT | White | 2 | 87 |
| 1 | SLE INACT | White | 0 | 78 |
| 1 | SLE INACT | White | 2 | 90 |
| 1 | SLE ACT | White | 6 | 87 |
| 1 | SLE ACT | White | 6 | 74 |
| 1 | SLE ACT | White | 6 | 85 |
| 1 | SLE ACT | White | 10 | 74 |

**Run 2**

| Run | Study Group | Ancestry | SLEDAI | Cell Viability (%) |
|---|---|---|---|---|
| 2 | Control | White | NA | 84 |
| 2 | Control | White | NA | 89 |
| 2 | Control | White | NA | 86 |
| 2 | Control | White | NA | 92 |
| 2 | Control | White | NA | 94 |
| 2 | SLE INACT | White | 0 | 85 |
| 2 | SLE INACT | White | 2 | 85 |
| 2 | SLE INACT | White | 0 | 84 |
| 2 | SLE INACT | White | 3 | 86 |
| 2 | SLE INACT | White | 2 | 89 |
| 2 | SLE ACT | White | 6 | 85 |
| 2 | SLE ACT | White | 4 | 83 |
| 2 | SLE ACT | White | 6 | 86 |
| 2 | SLE ACT | White | 6 | 89 |

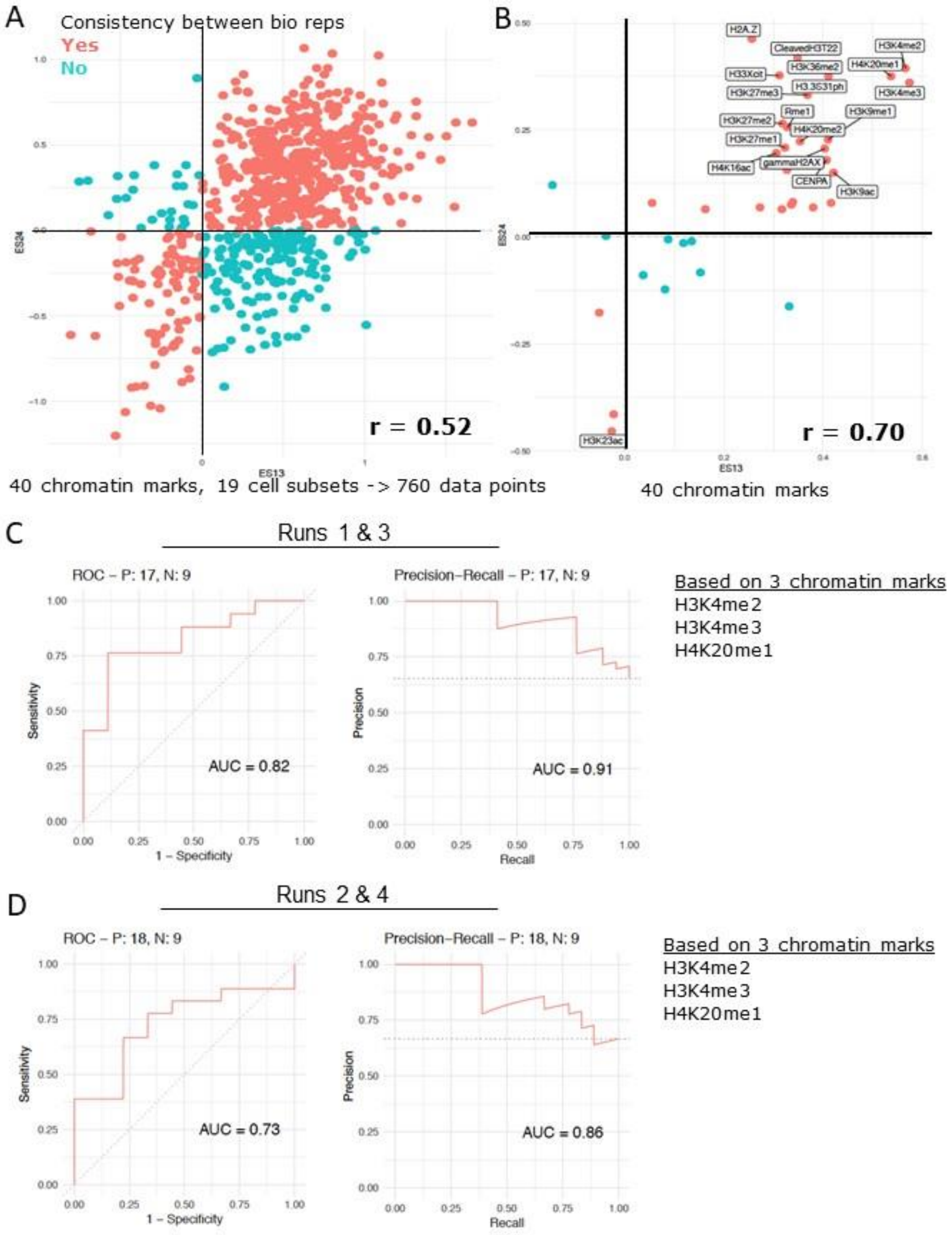
**Run 3**

| Run | Study Group | Ancestry | SLEDAI | Cell Viability (%) |
|---|---|---|---|---|
| 3 | Control | Black | NA | 85 |
| 3 | Control | Black | NA | 91 |
| 3 | Control | Black | NA | 89 |
| 3 | Control | Black | NA | 84 |
| 3 | SLE INACT | Black | 2 | 84 |
| 3 | SLE INACT | Black | 2 | 87 |
| 3 | SLE INACT | Black | 2 | 89 |
| 3 | SLE INACT | Black | 0 | 92 |
| 3 | SLE ACT | Black | 8 | 93 |
| 3 | SLE ACT | Black | 8 | 92 |
| 3 | SLE ACT | Black | 8 | 90 |
| 3 | SLE ACT | Black | 6 | 77 |

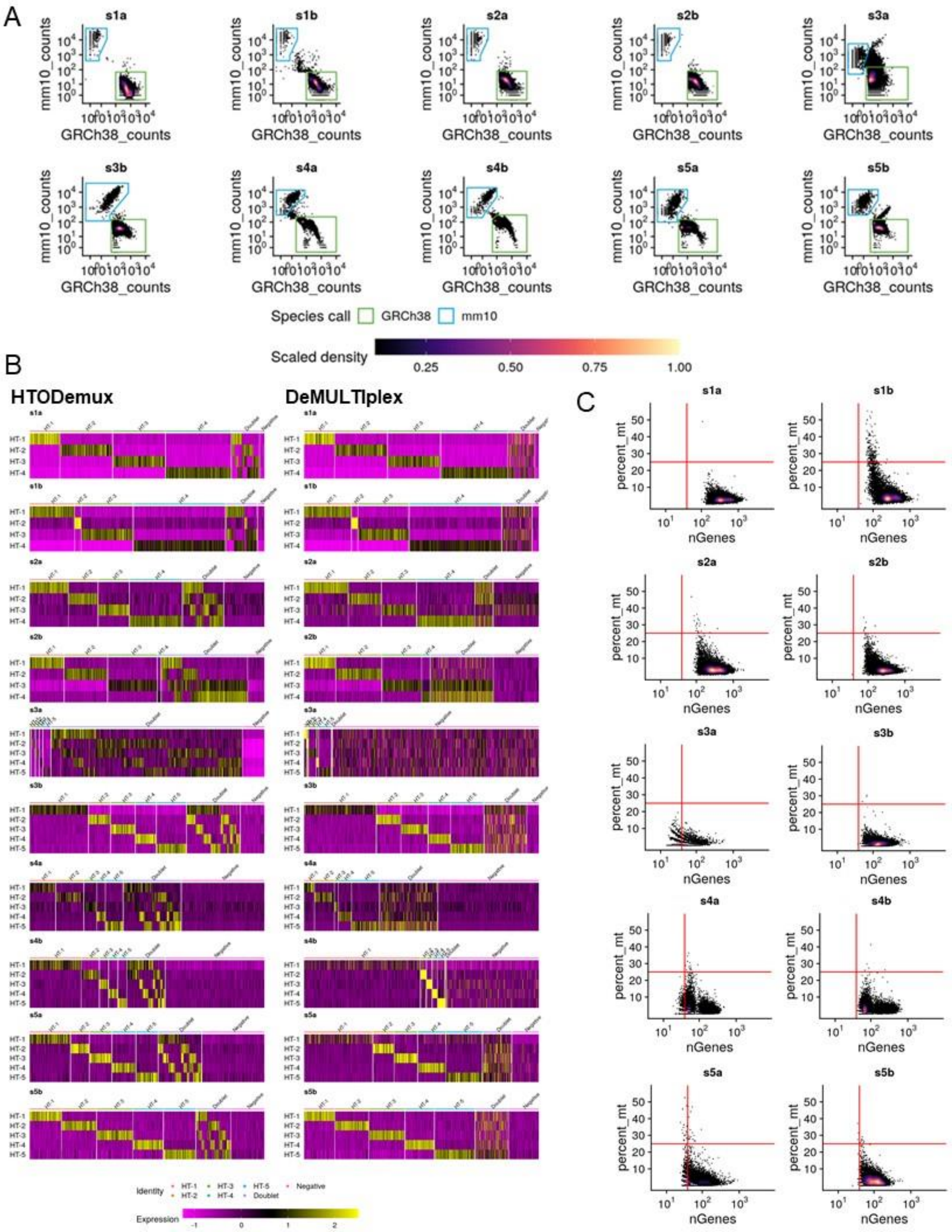
**Run 4**

| Run | Study Group | Ancestry | SLEDAI | Cell Viability (%) |
|---|---|---|---|---|
| 4 | Control | Black | NA | 95 |
| 4 | Control | Black | NA | 87 |
| 4 | Control | Black | NA | 93 |
| 4 | Control | Black | NA | 62 |
| 4 | SLE INACT | Black | 0 | 94 |
| 4 | SLE INACT | Black | 2 | 78 |
| 4 | SLE INACT | Black | 2 | 90 |
| 4 | SLE INACT | Black | 0 | 90 |
| 4 | SLE INACT | Black | 2 | 89 |
| 4 | SLE ACT | Black | 8 | 90 |
| 4 | SLE ACT | Black | 7 | 85 |
| 4 | SLE ACT | Black | 4 | 88 |
| 4 | SLE ACT | Black | 11 | 56 |

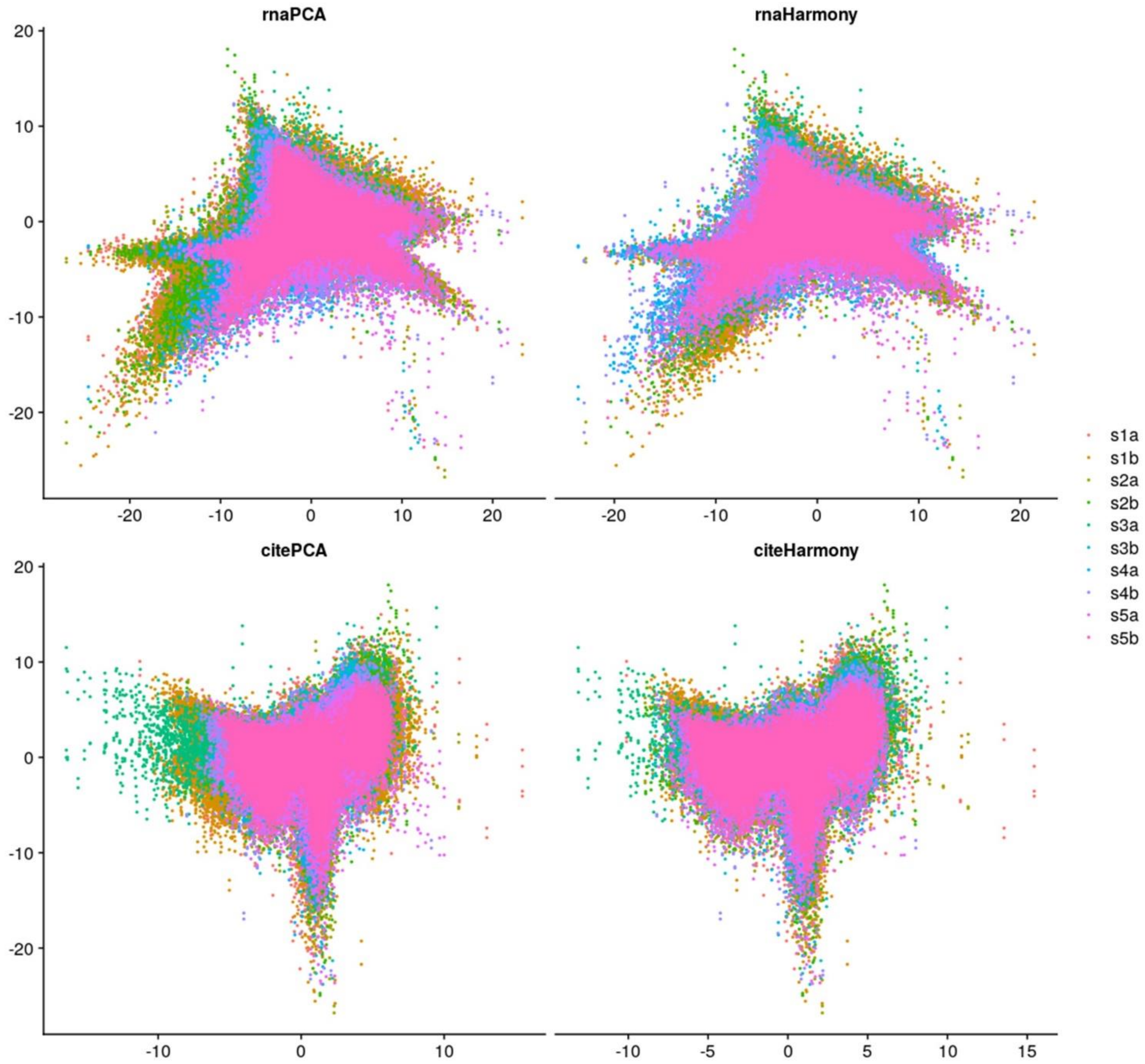
**Supplemental Figure 7. Sample bioreplicates used for EpiTOF analyses.** 53 matched subjects were divided into two biological replicates with identical demographics that were evenly distributed between Black (Black) and White (White) Americans.



**Supplemental Figure 8. Chromatin marks significantly differentiate SLE patients from controls.** PBMCs were used to assess global differences in 40 different chromatin modifications in 19 immune cell subsets. (A) Consistency between bioreplicates in differentially expressed chromatin marks between SLE and controls. (B) Effect size comparison where each dot represents the average of a chromatin mark across all immune cell subtypes. Correlation coefficient is shown. (C) ROC (left) and precision recall (right) curves depict the segregation of controls from SLE patients using the variance in 3 chromatin marks. Curves summarizing the results from biological replicates in (C) runs 1 and 3 and (D) runs 2 and 4, with AUC percentages from independent replicates separately listed. Classification specificity (x-axis) and sensitivity (y-axis) are shown for ROC curve (left). Precision (y-axis) and recall (x-axis) rates are shown for precision recall curve (right).

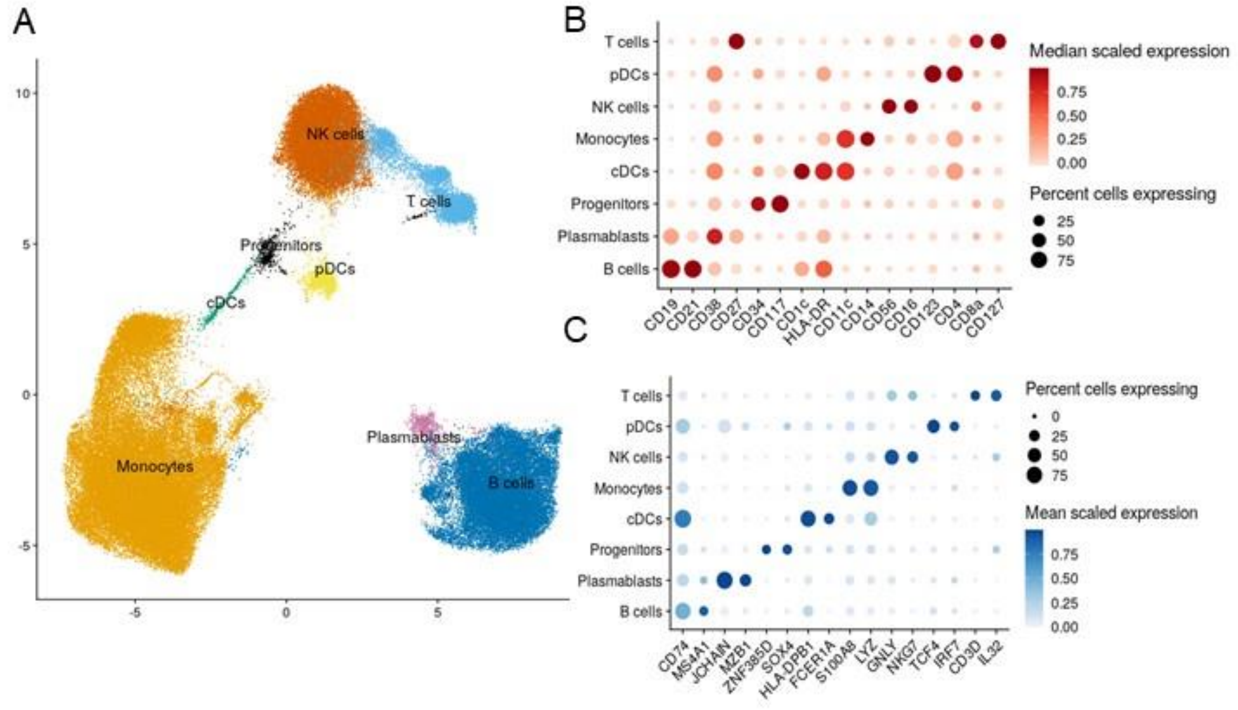


**Supplemental Figure 9. Preprocessing and QC of single cell RNA-sequencing data.** After analysis via the cell ranger pipeline, feature count matrices for each batch were fed into a custom R pipeline for preprocessing and quality control. (A) Biaxial plots of total counts aligned to the mouse (mm10_counts) and human (GRCh38_counts) genomes calculated for each barcode in each batch. The scaled density of barcodes on these plots is represented by a pseudocolor gradient. Human and mouse cells were separated by the manually drawn gates in green and blue, respectively. (B) Heatmaps of scaled counts of hashtag oligos of human cells in each batch for identities called by two different algorithms: HTODemux and DeMULTIplex. Barcodes called for each hashtag identity, doublets, and negatives are grouped together. (C) Biaxial plots of number of genes (nGenes) and percent mitochondrial counts (percent_mt) for singlet barcodes in each batch. Scaled density of barcodes is represented by pseudocolor gradient as in (A). Global cutoffs are indicated as red lines at nGenes = 40 and percent_mt = 25.

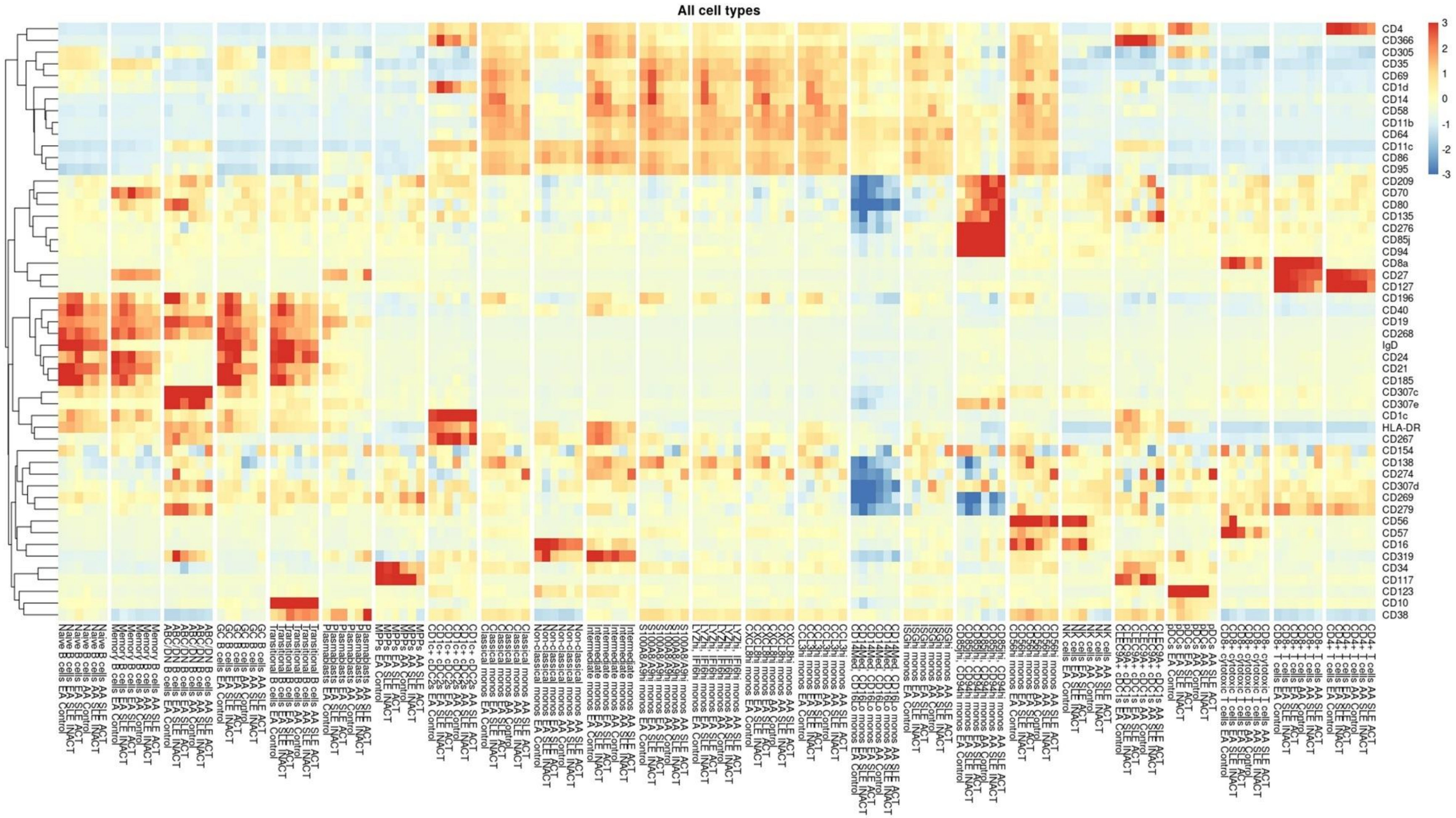


**Supplemental Figure 10. Harmony corrects for batch effects in scRNA-sequencing on the principal component reductions of each modality.** Plots of the first two components of principal component analysis with (right) and without (left) correction by Harmony. This was applied to both feature barcode matrices of (A) gene expression (rnaPCA and rnaHarmony) and (B) protein expression (citePCA and citeHarmony).

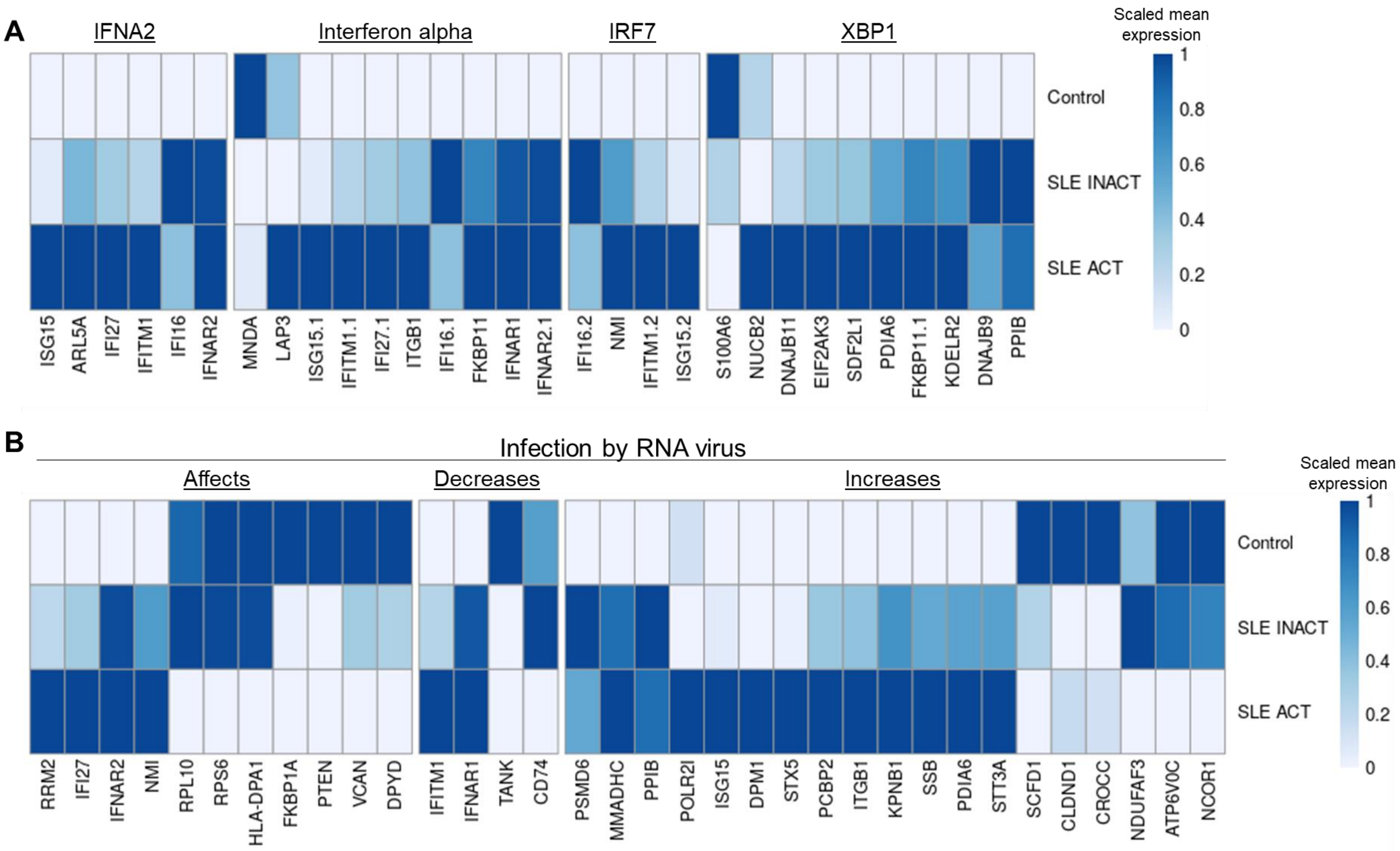
**Supplemental Figure 11. Cell subsets identified in multimodal analysis are represented across all patients.** UMAP plots of single cells from all 48 patients included in the analysis. Colors represent adjudicated cell types.



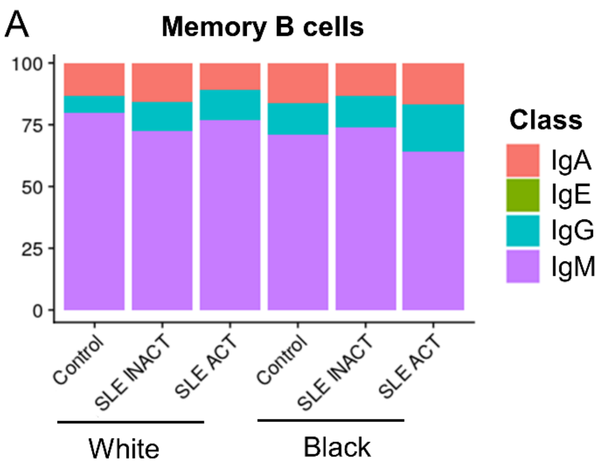
**Supplemental Figure 12. Analysis of total single cell dataset identifies major canonical cell types.** After manual QC, the final multimodal dataset of 88,053 cells was analyzed. (A) Two-dimensional uniform manifold approximation and projection (UMAP) based on a weighted nearest neighbors analysis of gene and protein expression data. Broad cell types are labeled and colored on this representation. (B) Dot plot of scaled expression of top protein markers used to manually annotate cells. For protein expression, the color gradient of the dot represents the median expression of the indicated protein, while the size of the dot indicates the percent of cells in each cluster expressing the protein above a baseline threshold. (C) Dot plot of scaled expression of top gene markers used to manually annotate cells. For gene expression, the dot gradient of the dot indicates the mean expression of a gene, while the size of the dot indicates the percent of cells in each cluster detectably expressing the gene.



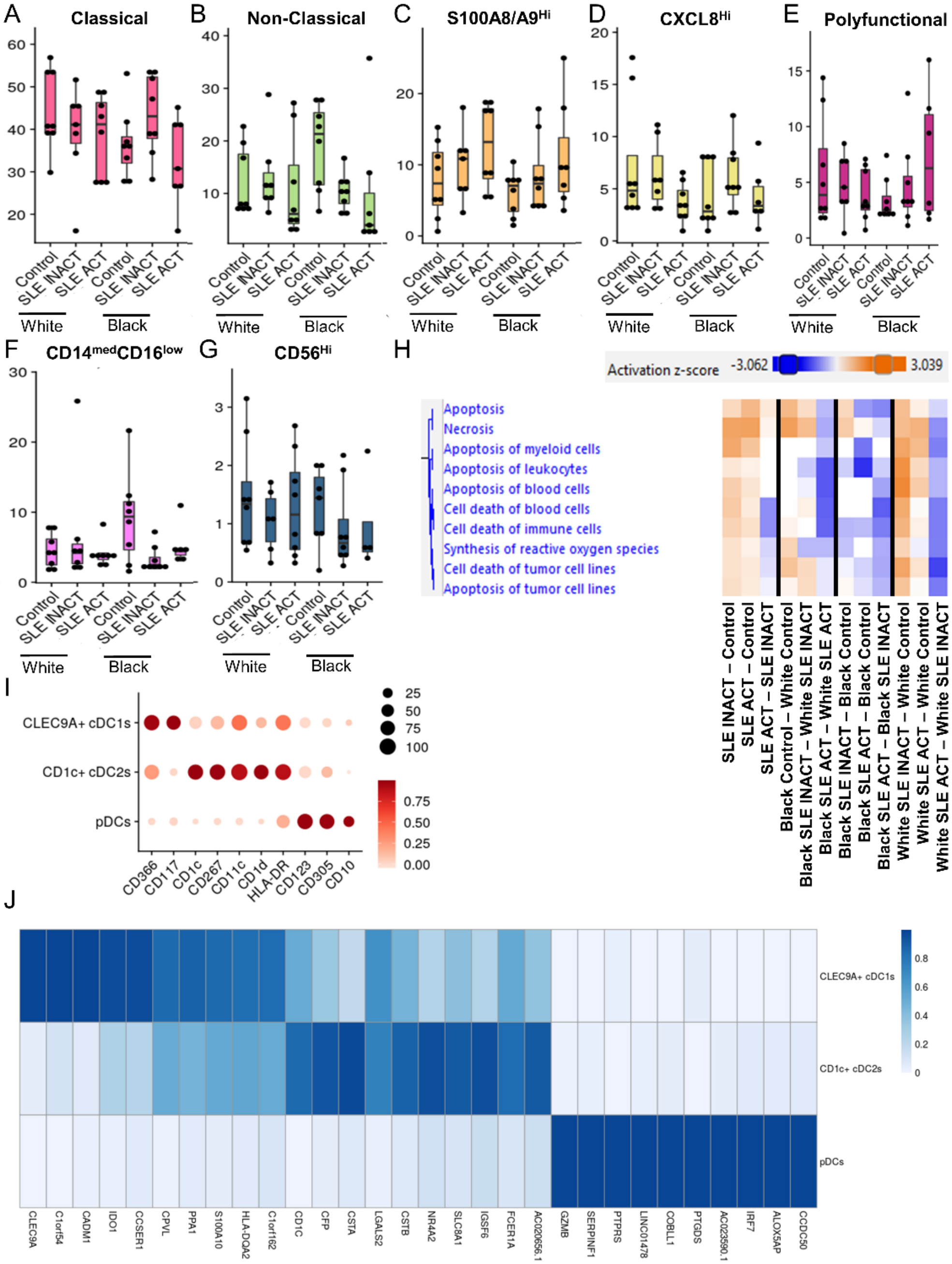
**Supplemental Figure 13. Global landscape of protein expression by CITEseq shows epitope variation by ancestry and disease status.** Heatmap of scaled median expression (z-scores) of all proteins assayed by the CITEseq panel. Each identified cell subset is divided into six study groups by ancestry and disease status.



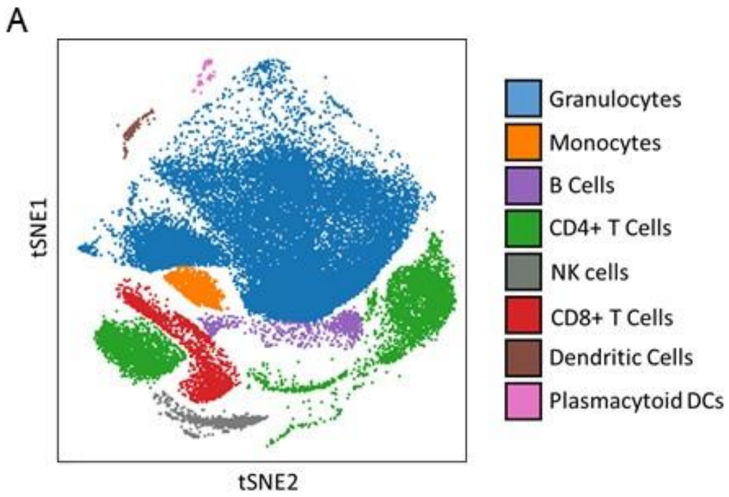
**Supplemental Figure 14. Ingenuity Pathway Analysis of plasmablast DEGs predicts activation of interferon-associated upstream regulators and RNA viral infection pathways in SLE ACT patients.** Differentially expressed genes in plasma cells comparing SLE ACT patients against controls were input to Ingenuity Pathway Analysis (IPA). IPA predicted differences in (A) upstream activation of type I IFN-associated factors IFNA2, XBP1, and IRF7, as well as (B) the RNA viral infection pathway from biological function analysis. Genes in RNA infection pathway are divided by pathway contribution based on IPA literature findings.



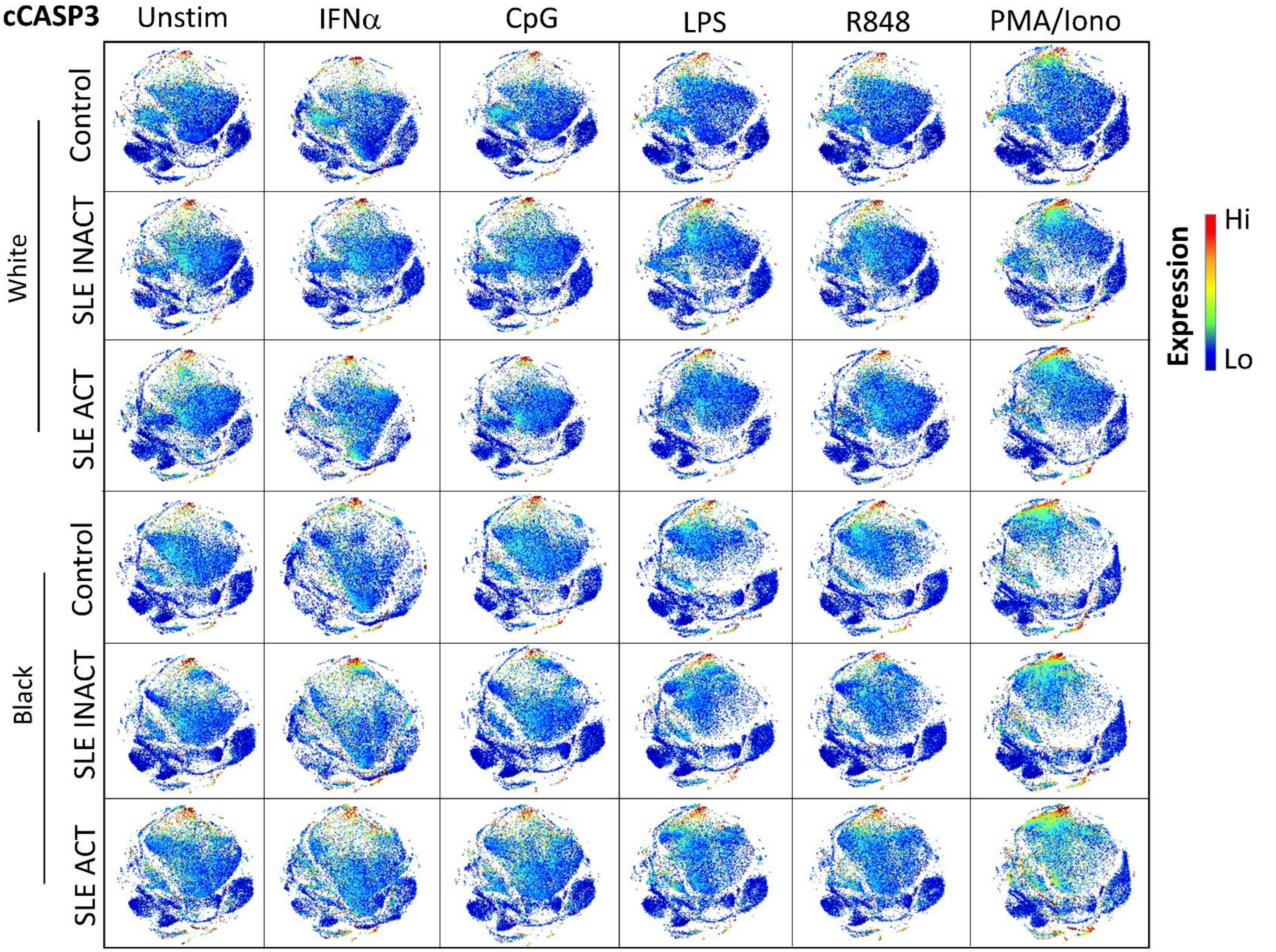
**Supplemental Figure 15. Single cell transcriptomics reveal greater frequency of IgG in memory B cells of Black SLE patients.** Percentage of memory B cells with highest gene expression of class-switched IgA, IgE, IgG, or IgM.



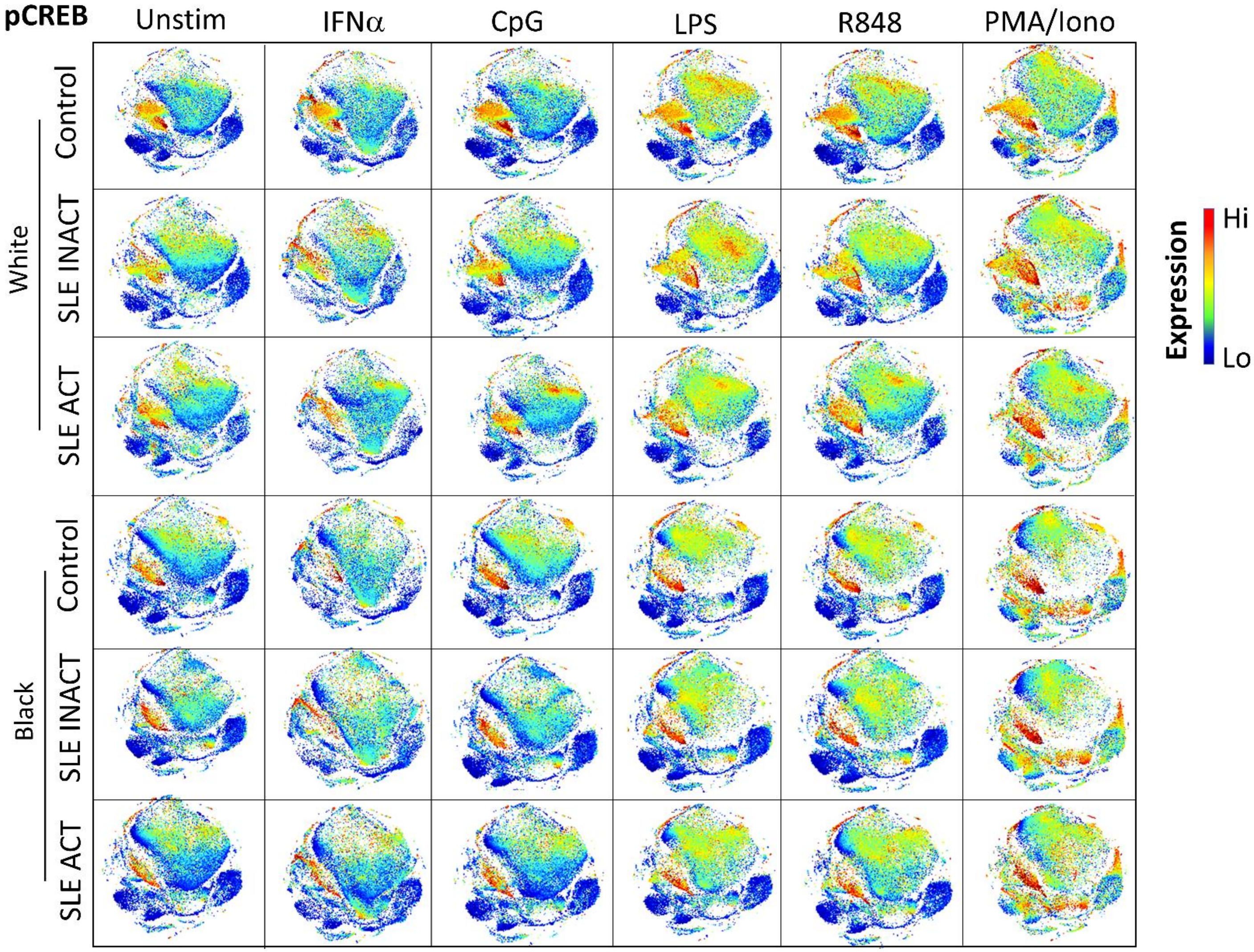
**Supplemental Figure 16. Single cell multi-omic analysis of myeloid cells identifies additional monocyte and dendritic cell subsets.** Violin plots comparing the percentage of total monocytes across disease groups for (A) classical, (B) non-classical, (C) S100A8/9$^{Hi}$, (D) CXCL8$^{Hi}$, (E) CCL3$^{Hi}$, (F) CD14$^{Med}$CD16$^{Low}$, and (G) CD56$^{Hi}$ monocytes. (H) Heatmap of z-scores indicating predicted activation or inactivation of apoptosis functional pathways by Ingenuity Pathway Analysis of intermediate monocytes for all disease group comparisons. (I) Dot plot of scaled expression of top protein markers used to annotate subsets of dendritic cells. (J) Heatmap of scaled expression of top gene markers used to annotate subsets of dendritic cells.



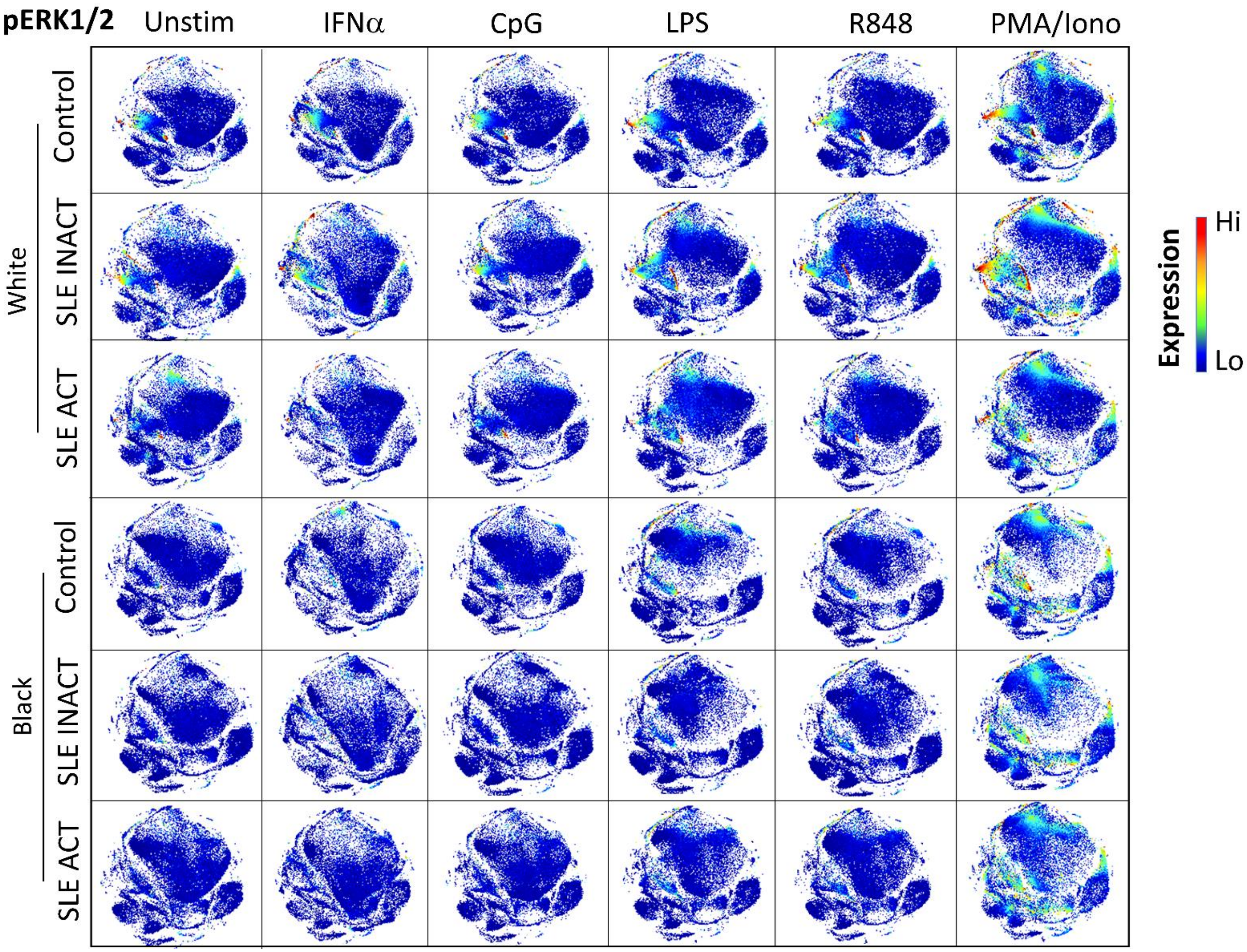
**Supplemental Figure 17. Phospho-CyTOF cell subset identification by tSNE.** Eight different immune cell populations were identified using the 23 surface markers in the phospho-CyTOF panel. Cell subsets are colored for reference to give spatial orientation for Supplemental Figures 21-28.



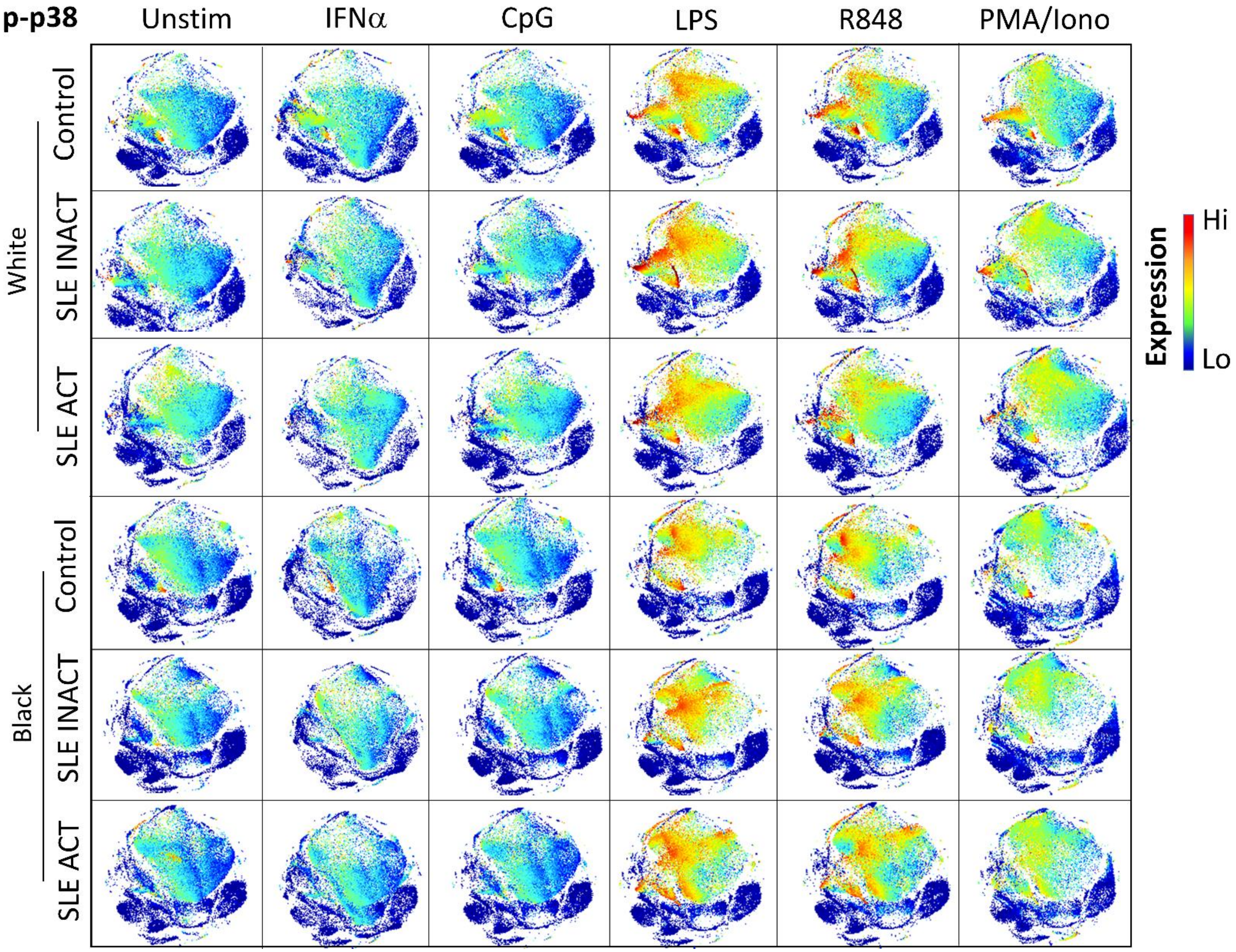
**Supplemental Figure 18. cCASP3 expression in cells by disease type.** Concatenated files (430,000 cells/each) were used for each ancestry and disease group to visualize expression and changes in phospho-signaling markers with stimulation. High expression is indicated in red, medium in yellow, and low expression in blue.



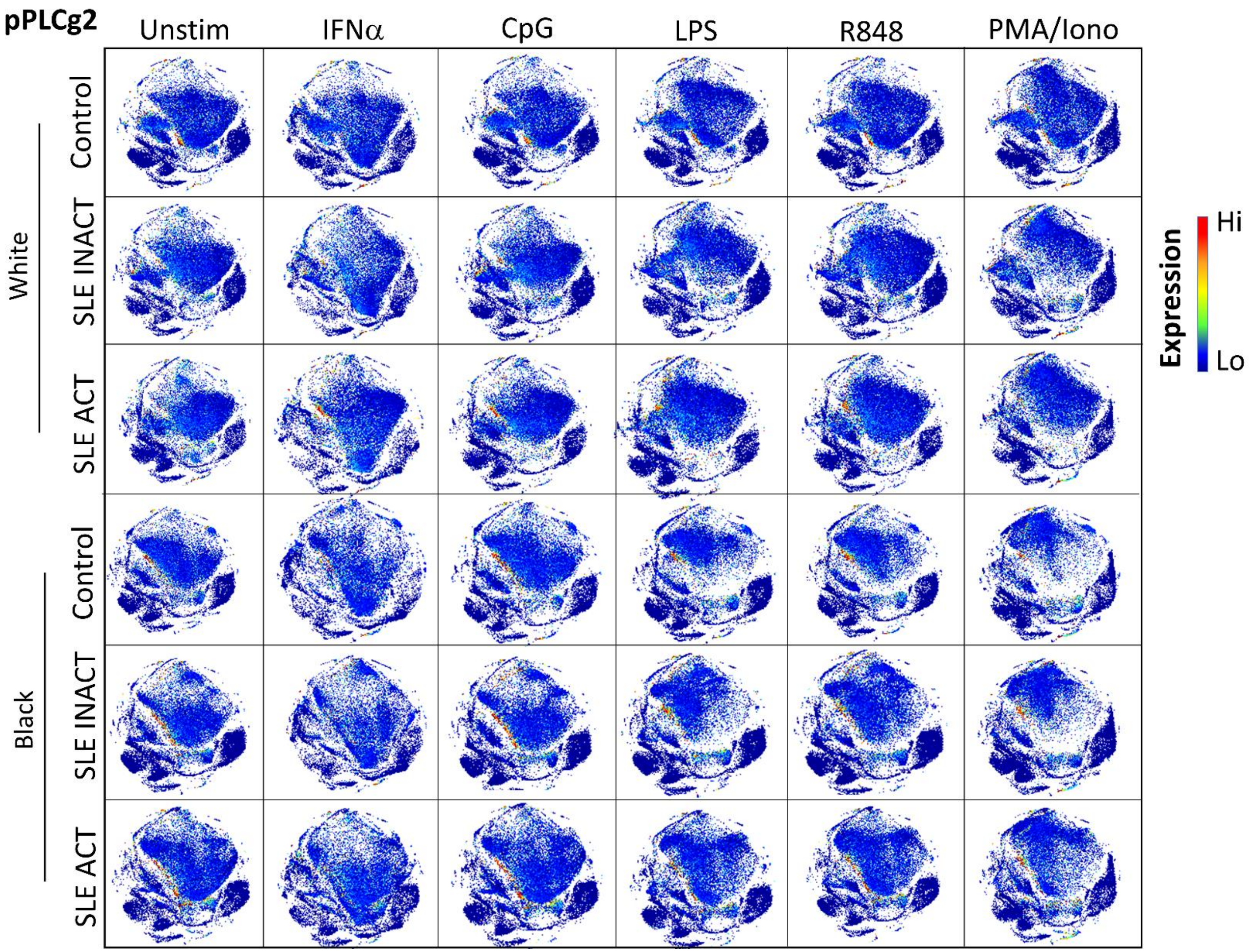
**Supplemental Figure 19. pCREB expression in cells by disease type.** Concatenated files (430,000 cells/each) were used for each ancestry and disease group to visualize expression and changes in phospho-signaling markers with stimulation. High expression is indicated in red, medium in yellow, and low expression in blue.



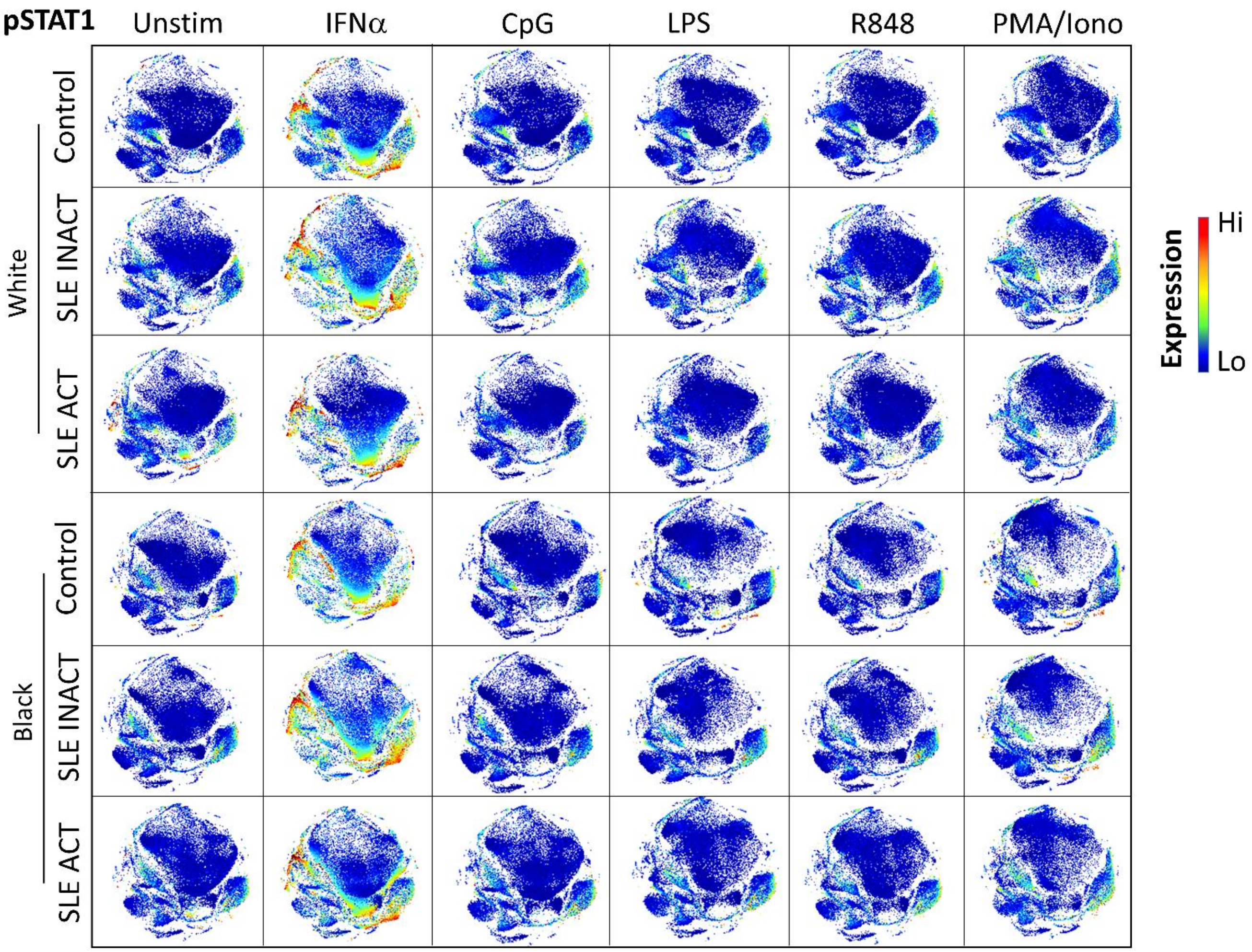
**Supplemental Figure 20. pERK1/2 expression in cells by disease type.** Concatenated files (430,000 cells/each) were used for each ancestry and disease group to visualize expression and changes in phospho-signaling markers with stimulation. High expression is indicated in red, medium in yellow, and low expression in blue.



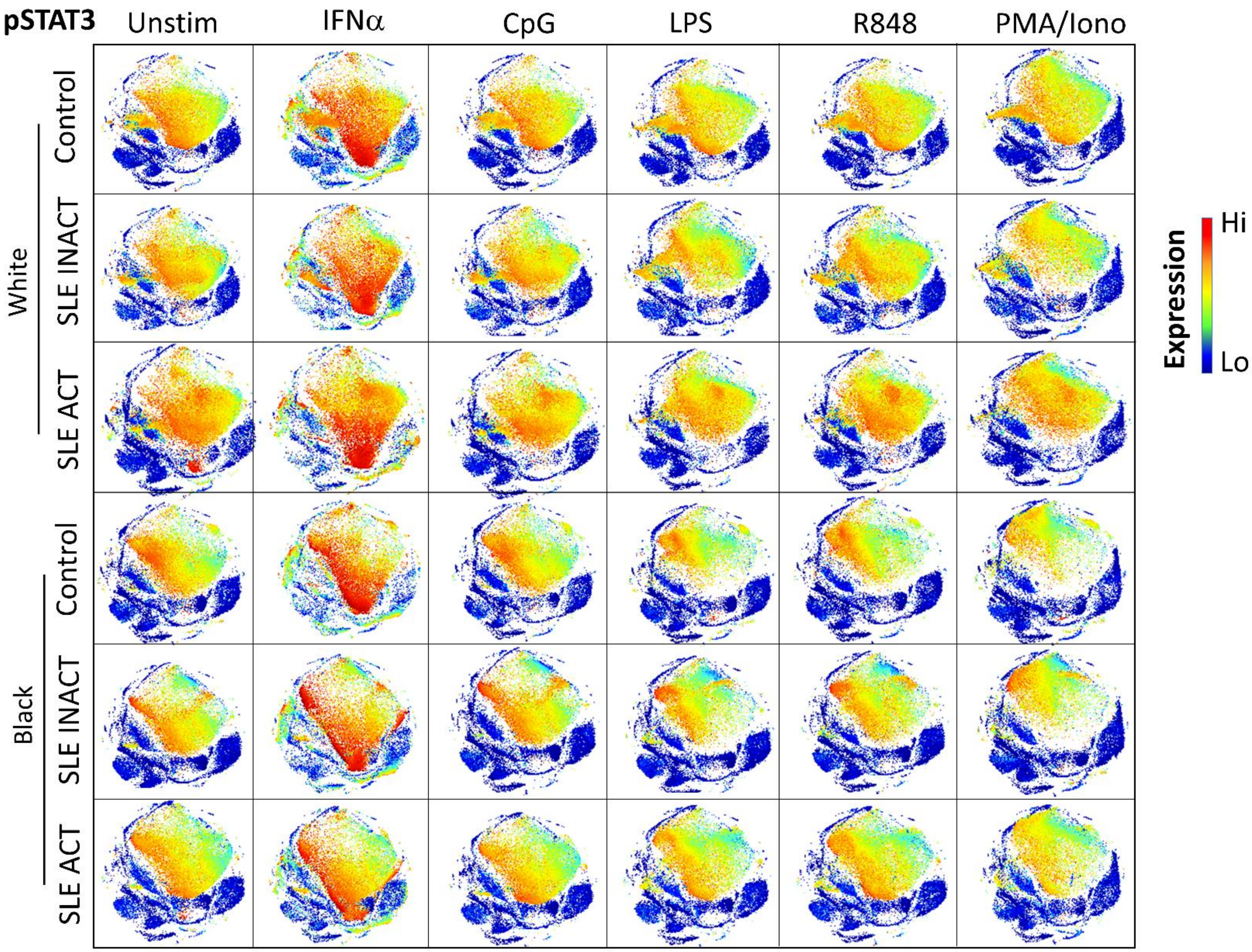
**Supplemental Figure 21. P-p38 expression in cells by disease type.** Concatenated files (430,000 cells/each) were used for each ancestry and disease group to visualize expression and changes in phospho-signaling markers with stimulation. High expression is indicated in red, medium in yellow, and low expression in blue.



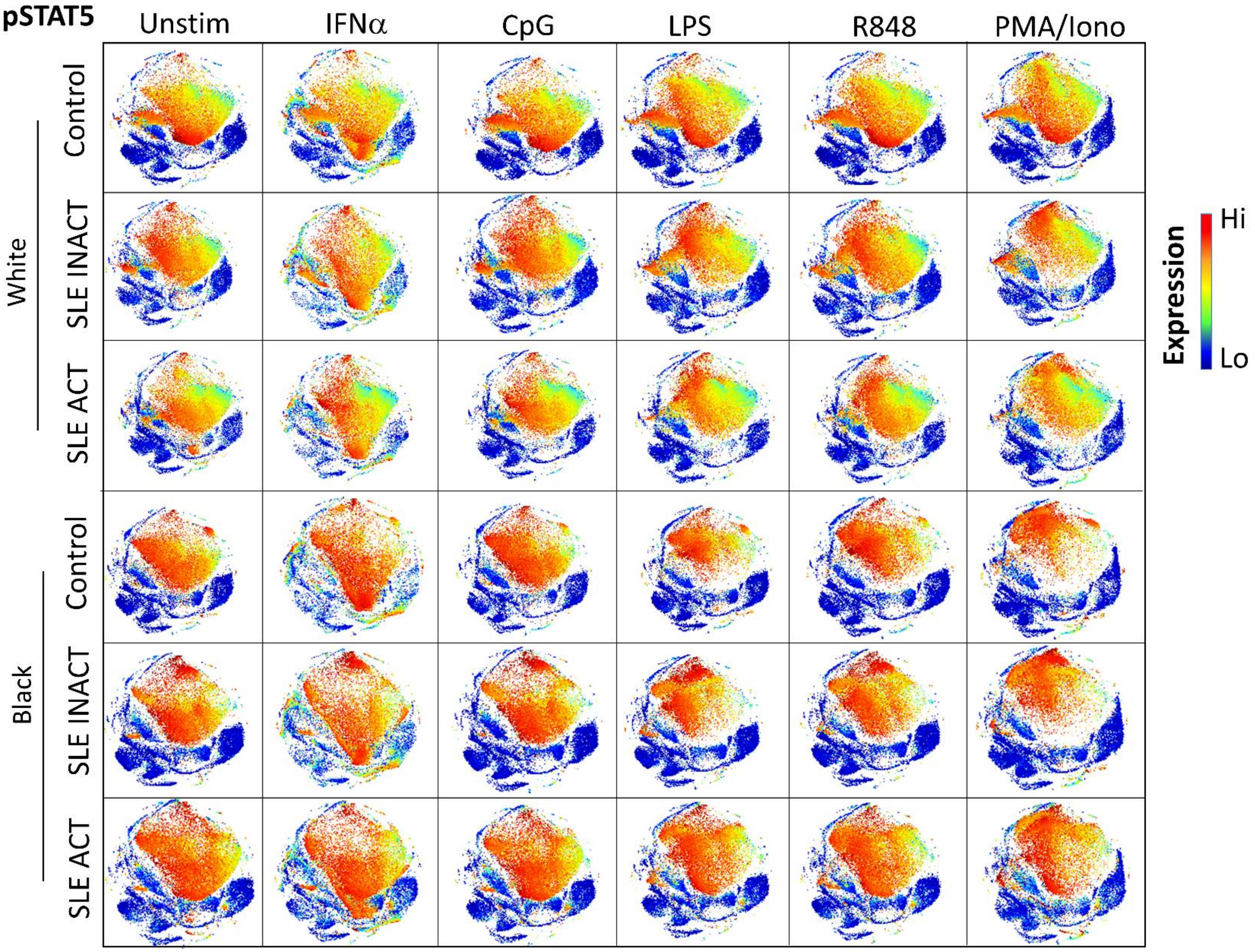
**Supplemental Figure 22. pPLC$\gamma$2 expression in cells by disease type.** Concatenated files (430,000 cells/each) were used for each ancestry and disease group to visualize expression and changes in phospho-signaling markers with stimulation. High expression is indicated in red, medium in yellow, and low expression in blue.



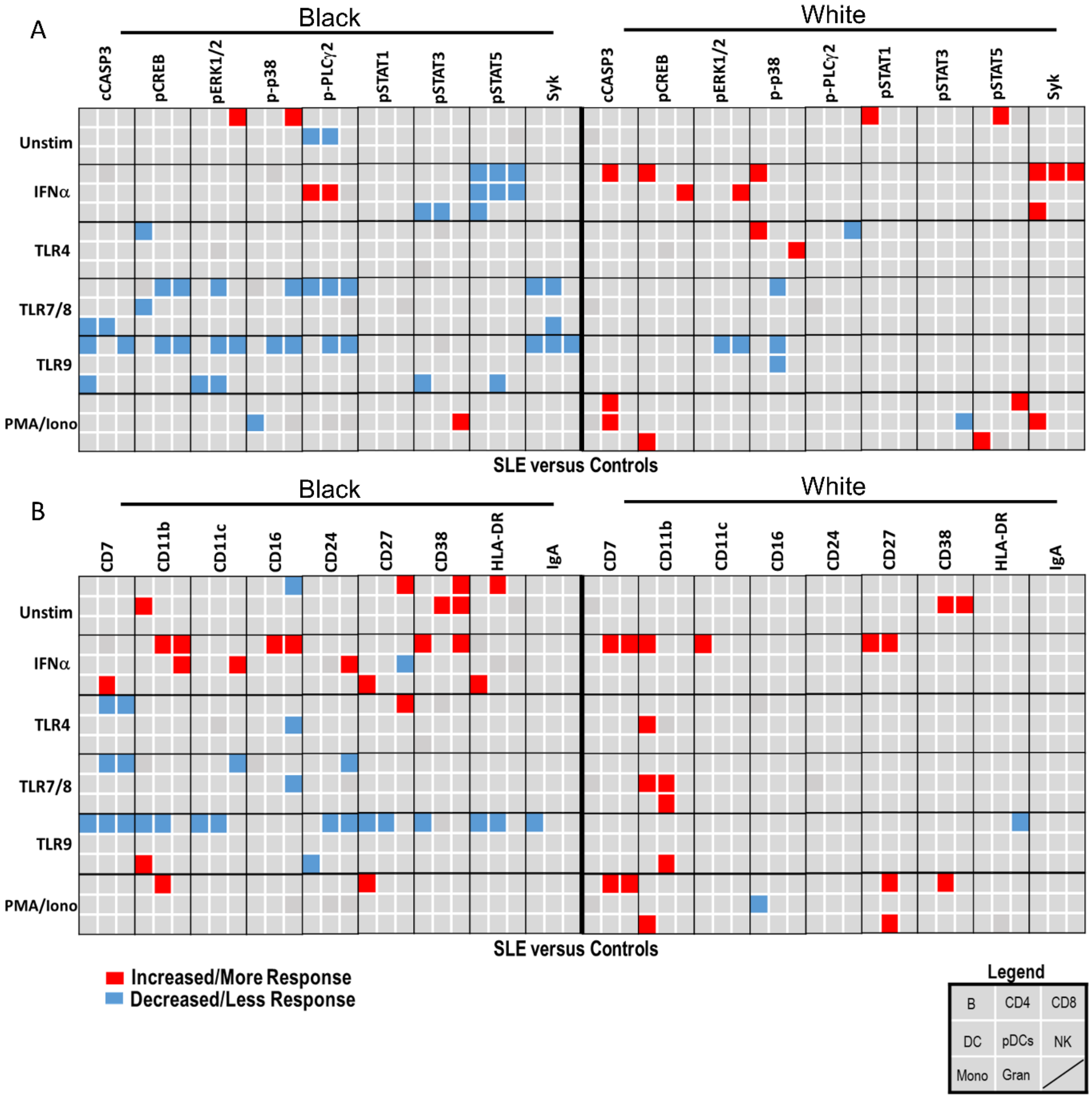
**Supplemental Figure 23. pSTAT1 expression in cells by disease type.** Concatenated files (430,000 cells/each) were used for each ancestry and disease group to visualize expression and changes in phospho-signaling markers with stimulation. High expression is indicated in red, medium in yellow, and low expression in blue.



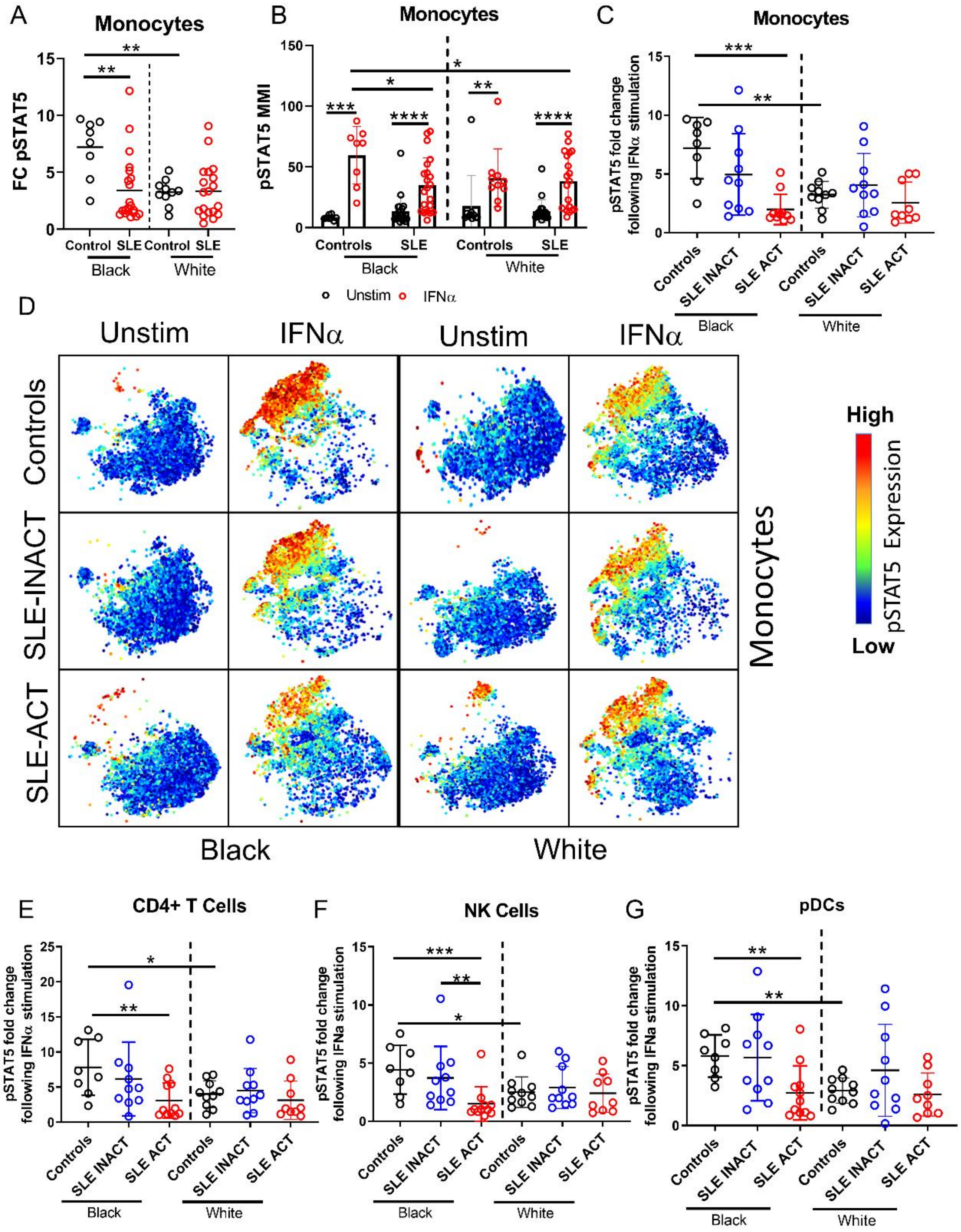
**Supplemental Figure 24. pSTAT3 expression in cells by disease type.** Concatenated files (430,000 cells/each) were used for each ancestry and disease group to visualize expression and changes in phospho-signaling markers with stimulation. High expression is indicated in red, medium in yellow, and low expression in blue.



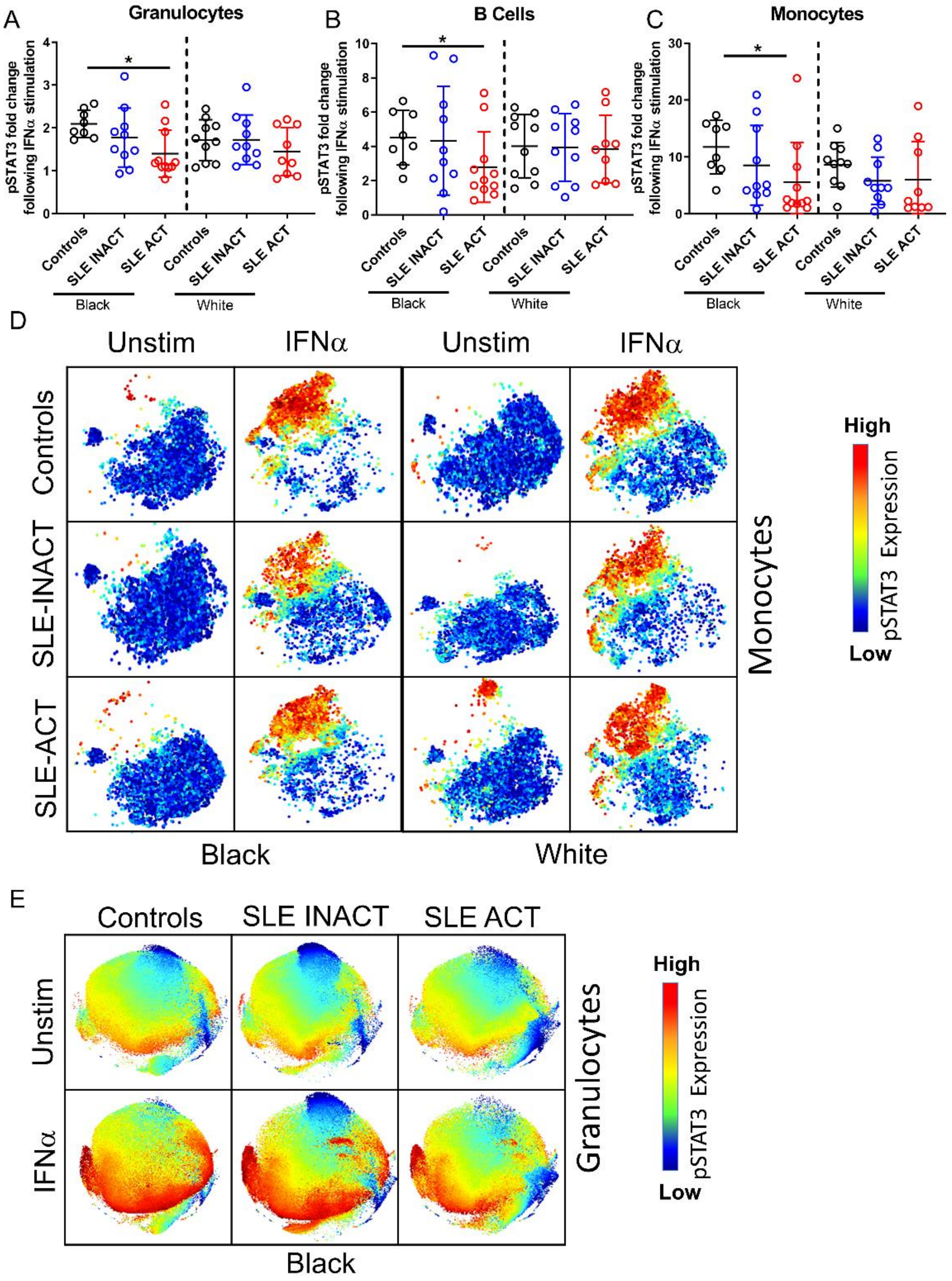
**Supplemental Figure 25. pSTAT5 expression in cells by disease type.** Concatenated files (430,000 cells/each) were used for each ancestry and disease group to visualize expression and changes in phospho-signaling markers with stimulation. High expression is indicated in red, medium in yellow, and low expression in blue.



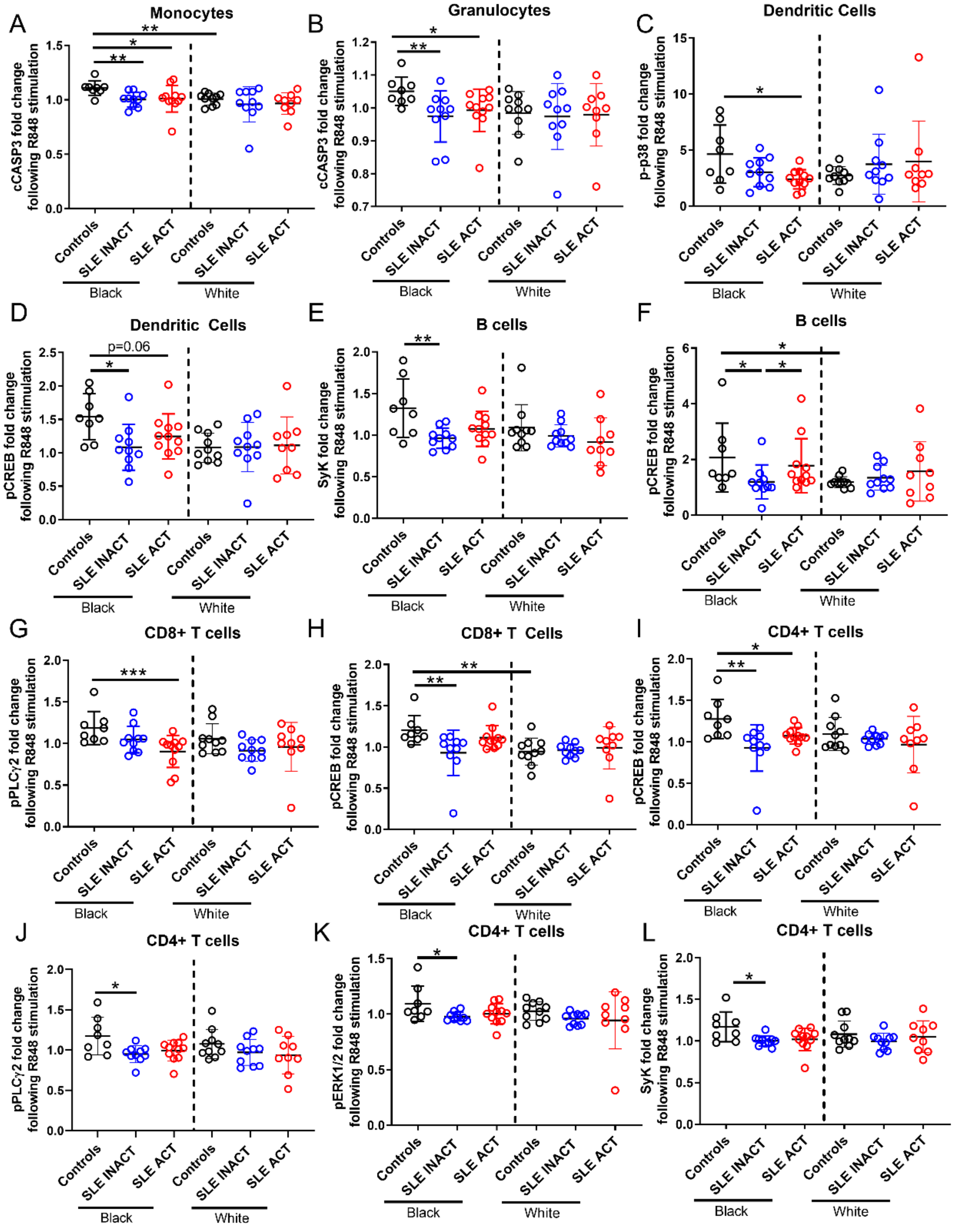
**Supplemental Figure 26. Diminished TLR7/8 and TLR9 phospho-signaling responses in SLE patients.** Peripheral whole blood from either Black or White healthy controls and SLE patients were stimulated for 4 or 15 minutes with either IFNα, PMA and ionomycin, or TLR4, TLR7/8, or TLR9 agonists. The median 95$^{th}$ percentile was used to calculate the fold change of (A) phopho-signaling markers and (B) activation markers in SLE patients over controls in 8 cell populations (See legend: B cells, CD4+ T cells, CD8+ T cells, dendritic cells [DCs], plasmacytoid DCs [pDCs], natural killer [NK] cells, monocytes [mono] and granulocytes [gran]). Significant increases or decreases in phosphorylation or activation markers following stimulation in a particular signaling molecule are noted by a blue box (decrease) or a red box (increase). The location of the box coincides with significant differences found in a specific cell population (refer to legend). p<0.05



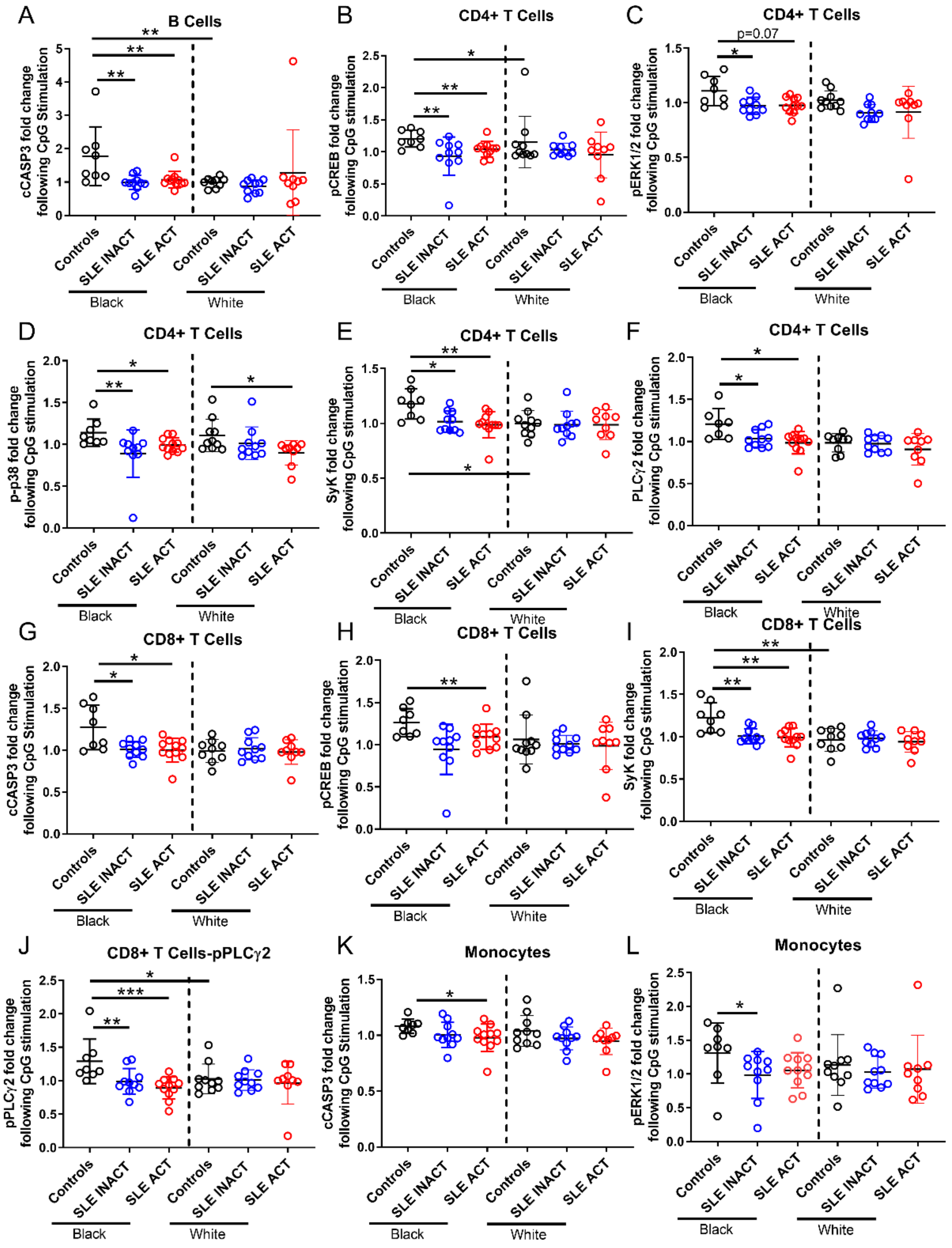
**Supplemental Figure 27. IFNα-induced pSTAT5 responses are diminished in Black SLE ACT patients.** (A) Fold change pSTAT5 levels in White and Black controls and SLE patients. (B) The total mean metal intensity of pSTAT5 (without fold change) with and without IFNα stimulation in White and Black controls and SLE patients. (C) Fold change in pSTAT5 following IFNα stimulation in SLE ACT and SLE INACT disease activity. (D) tSNE plots of monocytes showing pSTAT5 expression. The fold change of pSTAT5 following IFNα stimulation over unstimulated in (E) CD4+ T cells, (F) NK cells, and (G) pDCs. *p<0.05, **p<0.01, ***p<0.001, by Kruskal-Wallis test with two-tailed Mann-Whitney for multiple comparisons. Mean± SD shown.



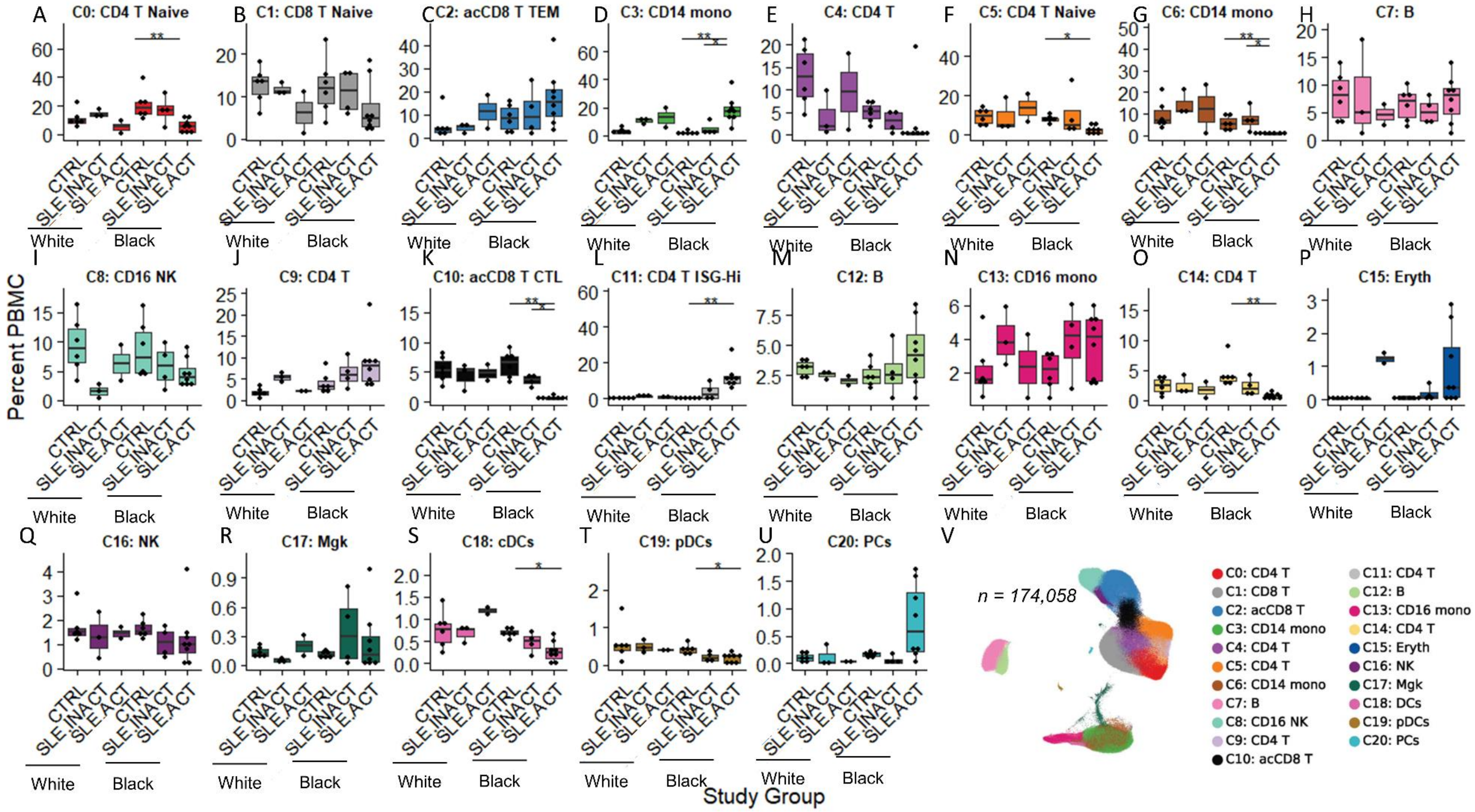
**Supplemental Figure 28. IFNα–induced pSTAT3 responses are diminished in Black SLE ACT patients.** The fold change of pSTAT3 following IFNα stimulation over unstimulated in (A) granulocytes, (B) B cells, and (C) monocytes. (D) Concatenated tSNE plots of monocytes showing pSTAT3 expression in unstimulated and IFNα-stimulated ancestry-disease groups. (E) Concatenated tSNE plots of granulocytes showing pSTAT3 expression in unstimulated and IFNα-stimulated Black disease groups. Red indicates high pSTAT3 expression, yellow medium expression, and blue low expression. $^*p<0.05$, by Kruskal-Wallis test with two-tailed Mann-Whitney for multiple comparisons. Mean± SD shown.



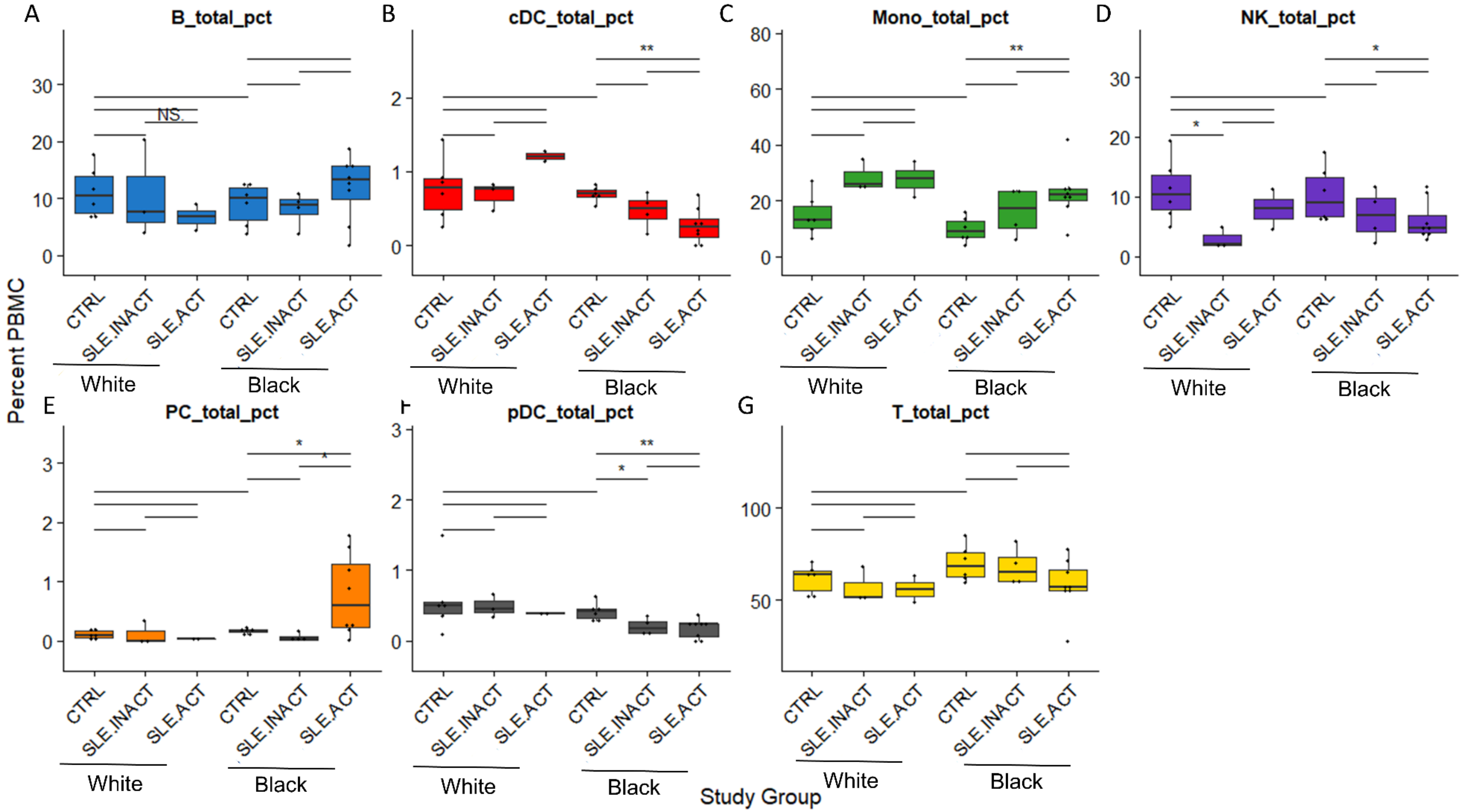
**Supplemental Figure 29. Black SLE ACT patients exhibit diminished R848 (TLR7/8) phospho-signaling responses.** Fold change levels were calculated using the 95th percentile MMI (mean metal intensity) of R848 stimulated over unstimulated levels for specific cell subsets. Significant differences were observed in (A) cCASP3-Monocytes, (B) cCASP3-Granulocytes, (C) p-p38- DCs, (D) pCREB-DCs, (E) Syk-B cells, (F) pCREB-B cells, (G) pPLCγ2-CD8+ T Cells, (H) pCREB-CD8+T Cells, (I) pCREB-CD4+ T Cells, (J) pPLCγ2-CD4+ T Cells, (K) pERK1/2-CD4+ T Cells, and (L) Syk-CD4+ T Cells. *$p<0.05$, by Kruskal-Wallis test with two-tailed Mann-Whitney for multiple comparisons. Mean± SD shown



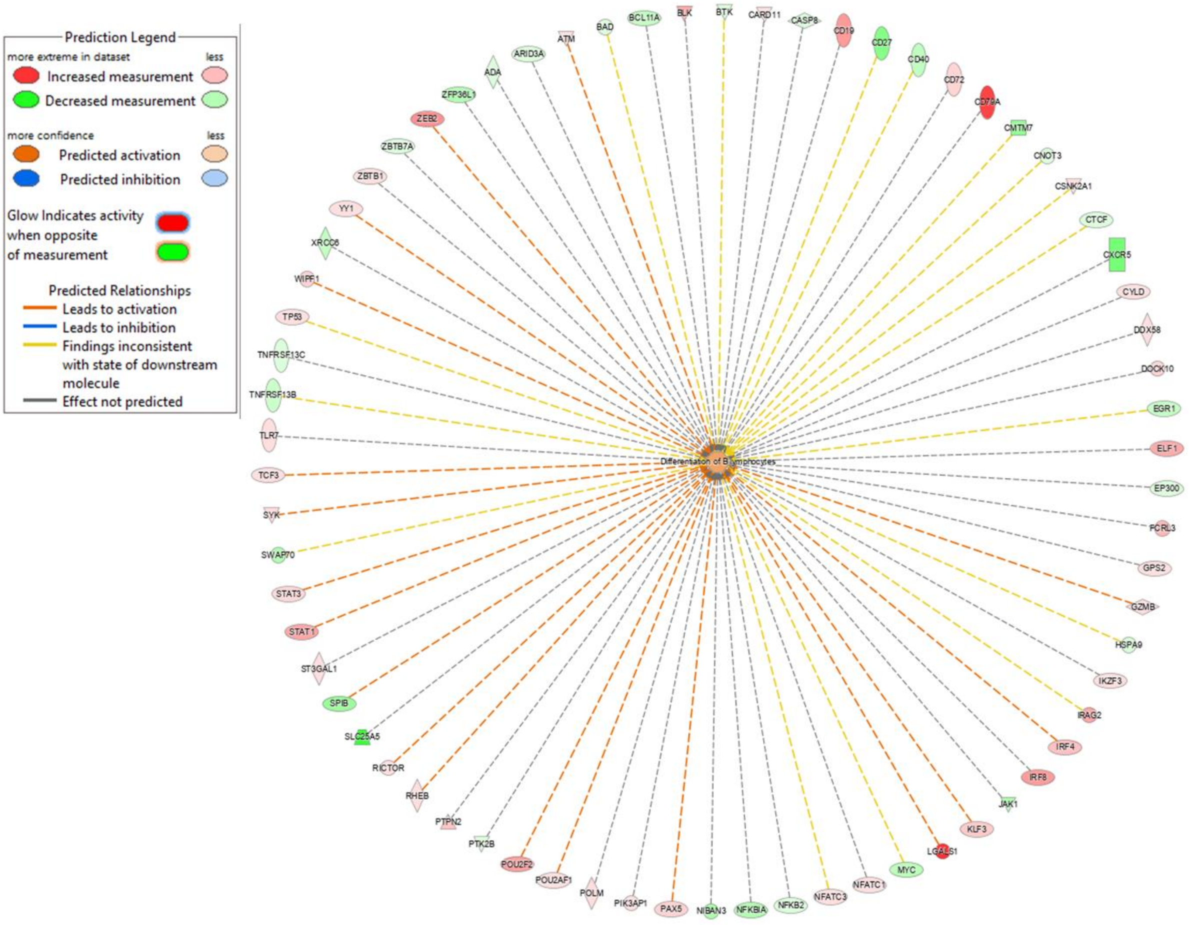
**Supplemental Figure 30. Black SLE ACT patients exhibit diminished CpG (TLR9) phospho-signaling responses.** Fold change levels were calculated using the 95th percentile MMI (mean metal intensity) of CpG stimulated over unstimulated levels for specific cell subsets. Significant differences were observed in (A) cCASP3-B cells, (B) pCREB-CD4+ T Cells, (C) pERK1/2-CD4+ T Cells, (D) p-p38-CD4+ T Cells, (E) Syk-CD4+ T Cells, (F) pPLCγ2-CD4+ T Cells, (G) cCASP3-CD8+ T Cells, (H) pCREB-CD8+T Cells, (I) Syk-CD8+ T Cells, (J) pPLCγ2-CD8+ T Cells, (K) cCASP3-Monocytes, and (L) pERK1/2-Monocytes. *p<0.05, by Kruskal-Wallis test with two-tailed Mann-Whitney for multiple comparisons. Mean± SD show.



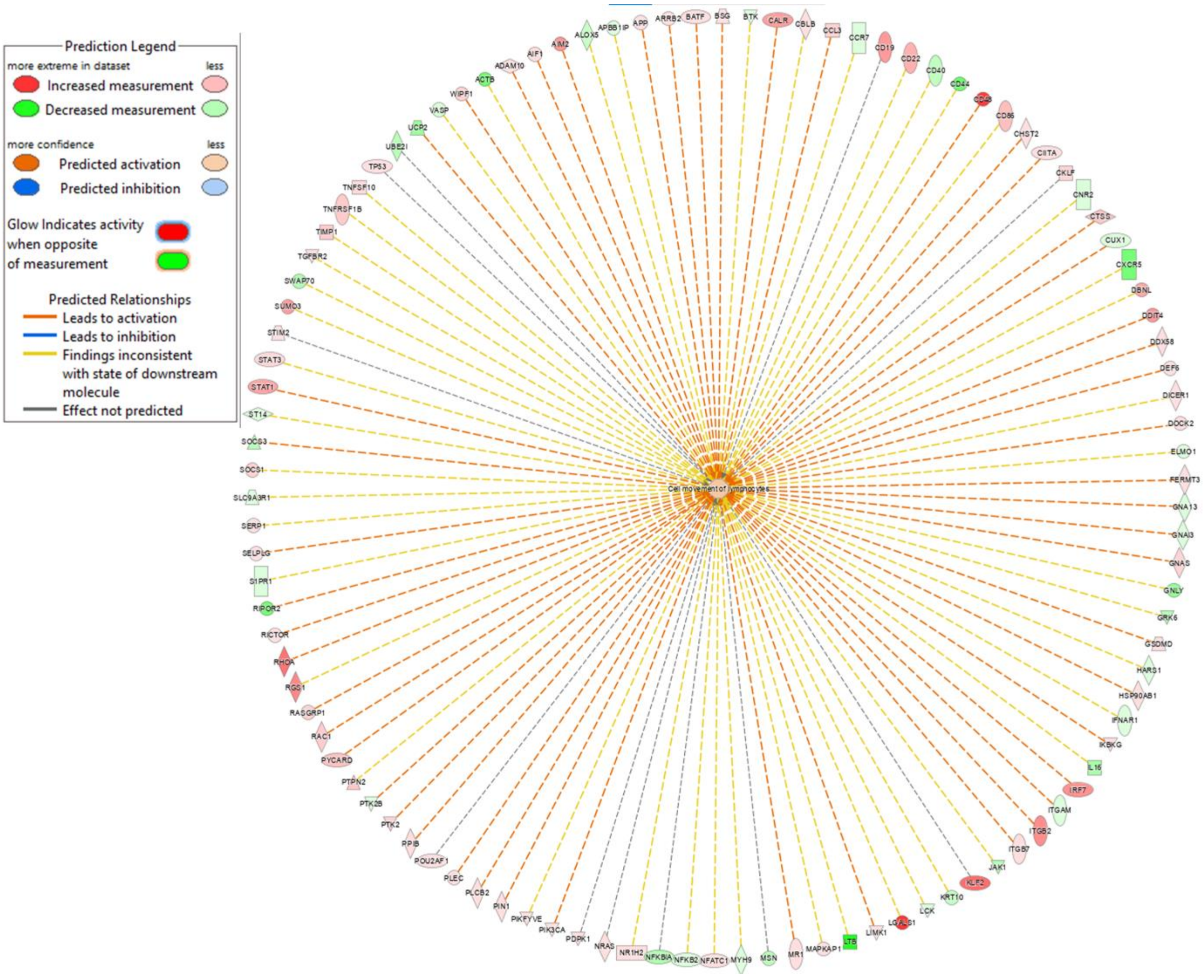
**Supplemental Figure 31. GSE135779 clustering and all cell subset frequencies.** PBMCs from 29 controls and patients with SLE were assessed by droplet-based scRNA-sequencing using a 10x genomics platform. Frequencies for **(A)** naïve CCR7+ CD4+ T cells **(B)** naïve CD8+ T Cells, **(C),** acCD8+ GZMA+ GZMH+ TEM Cells, **(D)** CD14 monocytes, **(E)** Naïve CD4+ T cells- RPS3A+ RPLP2+ **(F)** CD4+ T-LTB+, IL-32+, CD127+ Cells **(G)** CD14 monocytes **(H)** B cells **(I)** CD16+ NK Cells **(J)** CD4+ T Cells- ITGB1+ ITM2A+ **(K)** acCD8+ GZMK+ T Cells, **(L)** ISG-Hi CD4+ T cells, **(M)** B Cells, **(N)** CD16+ monocytes, **(O)** CD4+ T cells- C1orf56+, CDC42SE1+, CD16or54+, **(P)** erythrocytes, **(Q)** NK Cells, **(R)** megakaryocytes, **(S)** cDCs, **(T)** pDCs, and **(U)** plasma cells. **(V)** UMAP plot representing the 21 clusters of cells are shown. The putative identity of each cluster was determined using gene expression and protein expression from CITE-seq. UMAP representation of confirmatory dataset as presented in its original publication. *p<0.05, **p<0.01, ***p<0.001, by pairwise Wilcoxon rank sum tests between disease groups with Benjamini-Hochberg correction for multiple comparisons.



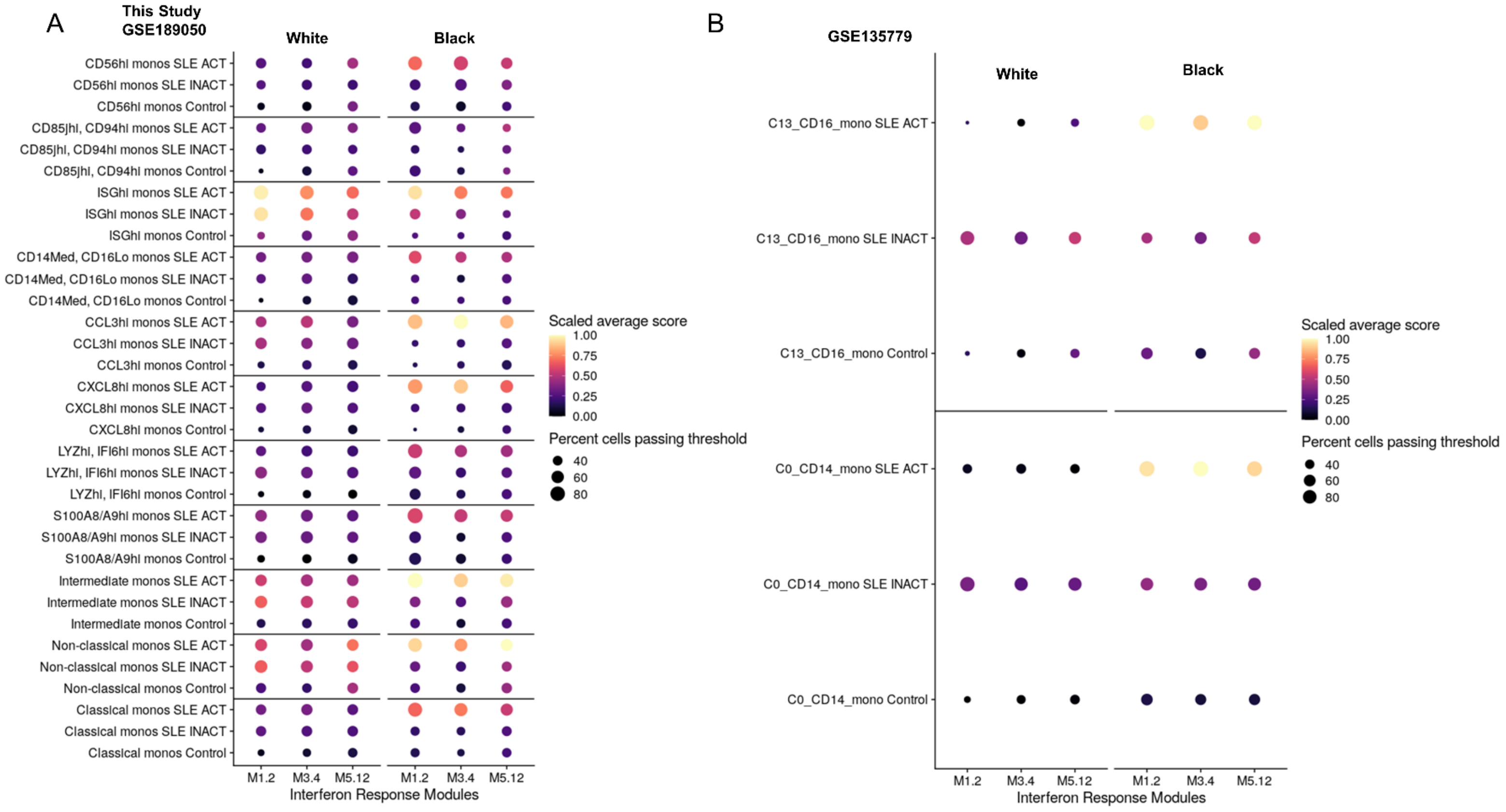
**Supplemental Figure 32. GSE135779 clustering and main cell subset frequencies.** PBMCs from 29 controls and patients with SLE were assessed by droplet-based scRNA-sequencing using a 10x genomics platform. Frequencies for total **(A)** B cells **(B)** cDCs, **(C),** monocytes, **(D)** NK cells, **(E)** plasma Cells **(F)** pDCs and, **(G)** total T cells. *p<0.05, and **p<0.01., by pairwise Wilcoxon rank sum tests between disease groups with Benjamini-Hochberg correction for multiple comparisons.



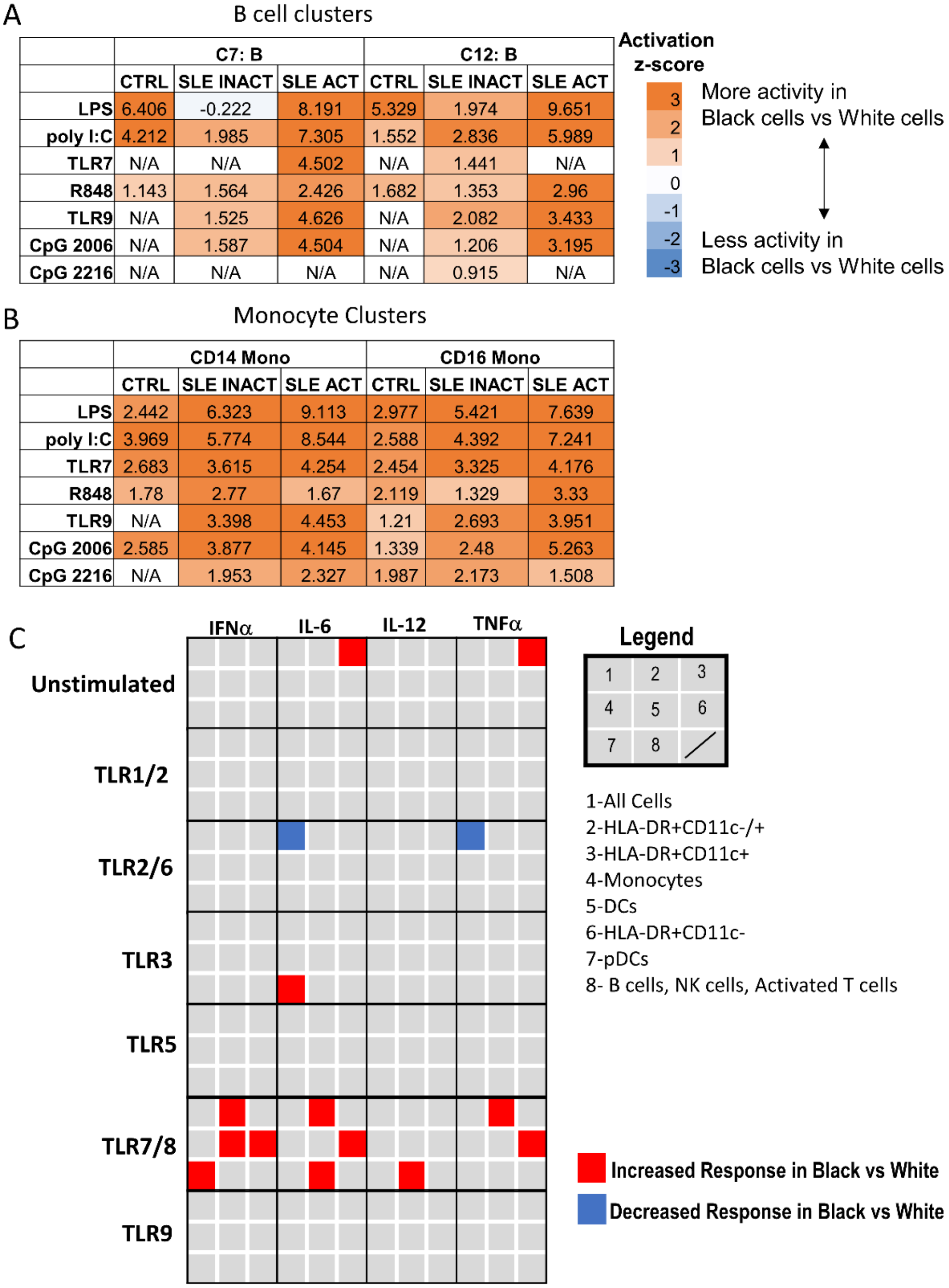
**Supplemental Figure 33. GSE135779 pathway analysis reveals increased B cell differentiation pathways in active lupus patients.** Ingenuity pathway analyses of differentially expressed genes identified differences in differentiation of B cells between SLE ACT disease activity patients and controls, specifically in memory B cells. Red indicates increased measurement of that gene expression pathway and green indicated decreased measurement.



**Supplemental Figure 34. GSE135779 pathway analysis reveals increased gene expression pathways associated with cell movement.** Ingenuity pathway analyses of differentially expressed genes identified differences in migration/cell movement of B cells between SLE ACT disease activity patients and controls, specifically in memory B cells. Red indicates increased measurement of that gene expression pathway and green indicated decreased measurement.



**Supplemental Figure 35. IFN response modules increase with disease activity in Black patients in both GSE135779 and this study (GSE189050).** Gene expression for specific IFN response modules are shown using dot plots for all monocyte subsets found by scRNA-sequencing in each study. A side by side comparison of **(A)** this study versus **(B)** GSE135779 shows similar signatures between the two studies with different patterns between White and Black patients.



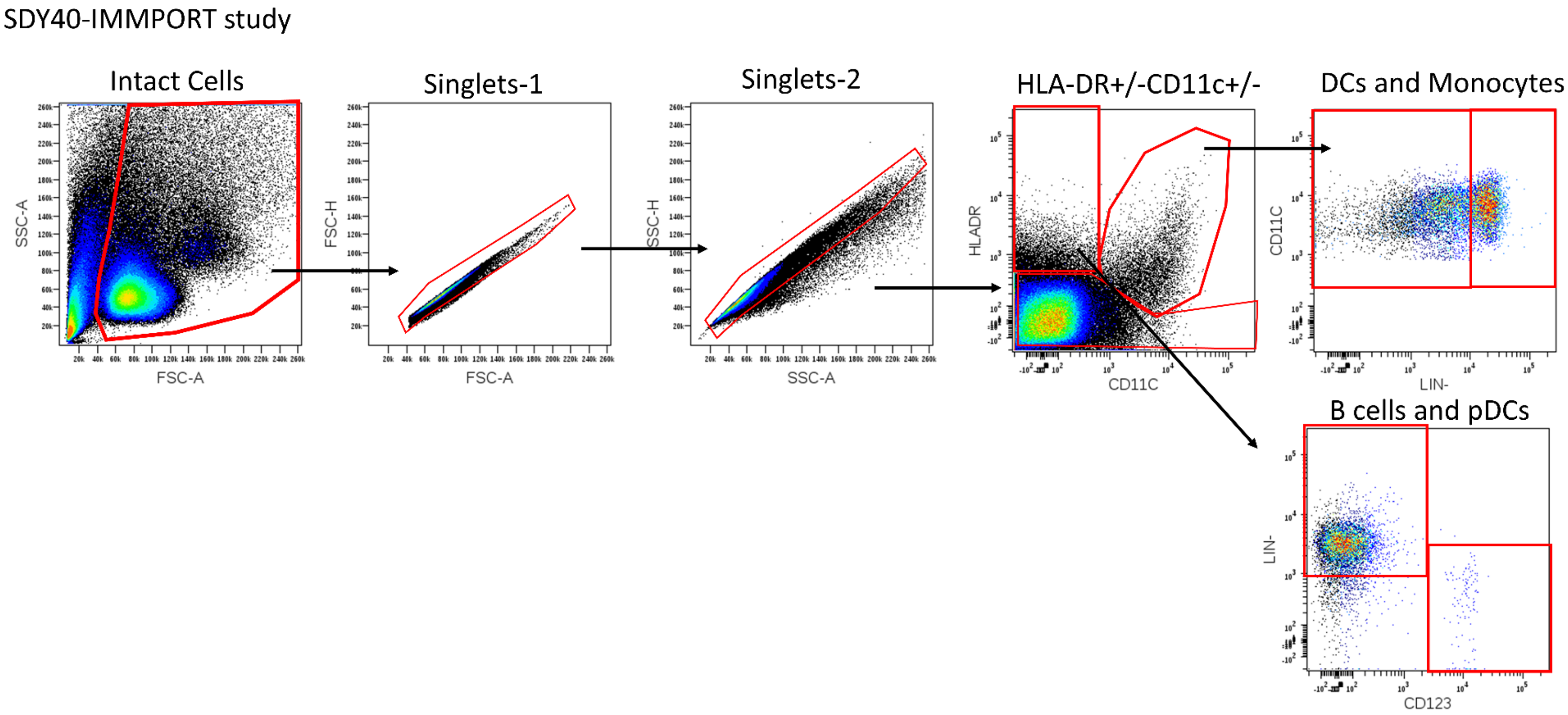
A — B cell clusters

| | C7: B | | | C12: B | | |
|---|---|---|---|---|---|---|
| | CTRL | SLE INACT | SLE ACT | CTRL | SLE INACT | SLE ACT |
| **LPS** | 6.406 | -0.222 | 8.191 | 5.329 | 1.974 | 9.651 |
| **poly I:C** | 4.212 | 1.985 | 7.305 | 1.552 | 2.836 | 5.989 |
| **TLR7** | N/A | N/A | 4.502 | N/A | 1.441 | N/A |
| **R848** | 1.143 | 1.564 | 2.426 | 1.682 | 1.353 | 2.96 |
| **TLR9** | N/A | 1.525 | 4.626 | N/A | 2.082 | 3.433 |
| **CpG 2006** | N/A | 1.587 | 4.504 | N/A | 1.206 | 3.195 |
| **CpG 2216** | N/A | N/A | N/A | N/A | 0.915 | N/A |

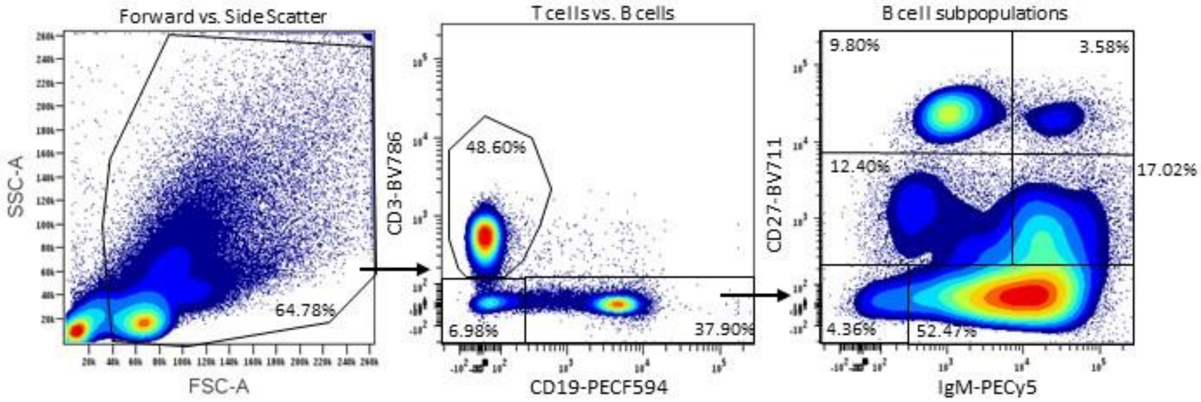
B — Monocyte Clusters

| | CD14 Mono | | | CD16 Mono | | |
|---|---|---|---|---|---|---|
| | CTRL | SLE INACT | SLE ACT | CTRL | SLE INACT | SLE ACT |
| **LPS** | 2.442 | 6.323 | 9.113 | 2.977 | 5.421 | 7.639 |
| **poly I:C** | 3.969 | 5.774 | 8.544 | 2.588 | 4.392 | 7.241 |
| **TLR7** | 2.683 | 3.615 | 4.254 | 2.454 | 3.325 | 4.176 |
| **R848** | 1.78 | 2.77 | 1.67 | 2.119 | 1.329 | 3.33 |
| **TLR9** | N/A | 3.398 | 4.453 | 1.21 | 2.693 | 3.951 |
| **CpG 2006** | 2.585 | 3.877 | 4.145 | 1.339 | 2.48 | 5.263 |
| **CpG 2216** | N/A | 1.953 | 2.327 | 1.987 | 2.173 | 1.508 |

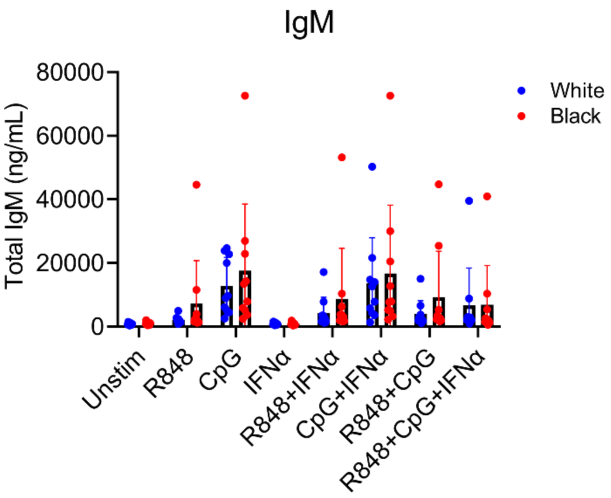
**Supplemental Figure 36. TLR signaling pathways are elevated in Black SLE patients and TLR7/8 pathways are also elevated in Black controls.** Differentially expressed genes between Black and White samples identified by scRNA-seq in GSE135779 of **(A)** B cells and **(B)** monocyte cell clusters were assessed by Ingenuity Pathway Analysis to determine differences in the activity of TLR pathways. Red indicates increased TLR pathway activity in Black versus White, White indicates no change, and blue indicates decreased TLR activity. **(C)** PBMCs from 14 subjects in SDY40 were stimulated for 18 hours, with brefeldin A added at the end of stimulation, for assessment of intracellular cytokines. Cells were assessed for IFNα, IL-6, IL-12, and TNFα by flow cytometry. Significantly increased (red) or decreased (blue) production of cytokines are reported by cell type based on the location within the grey box. $p<0.05$



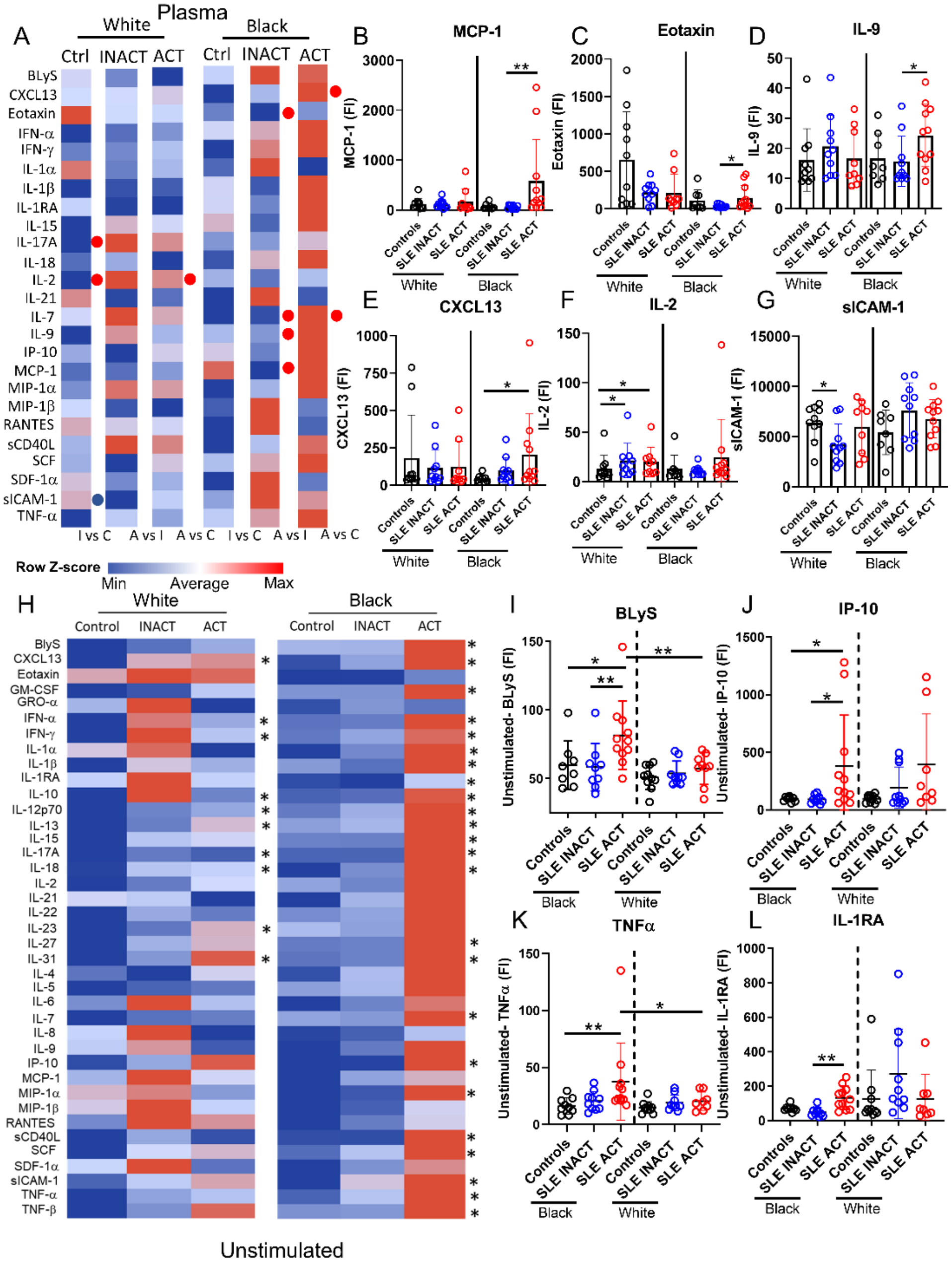
**Supplemental Figure 37. Gating strategy for SDY40.** Cells were first gated on intact, singlet cells, following by cell type-specific subgating using the markers available in the panel.



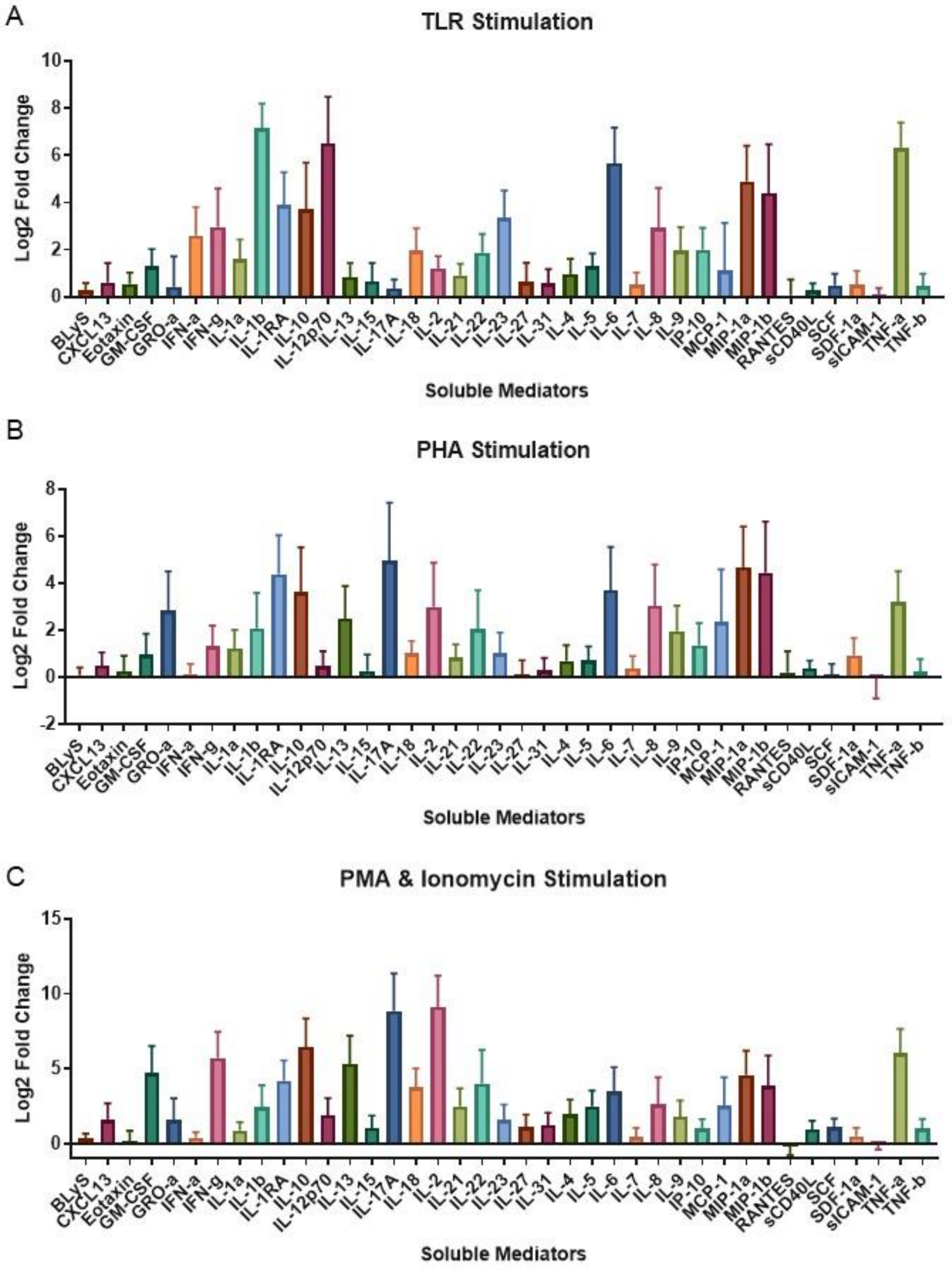
**Supplemental Figure 38. Representative gating hierarchies for B cell subpopulations for in vitro TLR stimulation experiment.** Confirmation gating hierarchy used to access the B cell subpopulations from 10 healthy control Black and 10 healthy control White PBMCs stimulated with TLR9, TLR7/8, IFN$\alpha$, or left unstimulated for 7 days. In addition, all major cell populations and B cell subsets were assessed using tSNE as depicted in Figure 7.



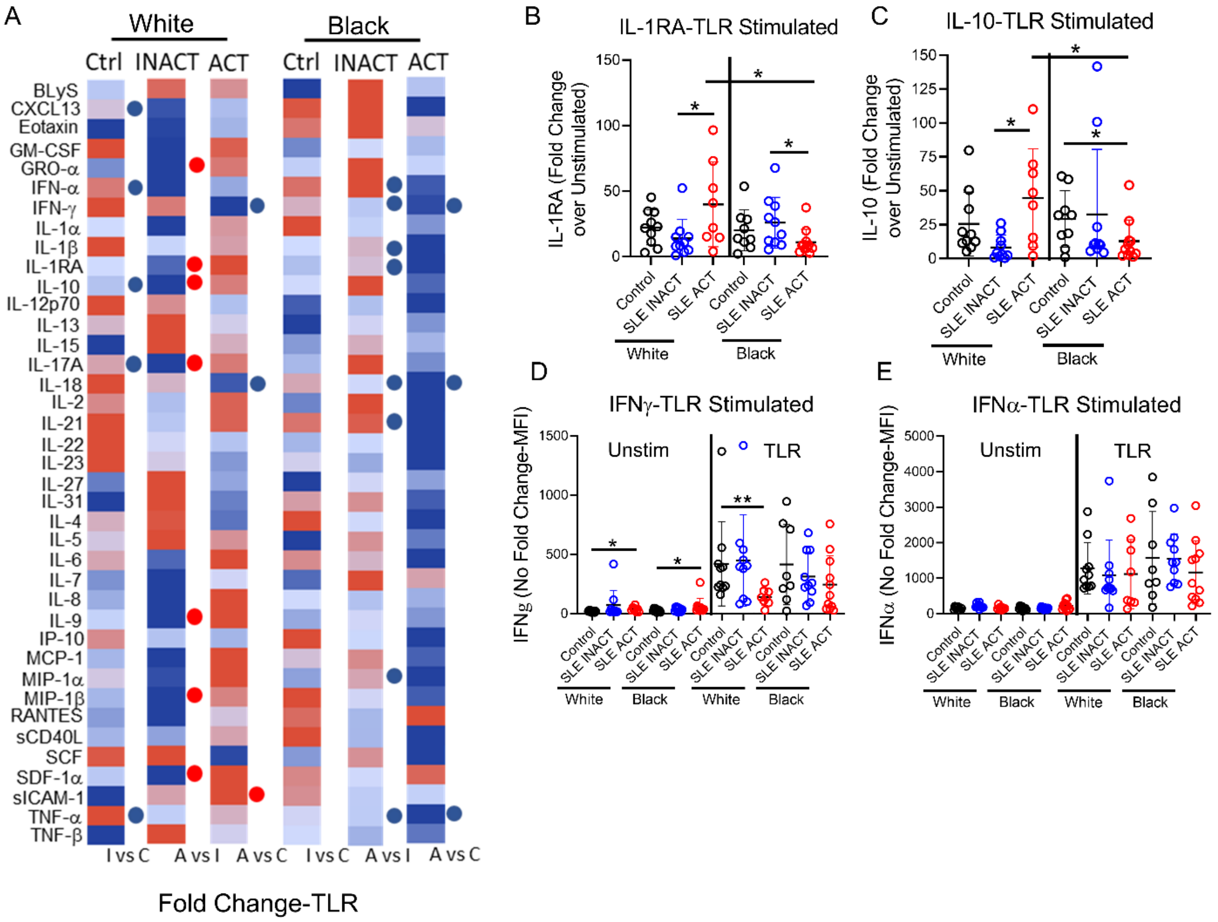
**Supplemental Figure 39. IgM culture supernatant levels after 7 days stimulation with TLR agonists and/or IFNα.** PBMCS from 10 healthy White controls and 10 healthy Black controls without autoimmune disease characteristics were plated at 1 million cells/well and stimulated alone or in combination with TLR7/8 (R848), TLR9 (CpG), or IFNα for 7 days. Culture supernatants were collected and assayed for IgM antibody levels using ELISA. No significant differences were observed between White and Black subjects.



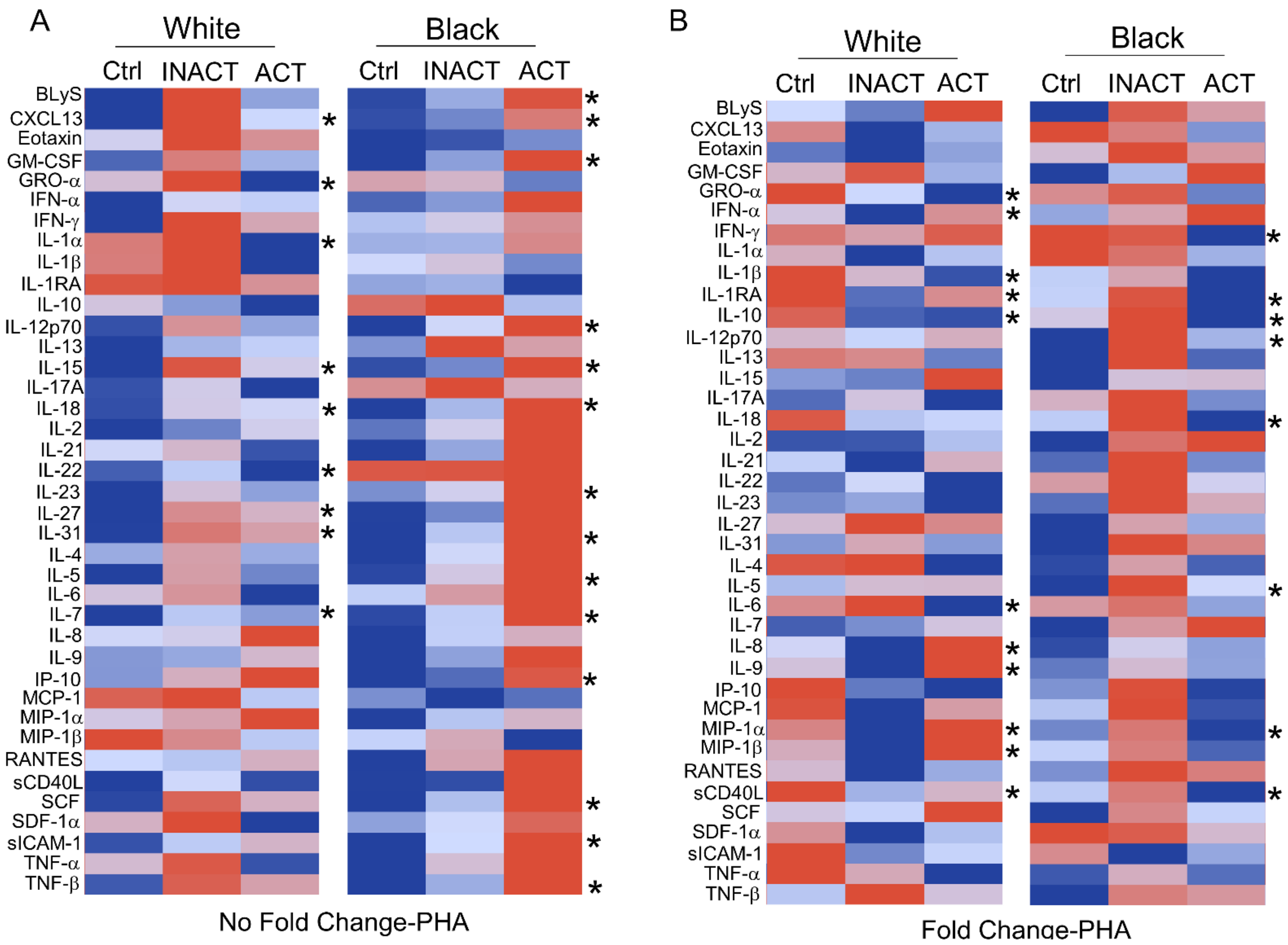
**Supplemental Figure 40. Plasma and unstimulated cytokine levels are elevated in Black SLE ACT patients.** Plasma and whole blood culture supernatant cytokine levels were assessed using multiplex assay and ELISA (BLyS) to measure 39 different soluble mediators. (A) A heatmap summary of cytokine levels by ancestry disease groups is shown for plasma cytokines. Significant differences ($p<0.05$) between disease groups are noted with a red dot (significantly increased) or blue dot (significant decrease). Dot plots of significant differences in plasma levels of (B) MCP-1, (C) eotaxin, (D) IL-9, (E) CXCL13, (F) IL-2, (G) sICAM-1 are shown. (H) A heatmap summary of unstimulated culture supernatants reflect cytokine levels after 24 hours in culture. Significant differences ($p<0.05$) among White or Black controls, SLE INACT, and SLE ACT patients are noted with an asterisk. Notably, Black SLE ACT patients had significantly higher levels (I) BLyS, (J) IP-10, (K) TNFα, and (L) IL-1RA following 24 hour incubation. *$p<0.05$, **$p<0.01$, by Kruskal-Wallis test with two-tailed Mann-Whitney for multiple comparisons. Mean± SD shown.



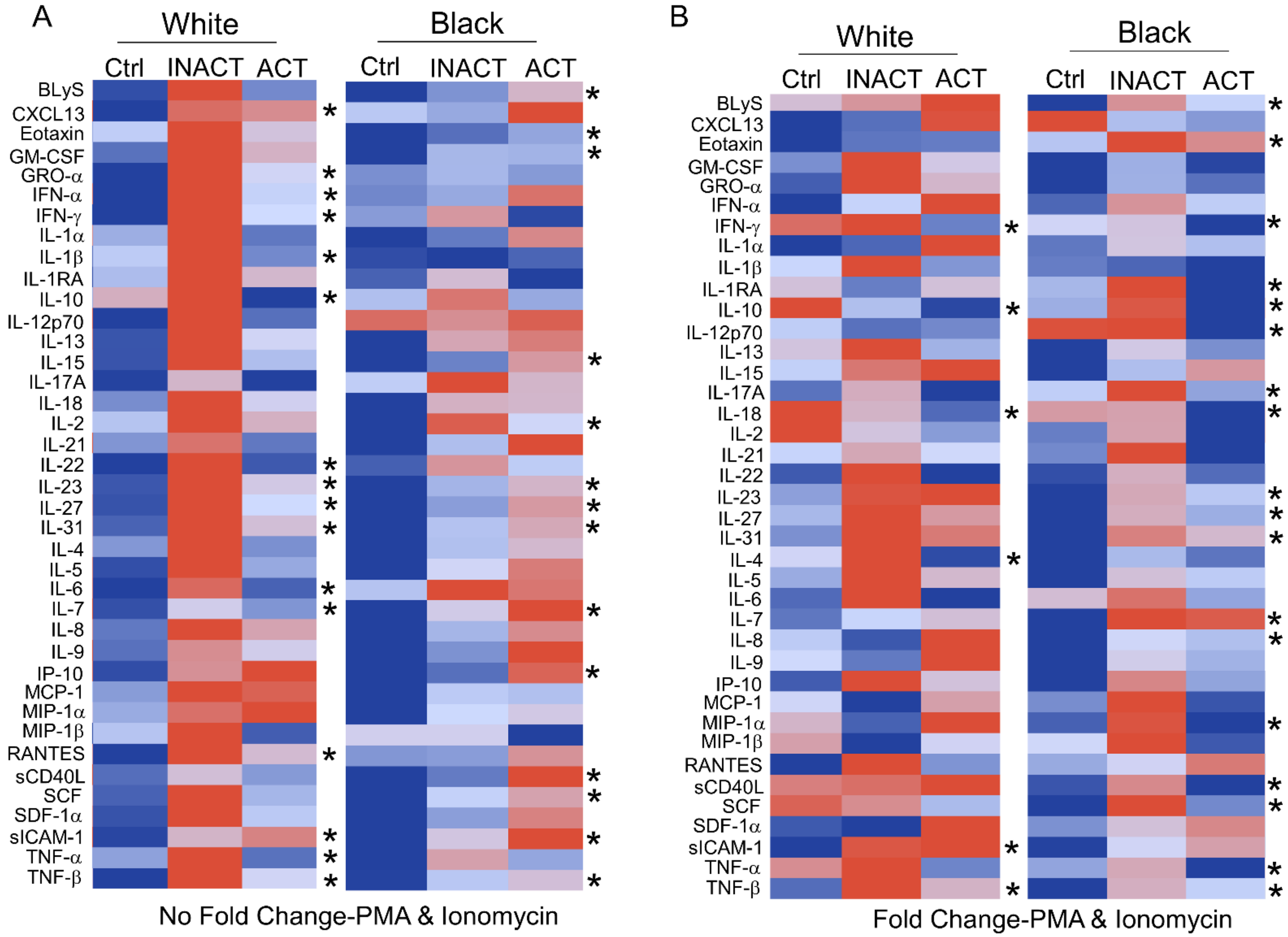
**Supplemental Figure 41. Overall cytokine production after different stimulation conditions.** To illustrate the cytokine pathways being driven in whole blood by (A) TLR (TLR4/7/8/9 agonists), (B) PHA, and (C) PMA/ionomycin stimulations, the log2 fold change following a 24-hour incubation for all 58 subjects is shown.



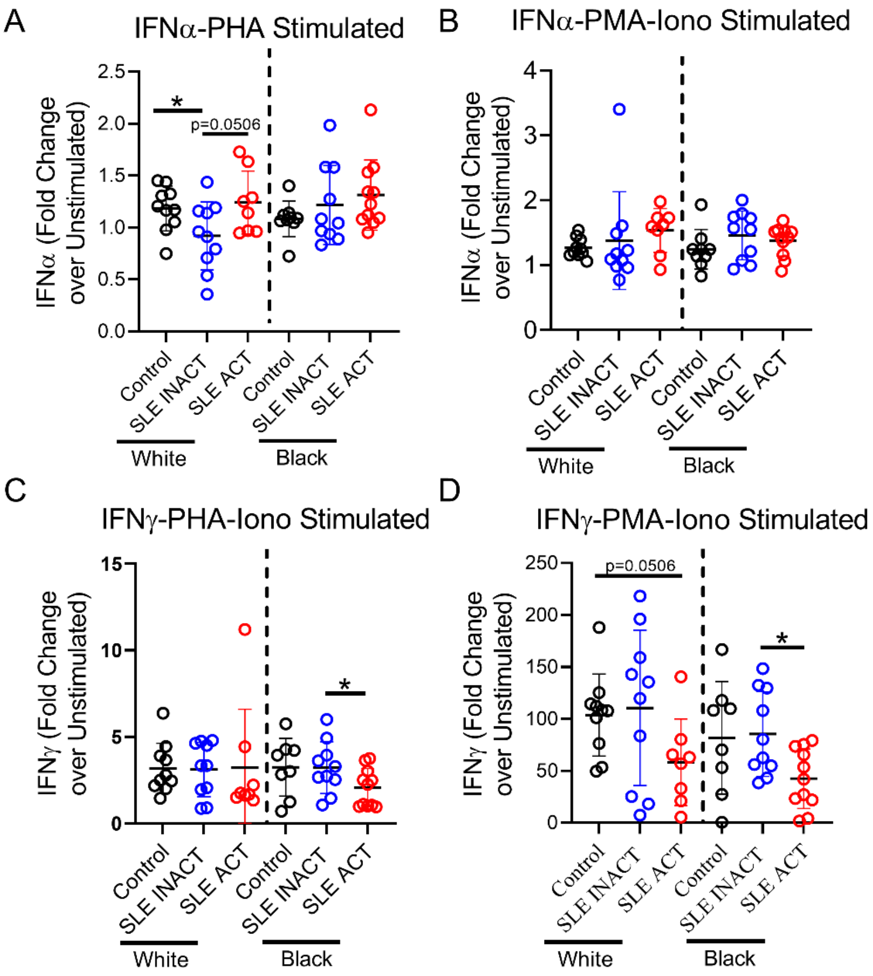
**Supplemental Figure 42. Fold change in cytokine levels following TLR stimulation.** Whole blood was stimulated for 24 hours with TLR4/7/8/9 agonists. Soluble mediators were measured in culture supernatants using multiplex and ELISA assays. (A) A heatmap summary of the fold change in cytokine levels by ancestry and disease group is shown. Significant differences ($p<0.05$) between disease groups are noted with a red dot (significantly increased) or blue dot (significant decrease). White SLE ACT patients were distinguished by significantly greater fold change differences in (B) IL-1RA and (C) IL-10 following TLR stimulation. Raw cytokine levels of (D) IFNγ and (E) IFNα in unstimulated and TLR stimulated culture supernatants show increased expression following stimulation but an inability of SLE ACT patients to make as much type I or II IFN cytokine as healthy controls. *$p<0.05$, **$p<0.01$, by Kruskal-Wallis test with two-tailed Mann-Whitney for multiple comparisons. Mean± SD shown.



**Supplemental Figure 43. Raw level and fold change cytokine levels following PHA stimulation.** Whole blood was stimulated for 24 hours with PHA. Soluble mediators were measured in culture supernatants using multiplex and ELISA assays. Heat map summaries of (A) the total cytokine levels and (B) fold change in cytokine levels by ancestry and disease group are shown. Significant differences (p<0.05) between White and Black controls and disease groups are noted with an asterisk. Stastical significance assessed using Kruskal-Wallis test.



**Supplemental Figure 44. Raw level and fold change cytokine levels following PMA and ionomycin stimulation.** Whole blood was stimulated for 24 hours with PMA/ionomycin. Soluble mediators were measured in culture supernatants using multiplex and ELISA assays. (A) Heat map summaries of (A) the total cytokine levels and (B) fold change in cytokine levels by ancestry and disease group. Significant differences ($p<0.05$) between White and Black controls and disease groups are noted with asterisk. Statistical significance assessed using Kruskal-Wallis test.



**Supplemental Figure 45. Fold change in type I and II IFN levels following PHA or PMA/ionomycin stimulation.** Whole blood was stimulated for 24 hours with PHA or PMA/ionomycin. Soluble mediators were measured in culture supernatants using multiplex and ELISA assays and fold change values were calculated over unstimulated culture supernatants for IFNα following (A) PHA and (B) PMA/ionomycin and for IFNγ following (C) PHA and (D) PMA-ionomycin. *p<0.05, by Kruskal-Wallis test with two-tailed Mann-Whitney for multiple comparisons. Mean± SD shown.

**Supplemental Table 1. Age, Medication Use, and Disease Activity of Study Participants**

| **Race (n)** | **White (n=29)** | | | | **Black (n=29)** | | | |
|---|---|---|---|---|---|---|---|---|
| **Groups (n)** | **Control (n=10)** | **SLE INACT (n=10)** | **SLE ACT (n=9)** | **p-value** | **Control (n=8)** | **SLE INACT (n=10)** | **SLE ACT (n=11)** | **p-value** |
| **Age (Mean±SD)** | 45.9 (13.5) | 45.7 (15.2) | 47.4 (13.7) | 0.9 | 45.4 (11.3) | 40.8 (15.2) | 36.0 (12.4) | 0.2 |
| **Medication** | | | | | | | | |
| Anti-malarials | - | 6 (60%) | 6 (67%) | - | - | 7 (70%) | 7 (64%) | - |
| Steroids | - | 3 (30%) | 5 (56%) | - | - | 4 (40%) | 2 (18%) | - |
| Immunosuppressants | - | 5 (50%) | 4 (44%) | - | - | 5 (50%) | 4 (36%) | - |
| Biologics | - | 1 (10%) | 2 (22%) | - | - | 0 (0%) | 0 (0%) | - |
| **Mean SLEDAI (Range)** | - | 1.2 (0-3) | 6.3 (4-10) | - | - | 1.3 (0-2) | 7.4 (4-11) | - |

**Supplemental Table 2. SLE patient active SLEDAI criteria at time of study**

| | White | | Black | | p-value |
|---|---|---|---|---|---|
| **Clinical Criteria** | **SLE-INACT (n=10)** | **SLE-ACT (n=9)** | **SLE-INACT (n=10)** | **SLE-ACT (n=11)** | **Black vs White** |
| **Arthritis** | None | 6 (67%) | None | 5 (50%) | 0.727 |
| **Proteinuria** | None | 1 (11%) | None | 3 (30%) | 0.607 |
| **Pyuria** | None | None | None | 3 (30%) | 0.233 |
| **Rash** | None | 3 (33%) | 1 (10%) | 3 (30%) | >0.999 |
| **Alopecia** | None | 2 (22%) | 2 (20%) | 3 (30%) | 0.413 |
| **Mucusol Ulcers** | None | 1 (11%) | 1 (10%) | 1 (10%) | >0.999 |
| **Low Complement** | 4 (40%) | 5 (56%) | 1 (10%) | 7 (70%) | 0.75 |
| **Increased DNA binding** | 2 (20%) | 3 (33%) | 2 (20%) | 6 (60%) | 0.495 |
| **Leukopenia** | 1 (10%) | None | None | 3 (30%) | 0.607 |
| **Lymphopenia** | 1 (10%) | 3 (33%) | 1 (10%) | 5 (50%) | 0.721 |

**Supplemental Table 3. Autoantibody specificity by SLE disease activity.**

| | **White** | | | **Black** | | | p-value | p-value | p-value |
|---|---|---|---|---|---|---|---|---|---|
| **Antibody Specificity** | **SLE-INACT (n=10)** | **SLE-ACT (n=9)** | **p-value** | **SLE-INACT (n=10)** | **SLE-ACT (n=11)** | **p-value** | **White SLE-INACT vs Black SLE-INACT** | **White SLE-ACT vs Black SLE-ACT** | **White SLE vs Black SLE** |
| dsDNA | 6 (60%) | 6 (67%) | >0.999 | 3 (30%) | 8 (64%) | 0.086 | 0.370 | >0.999 | 0.538 |
| Chromatin | 3 (30%) | 4 (44%) | 0.650 | 2 (20%) | 7 (64%) | 0.085 | >0.999 | 0.653 | 0.755 |
| RNP | 2 (20%) | 3 (33%) | 0.629 | 4 (40%) | 7 (64%) | 0.395 | 0.629 | 0.370 | 0.117 |
| Sm | 1 (10%) | 3 (33%) | 0.303 | 1 (10%) | 5 (45%) | 0.149 | >0.999 | 0.670 | 0.721 |
| SmRNP | 2 (20%) | 4 (44%) | 0.350 | 6 (60%) | 7 (64%) | >0.999 | 0.170 | 0.653 | 0.067 |
| Ro | 5 (50%) | 5 (55%) | >0.999 | 3 (30%) | 2 (18%) | 0.635 | 0.650 | 0.160 | 0.102 |
| La | 0 (0%) | 3 (33%) | 0.087 | 1 (10%) | 0 (0%) | 0.476 | >0.999 | 0.074 | 0.331 |
| Ribo P | 1 (10%) | 2 (22%) | 0.582 | 0 (0%) | 3 (27%) | 0.214 | >0.999 | >0.999 | >0.999 |
| Centromere B | 0 | 0 | - | 0 | 0 | - | - | - | - |
| Scl-70 | 0 | 0 | - | 0 | 0 | - | - | - | - |
| Jo-1 | 0 | 0 | - | 0 | 0 | - | - | - | - |

**Supplemental Table 4. Antibodies and elemental isotope tags**.

| Antigen Target (Human) | Clone | Supplier | Elemental Isotope |
|---|---|---|---|
| cCasp3 | D3E9 | Fluidigm | 142Nd |
| CD11b | ICRF44 | Fluidigm | 144Nd |
| CD11c | Bu15 | Fluidigm | 159Tb |
| CD123 (IL-3R) | 6H6 | Fluidigm | 151Eu |
| CD127 (IL-7Ra) | A019D5 | Fluidigm | 176Yb |
| CD14 | M5E2 | Fluidigm | 160Gd |
| CD141 (BDCA-3) | AD514H12 | Miltenyi | 161Dy |
| CD16 | B73.1 | Biolegend | 166Er |
| CD19 | HIB19 | Biolegend | 143Nd |
| CD20 | 2H7 | Fluidigm | 147Sm |
| CD24 | ML5 | BD | 157Gd |
| CD25 | M-A251, BD | BD | 164Dy |
| CD27 | L128 | BD | 152Sm |
| CD3 | UCHT1 | Fluidigm | 170Er |
| CD38 | HIT2 | Fluidigm | 167Er |
| CD4 | RPA-T4 | Fluidigm | 145Nd |
| CD45 | HI30 | Fluidigm | 154Sm |
| CD45RA | H100 | Fluidigm | 153Eu |
| CD56 | HCD56 | Biolegend | 175Lu |
| CD66a | CD66a-B1.1 | Fluidigm | 171Yb |
| CD7 | CD7-687 | Biolegend | 149Sm |
| CD8a | SK1 | Fluidigm | 168Er |
| HLA-DR | L243 | Fluidigm | 174Yb |
| IgA | Polyclonal | Fluidigm | 148Nd |
| IgD | IA6-2 | Fluidigm | 146Nd |
| pCREB [S133] | 87G3 | Fluidigm | 165Ho |
| pERK1/2 | 20A, BD | BD | 162Dy |
| p-p38 [T180/Y182] | D3F9 | Fluidigm | 156Gd |
| pPLCg2 | K86-68937 | BD | 173Yb |
| pSTAT1 | 4a | BD | 169Tm |
| pStat3 [Y705] | 4 | Fluidigm | 158Gd |
| pSTAT5 | 47/Stat5(pY694) | BD | 172Yb |
| Syk | 4D10.2 | Biolegend | 150Nd |

**Table 5. Antibodies and elemental isotope tags.**

| Antigen Target (Human) | Clone Number | Supplier | Elemental Isotope |
|---|---|---|---|
| CCR6 | IA9 | BD | Gd155 |
| CCR7 | 150503 | R&D Systems | Gd160 |
| CD11b | ICRF44 | BioLegend | Eu153 |
| CD11c | Bu15 | BioLegend | Nd148 |
| CD123 | 9F5 | BD | Yb173 |
| CD127 | A019D5 | BioLegend | Ho165 |
| CD14 | M5E2 | BioLegend | Sm154 |
| CD16 | 3G8 | BioLegend | Sm149 |
| CD161 | DX12 | BD | Er170 |
| CD19 | SJ25C1 | Southern Biotech | Nd142 |
| CD20 | 2H7 | BioLegend | Dy164 |
| CD24 | ML5 | BioLegend | Er168 |
| CD25 | M-A251 | BD | Yb176 |
| CD27 | L128 | BD | Sm152 |
| CD28 | L293 | BD | Er167 |
| CD3 | UCHT1 | BD | Nd150 |
| CD33 | P67.8 | BD | Er166 |
| CD38 | HB-7 | BD | Eu151 |
| CD4 | SK3 | BioLegend | Nd143 |
| CD45RA | HI100 | BioLegend | Dy162 |
| CD56 | NCAM16.2 | BD | Yb174 |
| CD57 | HCD57 | BioLegend | In113 |
| CD8 | SK1 | BioLegend | Nd144 |
| CD85j | 292319 | R&D Systems | Sm147 |
| CD86 | IT2.2 | BioLegend | Gd157 |
| CD94 | HP-3D9 | BD | Gd156 |
| CXCR3 | G025H7 | BioLegend | Tb159 |
| CXCR5 | RF8B2 | BD | Gd158 |
| HLADR | G46-6 | BD | Lu175 |
| ICOS | DX29 | BD | Tm169 |
| IgD | IA6-2 | BioLegend | Nd146 |
| PD-1 | EH12.1 | BD | Yb172 |
| TCRγδ | B1 | BioLegend | Yb171 |

## Supplemental Table 6. Demographics of Study Participants by Disease Group

| Race (n) | White (n=38) | | | | Black (n=27) | | | |
|---|---|---|---|---|---|---|---|---|
| Groups (n) | ANA- (n=18) | SLE INACT (n=13) | SLE ACT (n=7) | p-value | ANA- (n=14) | SLE INACT (n=6) | SLE (n=7) | p-value |
| Age (Mean±SD) | 40.5 (14.6) | 49.0 (10.3) | 43.0 (12.2) | 0.7 | 41.5 (10.5) | 44.5 (10.0) | 47.0 (12.2) | 0.7 |
| Sex (Female) | 100% | 100% | 100% | - | 93% | 100% | 100% | - |

## Supplemental Table 7. Autoantibody specificities and ACR criteria of SLE patients

| White (n=19) | | Black (n=21) | |
|---|---|---|---|
| **Autoantibodies** | **%** | **Autoantibodies** | **%** |
| dsDNA | 5.0% | dsDNA | 15.4% |
| Chromatin | 5.0% | Chromatin | 15.3% |
| Ro | 25.0% | Ro | 15.4% |
| La | 0.0% | La | 7.7% |
| Sm | 5.0% | Sm | 23.1% |
| RNP | 5.0% | RNP | 30.8% |
| sm/RNP | 5.0% | sm/RNP | 30.8% |
| RiboP | 0.0% | RiboP | 0.0% |
| Centromere B | 10.0% | Centromere B | 0.0% |
| Scl-70 | 0.0% | Scl-70 | 0.0% |
| Jo-1 | 0.0% | Jo-1 | 0.0% |
| **ACR Classification Criteria** | | **ACR Classification Criteria** | |
| Arthritis | 90.0% | Arthritis | 92.3% |
| Oral Ulcers | 90.0% | Oral Ulcers | 69.2% |
| Malar Rash | 70.0% | Malar Rash | 61.5% |
| Photosensitivity | 80.0% | Photosensitivity | 38.4% |
| Immunologic Criteria | 25.0% | Immunologic Criteria | 53.8% |
| Serositis | 40.0% | Serositis | 46.2% |
| Leukopenia | 15.0% | Leukopenia | 23.1% |
| Lymphopenia | 5.0% | Lymphopenia | 53.8% |
| Renal Disease | 5.0% | Renal Disease | 61.5% |
| CNS Disease | 20.0% | CNS Disease | 15.4% |
| Discoid Rash | 5.0% | Discoid Rash | 30.8% |
| Hemolytic Anemia | 5.0% | Hemolytic Anemia | 15.4% |
| Thrombocytopenia | 0.0% | Thrombocytopenia | 7.7% |
| **Mean SLEDAI (range)** | 4.3 (0-10) | **Mean SLEDAI (range)** | 4.1 (0-12) |
| **Median SLEDAI** | 4 | **Median SLEDAI** | 4 |

**Supplemental Table 8.** Cell subset frequencies as determined by bivariate gating (n=91).

| | | White Median Frequency (IQR) | | | | | Black Median Frequency (IQR) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Cell Subset** | **Cell Surface Designation** | **Control** | **SLE INACT** | **SLE ACT** | **KW p-value** | **FDR q-value** | **Control** | **SLE INACT** | **SLE ACT** | **KW p-value** | **FDR q-value** |
| Granulocytes | CD66a+CD14-CD3-CD19- | 66.17 (13.86) | 74.00 (6.91) | 70.90 (21.90) | 0.258 | 0.476 | 56.38 (19.18) | 57.92 (9.62) | 63.79 (18.12) | 0.622 | 0.712 |
| B Cells | CD66a-CD3-CD19+ | 2.10 (1.19) | 2.06 (2.23) | 1.41 (0.91) | 0.073 | 0.267 | 4.83 (4.13) | 3.34 (3.76) | 5.07 (4.58) | 0.555 | 0.670 |
| Non-switched Memory B Cells | CD66a-CD3-CD19+IgD+CD27+ | 0.10 (0.22) | 0.12 (0.20) | 0.12 (0.13) | 0.755 | 0.793 | 0.18 (0.28) | 0.14 (0.14) | 0.23 (0.43) | 0.550 | 0.670 |
| Switched Memory B Cells | CD66a-CD3-CD19+IgD-CD27+CD38- | 0.10 (0.05) | 0.06 (0.09) | 0.06 (0.13) | 0.454 | 0.577 | 0.17 (0.12) | 0.13 (0.13) | 0.11 (0.23) | 0.538 | 0.670 |
| Plasmablasts | CD66a-CD3-CD19+IgD-CD27+CD38+ | 0.16 (0.10) | 0.11 (0.10) | 0.08 (0.10) | 0.315 | 0.476 | 0.27 (0.27) | 0.20 (0.19) | 0.21 (0.58) | 0.508 | 0.670 |
| IgD-CD27- DN B cells | CD66a-CD3-CD19+IgD-CD27- | 0.40 (0.40) | 0.26 (0.19) | 0.24 (0.15) | 0.023 | 0.184 | 0.62 (0.35) | 0.32 (0.36) | 0.69 (0.77) | 0.292 | 0.670 |
| DN1/DN3 B cells | CD66a-CD3-CD19+IgD-CD27-CD11c- | 0.51 (0.29) | 0.22 (0.32) | 0.52 (0.20) | 0.078 | 0.342 | 0.31 (0.33) | 0.26 (0.16) | 0.082 (0.27) | 0.559 | 0.922 |
| DN2 B cells | CD66a-CD3-CD19+IgD-CD27-CD11c+ | 0.08 (0.08) | 0.10 (0.07) | 0.20 (0.29) | 0.916 | 1 | 0.08 (0.06) | 0.06 (0.06) | 0.06 (0.10) | 0.456 | 0.922 |
| Naïve B Cells | CD66a-CD3-CD19+IgD+CD27-CD24±CD38± | 1.98 (0.93) | 1.19 (1.13) | 0.86 (0.88) | 0.011 | 0.181 | 4.17 (3.72) | 2.29 (3.22) | 3.67 (3.80) | 0.402 | 0.670 |
| Resting Naïve B cells | CD66a-CD3-CD19+IgD+CD27-CD24±CD38±CD11c- | 1.95 (0.96) | 1.48 (1.90) | 0.60 (0.96) | 0.053 | 0.342 | 4.06 (3.42) | 4.65 (2.72) | 3.27 (3.55) | 0.979 | 1 |
| Active Naïve B cells | CD66a-CD3-CD19+IgD+CD27-CD24±CD38±CD11c+ | 0.03 (0.05) | 0.05 (0.01) | 0.01 (0.02) | 0.230 | 0.612 | 0.08 (0.12) | 0.26 (0.42) | 0.06 (0.07) | 0.628 | 0.922 |
| Transitional B Cells | CD66a-CD3-CD19+IgD+CD27-CD24$^{hi}$CD38$^{hi}$ | 0.08 (0.09) | 0.03 (0.09) | 0.02 (0.05) | 0.303 | 0.476 | 0.30 (0.21) | 0.09 (0.63) | 0.09 (0.47) | 0.649 | 0.712 |
| Memory B cells/Plasmablasts | CD66a-CD3-CD19+IgD-CD27+ | 0.27 (0.10) | 0.16 (0.19) | 0.13 (0.22) | 0.336 | 0.477 | 0.47 (0.43) | 0.36 (0.25) | 0.41 (0.77) | 0.440 | 0.670 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| T Cells | CD66a-CD3+CD56- | 21.84 (7.41) | 14.27 (5.55) | 16.31 (15.64) | 0.176 | 0.472 | 26.77 (16.20) | 29.81 (14.41) | 20.53 (14.34) | 0.459 | 0.670 |
| CD4+ T Cells | CD66a-CD3+CD56-CD4+CD8- | 14.84 (7.37) | 9.82 (5.72) | 11.16 (8.38) | 0.102 | 0.308 | 15.99 (10.03) | 17.34 (11.09) | 12.35 (10.03) | 0.363 | 0.670 |
| CD8+ T Cells | CD66a-CD3+CD56-CD4-CD8+ | 5.01 (3.17) | 3.63 (1.91) | 3.69 (4.53) | 0.507 | 0.612 | 9.21 (4.39) | 8.34 (5.60) | 3.91 (3.87) | 0.038 | 0.202 |
| CD4+ Naïve/Effector T Cells | CD66a-CD3+CD56-CD4+CD45RA+ | 6.50 (2.98) | 2.90 (3.22) | 3.61 (4.13) | 0.052 | 0.251 | 5.72 (4.06) | 8.13 (6.97) | 3.34 (4.39) | 0.162 | 0.435 |
| CD8+ Naïve/Effector T Cells | CD66a-CD3+CD56-CD8+CD45RA+ | 2.68 (1.12) | 1.89 (1.37) | 1.90 (2.89) | 0.283 | 0.476 | 5.19 (3.50) | 5.08 (4.49) | 2.64 (3.57) | 0.044 | 0.202 |
| CD4+ Memory T Cells | CD66a-CD3+CD56-CD4+CD45RA- | 7.24 (2.36) | 5.69 (4.93) | 6.38 (6.12) | 0.367 | 0.492 | 8.78 (6.35) | 9.53 (6.25) | 8.41 (5.18) | 0.840 | 0.882 |
| CD8+ Memory T Cells | CD66a-CD3+CD56-CD8+CD45RA- | 1.88 (1.63) | 1.56 (0.93) | 1.00 (2.24) | 0.617 | 0.677 | 2.04 (1.30) | 1.95 (1.54) | 1.38 (1.25) | 0.378 | 0.670 |
| NK Cells | CD66a-CD3-CD19-CD56+ | 0.45 (0.48) | 0.93 (0.81) | 0.72 (0.51) | 0.246 | 0.476 | 0.59 (0.52) | 0.60 (1.28) | 0.28 (0.25) | 0.050 | 0.202 |
| Monocytes | HLA-DR+CD11c+CD14+CD16±CD3-CD19-CD56- | 5.07 (2.11) | 3.81 (2.74) | 3.73 (2.39) | 0.217 | 0.476 | 6.47 (2.27) | 3.96 (2.07) | 3.38 (3.45) | 0.028 | 0.202 |
| Classical Monocytes | HLA-DR+CD11c+CD14+CD16-CD3-CD19-CD56- | 4.30 (1.71) | 3.14 (2.16) | 2.99 (2.29) | 0.238 | 0.476 | 3.97 (1.45) | 3.28 (1.24) | 2.88 (2.37) | 0.071 | 0.245 |
| Intermediate Monocytes | HLA-DR+CD11c+CD14$^{lo}$CD16+CD3-CD19-CD56- | 0.08 (0.09) | 0.03 (0.14) | 0.03 (0.15) | 0.603 | 0.677 | 0.18 (0.13) | 0.07 (0.15) | 0.06 (0.18) | 0.148 | 0.435 |
| Non-classical Monocytes | HLA-DR+CD11c+CD14+CD16+CD3-CD19-CD56- | 0.50 (0.49) | 0.35 (0.39) | 0.14 (0.15) | 0.048 | 0.251 | 1.05 (0.79) | 0.46 (0.62) | 0.10 (0.36) | 0.003 | 0.084 |
| Basophils | CD66a+HLA-DR-CD11c-CD123+ | 0.56 (0.38) | 0.31 (0.61) | 0.15 (0.33) | 0.015 | 0.181 | 0.64 (0.29) | 0.32 (0.56) | 0.16 (0.31) | 0.017 | 0.202 |

|  |  |  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|
| DCs | HLA-DR+CD11c+CD14-CD16-CD3-CD19-CD56- | 0.22 (0.15) | 0.50 (0.74) | 0.50 (0.45) | 0.078 | 0.267 | 0.22 (0.17) | 0.33 (0.30) | 0.33 (0.45) | 0.434 | 0.670 |
| pDCs | HLA-DR+CD11c-CD123+CD3-CD19-CD56- | 0.12 (0.09) | 0.09 (0.10) | 0.03 (0.10) | 0.450 | 0.915 | 0.08 (0.086) | 0.08 (0.14) | 0.06 (0.05) | 0.529 | 0.8549 |

## Supplemental Table 9. Statistical significance of cell frequency comparisons by bivariate gating (FDR)

| **Cell Subset** | **White** | | | **Black** | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | **Ctrl vs SLE INACT** | **Ctrl vs SLE ACT** | **SLE INACT vs SLE ACT** | **Ctrl vs SLE INACT** | **Ctrl vs SLE ACT** | **SLE INACT vs SLE ACT** | **White Ctrl vs Black Ctrl** | **White SLE INACT vs Black SLE INACT** | **White SLE ACT vs Black SLE ACT** |
| Neutrophils | ns | ns | ns | ns | ns | ns | ns | **<0.01** | ns |
| B Cells | ns | ns | ns | ns | ns | ns | ns | ns | **<0.05** |
| Non-switched Memory B Cells | ns | ns | ns | ns | ns | ns | ns | ns | ns |
| Switched Memory B Cells | ns | ns | ns | ns | ns | ns | ns | ns | ns |
| Plasmablasts | ns | ns | ns | ns | ns | ns | ns | ns | ns |
| IgD-CD27- DN B cells | ns | ns | ns | ns | ns | ns | ns | ns | **<0.05** |
| DN1/DN3 B cells | ns | ns | ns | ns | ns | ns | ns | ns | **<0.05** |
| DN2 B cells | ns | ns | ns | ns | ns | ns | ns | ns | ns |
| Naïve B Cells | ns | **<0.05** | ns | ns | ns | ns | ns | ns | **<0.05** |
| Resting Naïve B cells | ns | **<0.05** | ns | ns | ns | ns | ns | ns | **<0.05** |
| Active Naïve B cells | ns | ns | ns | ns | ns | ns | ns | ns | **<0.05** |
| Transitional B Cells | ns | ns | ns | ns | ns | ns | ns | ns | ns |
| Memory Cells and Plasmablasts | ns | ns | ns | ns | ns | ns | ns | ns | **<0.05** |
| T Cells | ns | ns | ns | ns | ns | ns | ns | **<0.01** | ns |
| CD4+ T Cells | ns | ns | ns | ns | ns | ns | ns | ns | ns |
| CD8+ T Cells | ns | ns | ns | ns | ns | ns | ns | **<0.01** | ns |
| CD4+ Naïve/Effector T Cells | ns | ns | ns | ns | ns | ns | ns | ns | ns |
| CD4+ Memory T Cells | ns | ns | ns | ns | ns | ns | ns | ns | ns |
| CD8+ Naïve/Effector T Cells | ns | ns | ns | ns | ns | ns | ns | **<0.01** | ns |
| CD8+ Memory T Cells | ns | ns | ns | ns | ns | ns | ns | ns | ns |
| NK Cells | ns | ns | ns | ns | ns | ns | ns | ns | ns |
| Monocytes | ns | ns | ns | ns | ns | ns | ns | ns | ns |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Classical Monocytes | ns | ns | ns | ns | ns | ns | ns | ns | ns |
| Intermediate Monocytes | ns | ns | ns | ns | ns | ns | ns | ns | ns |
| Non-classical Monocytes | ns | ns | ns | ns | **<0.05** | ns | ns | ns | ns |
| Basophils | ns | **<0.05** | ns | ns | **<0.05** | ns | ns | ns | ns |
| DCs | ns | ns | ns | ns | ns | ns | ns | ns | ns |
| pDCs | ns | ns | ns | ns | ns | ns | ns | ns | ns |

## Supplemental Table 10. Cell subset activation marker frequency differences.

| | Median Frequency (Interquartile Range) | | | | | Median Frequency (Interquartile Range) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | **White Controls** | **White SLE INACT** | **White SLE ACT** | **KW p-value** | **FDR q-value** | **Black Controls** | **Black SLE INACT** | **Black SLE ACT** | **KW p-value** | **FDR q-value** |
| **Granulocytes** | | | | | | | | | | |
| **CD38+** | 14.9 (10.3-23) | 16.9 (11.4-32.8) | 22.3 (11.4-40) | 0.8030 | 0.9732 | 17.6 (8.98-32.2) | 26.6 (17.2-41.3) | 32.8 (25.3-57.9) | 0.1100 | 0.4051 |
| **CD11c+** | 95.4 (81.1-98.6) | 88.1 (73.2-94.9) | 94 (90-95.9) | 0.5150 | 0.8555 | 98.9 (98.1-99.1) | 97.9 (96.7-99) | 97.2 (94.2-97.9) | 0.2090 | 0.5496 |
| **B Cells** | | | | | | | | | | |
| **CD38+** | 42.4 (39-58.3) | 57.5 (40.4-67.8) | 84.1 (40.2-87.6) | 0.3460 | 0.8044 | 63.4 (52-67) | 60.9 (47.5-72.3) | 54 (47.9-59.9) | 0.6670 | 0.9125 |
| **CD11c+** | 7.07 (4.27-13.3) | 5.64 (4.05-15.3) | 8.27 (5.92-16.1) | 0.3920 | 0.8281 | 6.62 (4.45-9.34) | 7.42 (2.97-9.21) | 13.1 (3.62-24.5) | 0.4900 | 0.8862 |
| **CD11b+** | 42 (32.3-65.4) | 35.2 (28.5-57.4) | 59.5 (34.4-73.7) | 0.6640 | 0.9563 | 32.1 (14-46.1) | 31.7 (17.3-62.7) | 35.6 (25.3-75.5) | 0.5370 | 0.9125 |
| **CD27+** | 56.7 (43.7-73.4) | 67.7 (47-79.3) | 65.3 (41.9-90.2) | 0.9460 | 0.9809 | 56.3 (52.6-80.7) | 73.1 (48.3-84.3) | 78.4 (55.7-89.1) | 0.5850 | 0.9125 |
| **Non-switched Memory B Cells** | | | | | | | | | | |
| **CD38+** | 28.2 (16.8-49.5) | 49.1 (35.6-74.7) | 44.4 (33.3-88.4) | 0.2550 | 0.7802 | 44.3 (37.5-59.8) | 54.4 (50.2-82.6) | 73.4 (51.5-85.3) | 0.1580 | 0.4724 |
| **CD11c+** | 11 (2.93-14.3) | 17 (5.67-26.3) | 6.67 (2.15-11.1) | 0.1340 | 0.7444 | 11.1 (7.92-13.2) | 14.8 (8-18.1) | 17.6 (4.17-26) | 0.8160 | 0.9321 |
| **CD11b+** | 43.2 (28.1-70) | 52.5 (47.8-85.9) | 64.6 (36.4-77.8) | 0.4290 | 0.8555 | 46.1 (23.4-60.3) | 45.2 (34.6-65.4) | 55.8 (40-84.1) | 0.5540 | 0.9125 |
| **Memory B Cells/Plasmablasts** | | | | | | | | | | |
| **CD11c+** | 14.1 (6.58-18.6) | 21.6 (7.01-31.3) | 6.9 (4-21.6) | 0.3550 | 0.8044 | 22.8 (18.3-26.4) | 23.9 (15.7-28.3) | 29.4 (16-32.3) | 0.6630 | 0.9125 |
| **CD11b+** | 57.4 (47-81.8) | 56.8 (46.3-85.8) | 47.5 (36-73.3) | 0.7780 | 0.9732 | 50.8 (36.4-66.2) | 53.2 (36.5-82.1) | 56.9 (38.1-83.8) | 0.7840 | 0.9321 |
| **DN B Cells** | | | | | | | | | | |
| **CD38+** | 36.5 (32.9-41) | 42 (32.2-58.6) | 73.3 (39.1-87.5) | 0.0878 | 0.7259 | 41 (29.6-49.1) | 45.8 (32.9-49.5) | 44.7 (26.6-48.6) | 0.8660 | 0.9354 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **CD11c+** | 13.7 (9.24-22) | 25.4 (17-28.9) | 27.6 (13.1-74.4) | 0.1870 | 0.7802 | 15.1 (12.2-19.1) | 25 (17-35.9) | 16.5 (11-43.8) | 0.2350 | 0.5711 |
| **CD11b+** | 50.7 (41-53.1) | 45.1 (28.9-69.2) | 73.1 (52.6-77) | 0.2900 | 0.7802 | 40.2 (21.7-62.7) | 40.2 (26.3-67.1) | 41.4 (22-79.8) | 0.8620 | 0.9354 |
| **Naïve B Cells** | | | | | | | | | | |
| **CD38+** | 54.9 (42.8-61.5) | 62 (45.1-78.8) | 71.4 (42.9-86.2) | 0.4790 | 0.8555 | 70 (58-76.5) | 66.4 (61.3-78.5) | 53.5 (46-62.9) | 0.2300 | 0.5711 |
| **CD11c+** | 1.82 (0.545-2.96) | 2.45 (1.24-4) | 2 (0-3.15) | 0.7350 | 0.9732 | 1.62 (0.673-2.75) | 0.858 (0.545-3.04) | 3.64 (0.46-12.3) | 0.4790 | 0.8862 |
| **CD11b+** | 37.5 (19-65.7) | 26.6 (20.7-54.7) | 42.9 (28.6-69) | 0.7720 | 0.9732 | 24.7 (10.9-37.1) | 24.2 (13.7-55.8) | 24 (18.3-72.4) | 0.5870 | 0.9125 |
| **Transitional B Cells** | | | | | | | | | | |
| **CD11c+** | 0 (0-3.57) | 0.304 (0-4.99) | 0 (0-2.14) | 0.8690 | 0.9732 | 1.85 (0.169-2.43) | 0.139 (0-1.2) | 0.772 (0-1.13) | 0.3990 | 0.7976 |
| **CD11b+** | 39.5 (23.1-45.4) | 47.5 (27.4-79) | 23.5 (0-60) | 0.3100 | 0.7802 | 23.3 (16.4-44.7) | 23.2 (19.4-42.9) | 42.9 (26.7-70.4) | 0.2850 | 0.6519 |
| **T Cells** | | | | | | | | | | |
| **CD38+** | 34.2 (30.2-38.2) | 25.7 (20.6-30.4) | 25.7 (22.8-42.7) | 0.2230 | 0.7802 | 30.3 (26.5-36.9) | 31 (23.5-47.1) | 39 (27.5-50) | 0.5250 | 0.9125 |
| **HLA-DR+** | 3.66 (2.98-4.31) | 5.25 (4.07-8.14) | 13.5 (4.52-16.1) | 0.1440 | 0.7466 | 3.93 (3.49-4.86) | 4.72 (3.58-7.99) | 10.3 (5.44-17) | 0.0502 | 0.2415 |
| **CD11b+** | 42.6 (30.4-49.7) | 40.9 (32.1-62.6) | 49.1 (35.7-59.1) | 0.8900 | 0.9732 | 28 (21.1-42.3) | 29.4 (22.1-45.2) | 40.9 (21.2-61.6) | 0.7740 | 0.9321 |
| **CD27+** | 91.1 (84.3-93.2) | 88 (77.2-91.9) | 83.4 (83.2-90.2) | 0.5580 | 0.8722 | 90.7 (84.2-95.1) | 89.9 (87-93.8) | 89.2 (85.5-94.3) | 0.9560 | 0.9783 |
| **CD38+HLA-DR+** | 0.974 (0.869-1.42) | 2.05 (1.16-2.76) | 4.19 (1.35-9.03) | 0.0721 | 0.7259 | 1.42 (1.04-1.61) | 2.02 (1.25-2.31) | 7.25 (2.2-12.3) | **0.0031** | **0.0482** |
| **NKT Cells** | | | | | | | | | | |
| **CD38+** | 31.3 (26.3-34.5) | 37.5 (31.3-47.5) | 45.9 (31.3-85.7) | 0.2080 | 0.7802 | 22.6 (18.6-32.7) | 37.5 (25.3-45.9) | 45.9 (41.7-63.6) | **0.0122** | 0.121 |
| **HLA-DR+** | 12.8 (7.32-23.5) | 16.4 (8.25-24.1) | 32.8 (7.81-48.9) | 0.2530 | 0.7802 | 6.82 (4.95-16.8) | 13.5 (9.37-33.7) | 37.5 (15.5-42.2) | **0.0291** | 0.1886 |
| **CD11c+** | 7.19 (4.37-13.5) | 8.02 (4.33-20.5) | 22.4 (16.4-28.6) | 0.0638 | 0.7259 | 8.97 (3.95-21.7) | 6.72 (4.3-17) | 12 (4.05-18.9) | 0.8290 | 0.9321 |

|  |  |  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|
| **CD11b+** | 69.8 (47.5-75.5) | 69 (59.5-90.9) | 66.7 (39.3-77.6) | 0.7520 | 0.9732 | 74.3 (59.4-82) | 53 (46.7-76.7) | 62.9 (44.8-85.4) | 0.4000 | 0.7976 |
| **CD27+** | 65.2 (51.7-75.3) | 61.7 (34.4-67.6) | 62.5 (53.4-66.7) | 0.8670 | 0.9732 | 70.8 (34.2-82.7) | 67 (54.4-85.1) | 76 (63.7-84.1) | 0.8290 | 0.9321 |
| **CD4+ T Cells** |  |  |  |  |  |  |  |  |  |  |
| **CD38+** | 41 (36.9-44.3) | 25.6 (23-31) | 28.8 (26-41.4) | **0.0296** | 0.7259 | 34.4 (30.3-38.1) | 31.6 (29.6-48) | 32.3 (30.5-41) | 0.9890 | 0.9989 |
| **HLA-DR+** | 2.98 (2.57-4.16) | 4.03 (3.18-5.15) | 5.75 (4.38-11.4) | 0.0954 | 0.7259 | 3.07 (2.66-3.71) | 3.8 (2.99-5.57) | 7.45 (4.18-8.44) | **0.0405** | 0.225 |
| **CD11b+** | 38.5 (27.9-45.3) | 36.9 (28.8-61.3) | 51.5 (27.1-60.6) | 0.8620 | 0.9732 | 31.6 (17.4-43.4) | 29.8 (17.4-46.2) | 42.3 (19.3-65.3) | 0.6870 | 0.9125 |
| **CD27+** | 94.2 (90.1-95.3) | 90.1 (87.3-92.3) | 90.1 (88.8-92.1) | 0.1280 | 0.7444 | 92.3 (89.2-95.1) | 92.9 (89.6-94.8) | 93.8 (92.5-94.7) | 0.6300 | 0.9125 |
| **CD38+HLA-DR+** | 0.904 (0.57-1) | 1.15 (0.566-1.92) | 1.54 (1.38-5.63) | **0.0275** | 0.7259 | 0.878 (0.762-1.1) | 1.29 (0.676-1.7) | 2.41 (1.17-5.47) | **0.0113** | 0.121 |
| **CD8+ T Cells** |  |  |  |  |  |  |  |  |  |  |
| **CD38+** | 17.3 (13.4-22) | 22.5 (21.9-26.3) | 21.3 (13.2-44.6) | 0.4490 | 0.8555 | 25.2 (21.1-35.3) | 25.2 (16.6-51.9) | 45.7 (25.7-56.7) | 0.1740 | 0.4833 |
| **HLA-DR+** | 4.73 (3.99-7.5) | 8.68 (4.41-16.3) | 17.1 (3.81-24) | 0.5720 | 0.8722 | 5.17 (3.93-6.93) | 5.74 (3.95-10.4) | 13.8 (7.47-23.8) | **0.0335** | 0.2004 |
| **CD11b+** | 47.7 (33.5-57.9) | 41.8 (31.8-65.9) | 52.1 (42.6-55.6) | 0.9260 | 0.9732 | 24.3 (19.1-40.1) | 30.3 (26.6-40.6) | 39.2 (33-56.7) | 0.2670 | 0.6292 |
| **CD27+** | 81.7 (71.2-90.6) | 83.6 (64.5-95.4) | 77.4 (69.2-87.3) | 0.9200 | 0.9732 | 91.3 (83.9-95.7) | 86.2 (77.3-95.3) | 84 (72.9-93.1) | 0.6360 | 0.9125 |
| **CD38+HLA-DR+** | 1.77 (1.15-3.02) | 3.19 (1.89-5.94) | 8.31 (1.25-13.3) | 0.5650 | 0.8722 | 2 (1.14-2.52) | 2.67 (2.24-3.02) | 9.16 (4.44-17.9) | **0.0013** | **0.0369** |
| **DN T Cells** |  |  |  |  |  |  |  |  |  |  |
| **CD38+** | 12.7 (9.22-17.7) | 20.4 (12.5-34.8) | 26.8 (19.7-34.6) | 0.1120 | 0.7259 | 15.7 (11.4-17.1) | 23.4 (19.9-27) | 41.3 (29.3-54.3) | **0.0017** | **0.0369** |
| **HLA-DR+** | 5.04 (3.39-7.94) | 7.05 (5.24-17.3) | 10.7 (8.51-22.7) | 0.2100 | 0.7802 | 7.04 (5.01-8.47) | 5.24 (3.61-8.99) | 17.1 (7.45-22.6) | 0.1060 | 0.4051 |
| **CD11b+** | 71.1 (62.2-76.7) | 59.4 (45.4-61.2) | 62 (43.4-75.8) | 0.3430 | 0.8044 | 42.8 (40.4-65.7) | 41.6 (32-59) | 40.7 (26.5-66) | 0.6950 | 0.9125 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **CD27+** | 76.1 (65.5-80.7) | 79.3 (67.4-82.8) | 73.2 (69-79.8) | 0.8050 | 0.9732 | 89.1 (59.5-91.9) | 86 (75-95.5) | 82.8 (78.8-94.1) | 0.6860 | 0.9125 |
| **CD38+HLA-DR+** | 2.03 (0.996-2.6) | 3.29 (2.84-8.56) | 7.14 (4.61-9.28) | **0.0116** | 0.7259 | 2.79 (1.96-3.83) | 3.19 (2.35-4.68) | 14.6 (4.82-18) | **0.0192** | 0.1357 |
| **CD4+ Naïve/Effector T Cells** | | | | | | | | | | |
| **CD38+** | 71.4 (57.3-73) | 55.6 (50.7-58.7) | 52.9 (49.5-71.7) | 0.3620 | 0.8044 | 66.6 (60.8-76.3) | 63.3 (51.6-75) | 63.1 (51.7-69.8) | 0.4680 | 0.8862 |
| **HLA-DR+** | 0.387 (0.205-1.04) | 1.02 (0.278-1.97) | 0.956 (0.633-1.32) | 0.5420 | 0.8722 | 0.533 (0.319-0.806) | 0.541 (0.317-0.831) | 1.44 (0.714-1.55) | **0.0140** | 0.121 |
| **CD11b+** | 32.8 (23-44) | 33.1 (25.1-60.7) | 46.7 (20.8-56.7) | 0.8930 | 0.9732 | 24.1 (14.7-46.3) | 26.9 (12.9-40.7) | 33.3 (14.5-60.2) | 0.7410 | 0.9295 |
| **CD27+** | 99.7 (96.8-99.9) | 99.1 (88.8-99.6) | 97.6 (93.9-99.4) | 0.2910 | 0.7802 | 98.6 (93.6-99.8) | 99.2 (98.4-99.5) | 99.2 (98.3-99.8) | 0.7240 | 0.923 |
| **CD38+HLA-DR+** | 0.244 (0.105-0.593) | 0.438 (0.0944-0.841) | 0.692 (0.579-1.01) | 0.5030 | 0.8555 | 0.185 (0.104-0.392) | 0.259 (0.111-0.643) | 0.424 (0.34-1.09) | 0.2120 | 0.5496 |
| **CD4+ Memory T Cells** | | | | | | | | | | |
| **CD38+** | 16.9 (13.2-21.9) | 11.7 (9.27-17.1) | 16.2 (14.1-35.4) | 0.2120 | 0.7802 | 14.5 (12.1-16.4) | 14.5 (9.19-22.5) | 24.1 (16.2-29.9) | 0.0524 | 0.2415 |
| **HLA-DR+** | 5.99 (5.21-6.83) | 4.3 (4.11-6.98) | 12.4 (6.43-17.3) | 0.0757 | 0.7259 | 4.61 (4.08-5.53) | 5.37 (4.57-7.89) | 9.07 (5.81-10.6) | 0.0601 | 0.2597 |
| **CD11b+** | 43.8 (31.3-46.7) | 36.7 (30.2-61.8) | 54.6 (29-61.4) | 0.8940 | 0.9732 | 32.9 (20.3-46) | 33 (20.9-49.7) | 45.3 (21.9-66.9) | 0.7620 | 0.9321 |
| **CD27+** | 89.9 (85.3-91.1) | 87.3 (84.4-90.6) | 85.7 (83.8-89.1) | 0.5090 | 0.8555 | 89.7 (85.9-91.8) | 86.8 (84.1-92.4) | 91.4 (90.1-92.4) | 0.3280 | 0.7086 |
| **CD38+HLA-DR+** | 1.34 (1.02-1.8) | 1.21 (0.651-2.49) | 3.37 (2.07-6.69) | **0.0496** | 0.7259 | 1.24 (1.16-1.33) | 1.52 (1.09-2.47) | 3.24 (1.62-6.75) | **0.0128** | 0.121 |
| **CD8+ Naïve/Effector T Cells** | | | | | | | | | | |
| **CD38+** | 23.8 (16.5-29.6) | 27.8 (23.2-30) | 32.9 (13.9-41.9) | 0.8270 | 0.9732 | 30.1 (27.3-45.1) | 27.7 (16.1-57.2) | 45.6 (27.1-56.3) | 0.4270 | 0.8302 |
| **HLA-DR+** | 2.53 (1.83-4.01) | 3.62 (1.73-12.5) | 6.67 (2.86-14.4) | 0.5090 | 0.8555 | 2.51 (1.75-4.18) | 4.19 (1.64-7.07) | 5.86 (4.69-11.9) | 0.1370 | 0.4262 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **CD11b+** | 51.4 (31.7-55.2) | 40.8 (29.5-70.7) | 56.2 (41.9-60.6) | 0.8500 | 0.9732 | 22.5 (12.5-35.6) | 32.4 (27.4-38.8) | 39.5 (34.8-55.1) | 0.1640 | 0.4724 |
| **CD27+** | 78.6 (66-92.9) | 83.7 (58.9-96.9) | 79.7 (60-85.9) | 0.9960 | 1 | 94.5 (85.9-96.5) | 85.9 (78-96.9) | 83.6 (70-95.4) | 0.6300 | 0.9125 |
| **CD38+HLA-DR+** | 1.43 (0.6-1.68) | 0.458 (0.351-1.37) | 0.56 (0.501-2.56) | 0.2550 | 0.7802 | 1.8 (1.32-8.07) | 0.661 (0.457-1.46) | 1.67 (0.898-9.1) | 0.1200 | 0.4051 |
| **CD8+ Memory T Cells** | | | | | | | | | | |
| **CD38+** | 12.9 (5.89-16.8) | 16.9 (10.3-22.3) | 26.2 (10.2-48.5) | 0.2080 | 0.7802 | 10.5 (7.68-13.5) | 19 (13.4-29.3) | 46.7 (22.9-57.7) | **0.0019** | **0.0369** |
| **HLA-DR+** | 8.45 (7.47-10.7) | 12.8 (7.87-15.4) | 23.8 (6.35-32.1) | 0.5080 | 0.8555 | 11.4 (8.43-18.6) | 14.5 (12.1-23.8) | 32 (21.8-45.7) | **0.0171** | 0.133 |
| **CD11b+** | 40.8 (36.2-50.9) | 38.6 (30.4-57.4) | 42.9 (39.3-54) | 0.9110 | 0.9732 | 35.2 (26.4-48) | 36.1 (25.6-48.4) | 39.1 (27.9-62.4) | 0.8390 | 0.9321 |
| **CD27+** | 85.2 (78.2-88.7) | 89 (82.4-92.8) | 87.8 (65.6-89.5) | 0.5170 | 0.8555 | 89 (79.6-95.2) | 87.8 (75.6-92.5) | 86.2 (85-90.1) | 0.9400 | 0.9783 |
| **CD38+HLA-DR+** | 3.86 (1.83-5.56) | 5.2 (3.42-7.84) | 13.1 (2.58-16.8) | 0.3000 | 0.7802 | 4.17 (2.6-4.47) | 6.37 (5.6-13.1) | 24.7 (12.9-33.5) | **0.0013** | **0.0369** |
| **NK cells** | | | | | | | | | | |
| **CD38+** | 91.1 (88.9-92.9) | 93.4 (80.1-97.2) | 93.7 (87.6-97.3) | 0.6420 | 0.9494 | 91.3 (86.1-92.5) | 89.2 (85.3-91.4) | 95.8 (91.7-96.2) | 0.0897 | 0.3672 |
| **HLA-DR+** | 48.2 (31.6-69.1) | 45.4 (37.8-58.2) | 50 (47.2-59.7) | 0.8740 | 0.9732 | 37.8 (25.9-59.1) | 39.3 (30.3-63.1) | 53.1 (37.5-75.4) | 0.3150 | 0.6999 |
| **CD11c+** | 91.8 (85.5-92.8) | 91.1 (84.9-96) | 84.4 (83.1-89.5) | 0.2840 | 0.7802 | 90.4 (87.3-95.6) | 89.8 (86.3-92.9) | 87.5 (79.5-91.9) | 0.6620 | 0.9125 |
| **CD11b+** | 94.2 (90.4-97.6) | 96 (91.6-97.7) | 95.8 (91-99.5) | 0.9010 | 0.9732 | 95.8 (91.3-96.8) | 95.8 (90.5-97.6) | 90.1 (81.3-96.4) | 0.5420 | 0.9125 |
| **CD27+** | 15.9 (14.2-21.1) | 12.8 (9.6-17.9) | 14.4 (13-19.1) | 0.3940 | 0.8281 | 16.6 (14.4-20.4) | 18.9 (15-25.4) | 18.8 (10.7-25.5) | 0.7040 | 0.9125 |
| **Monocytes** | | | | | | | | | | |
| **CD38+** | 90.7 (86.9-94.5) | 84 (78.4-88.6) | 92.7 (90.6-95.1) | 0.0836 | 0.7259 | 78.4 (73.8-80.8) | 81.4 (77.1-88.7) | 89.1 (79.3-94.4) | 0.1250 | 0.4051 |
| **Classical Monocytes** | | | | | | | | | | |
| **CD38+** | 99 (98.3-99.3) | 97.2 (93.6-99.2) | 98.2 (97.3-98.7) | 0.4150 | 0.8493 | 97.7 (96.3-98.9) | 97.9 (96.7-98.6) | 98 (96.2-99.1) | 0.9480 | 0.9783 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Intermediate Monocytes** | | | | | | | | | | |
| **CD38+** | 56.3 (51.1-77.5) | 53.6 (47.1-78.9) | 57.1 (47.1-75) | 0.9710 | 0.9936 | 45.1 (22.7-46.9) | 27 (21.5-48.1) | 31.4 (22.5-43.4) | 0.8080 | 0.9321 |
| **Non-Classical Monocytes** | | | | | | | | | | |
| **CD38+** | 7.78 (5.73-14.1) | 8.88 (5.91-25.8) | 20.8 (7.79-40.9) | 0.3110 | 0.7802 | 4.29 (3.86-5.19) | 6.13 (3.68-12.3) | 11 (7.46-18.2) | 0.1250 | 0.4051 |
| **Basophils** | | | | | | | | | | |
| **CD11c+** | 64.8 (48.7-77.4) | 59.7 (48.5-67.9) | 56.4 (46.9-70.6) | 0.7740 | 0.9732 | 59 (47-68) | 60.2 (48.7-72.6) | 28.1 (19.8-73.4) | 0.3540 | 0.7441 |
| **DCs** | | | | | | | | | | |
| **CD38+** | 89.4 (82.1-90.5) | 81.1 (62.6-91.4) | 92.6 (89.7-96) | 0.1060 | 0.7259 | 82.2 (78.3-91.9) | 83.6 (78.8-91.5) | 83.1 (62.7-89.4) | 0.6400 | 0.9125 |
| **pDCs** | | | | | | | | | | |
| **CD38+** | 94.8 (87.1-98.8) | 99.6 (95.2-100) | 100 (93.6-100) | 0.2740 | 0.7802 | 94.5 (88.6-97.1) | 98.2 (92.6-100) | 100 (98.4-100) | 0.0528 | 0.2415 |

**Supplemental Table 11. Significant cell subset activation marker frequency differences.**

| | White | | | Black | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Cell-Marker** | **Ctrl vs SLE INACT** | **Ctrl vs SLE ACT** | **SLE INACT vs SLE ACT** | **Ctrl vs SLE INACT** | **Ctrl vs SLE ACT** | **SLE INACT vs SLE ACT** | **White Ctrl vs Black Ctrl** | **White SLE INACT vs Black SLE INACT** | **White SLE ACT vs Black SLE ACT** |
| **Granulocytes** | | | | | | | | | |
| CD38+ | 0.9400 | 0.5680 | 0.5680 | 0.3740 | **0.0475** | 0.1810 | 0.9290 | 0.2900 | 0.1190 |
| CD11c+ | 0.3260 | 0.8700 | 0.3270 | 0.3280 | 0.0829 | 0.3980 | **0.0410** | **0.0065** | 0.2710 |
| CD11b+ | 1.0000 | 0.4070 | 0.4340 | 0.7890 | 0.7390 | 0.6690 | 0.7190 | 0.5420 | 0.7880 |
| **B cells** | | | | | | | | | |
| CD38+ | 0.4500 | 0.1650 | 0.4140 | 0.8590 | 0.4090 | 0.4810 | 0.1830 | 0.7620 | 0.5180 |
| CD11c+ | 0.8800 | 0.2530 | 0.2210 | 0.7900 | 0.2830 | 0.3600 | 0.4770 | 0.5450 | 0.7900 |
| CD11b+ | 0.7620 | 0.5680 | 0.3690 | 0.4770 | 0.3220 | 0.5260 | 0.2860 | 0.5970 | 0.6210 |
| CD27+ | 0.8210 | 0.7440 | 0.9350 | 0.6570 | 0.3220 | 0.5260 | 0.7220 | 0.6500 | 0.5690 |
| **Non-switched Memory B cells** | | | | | | | | | |
| CD38+ | 0.1400 | 0.1780 | 0.8700 | 0.1310 | 0.0692 | 0.8050 | 0.2860 | 0.3440 | 0.5690 |
| CD11c+ | 0.2120 | 0.4620 | **0.0496** | 0.5940 | 0.5630 | 0.9440 | 0.7900 | 0.6500 | 0.1190 |
| CD11b+ | 0.1730 | 0.5950 | 0.5670 | 0.6250 | 0.2650 | 0.5970 | 0.9290 | 0.2550 | 0.8490 |
| **Memory B cells/Plasmablasts** | | | | | | | | | |
| CD11c+ | 0.3260 | 0.6830 | 0.1650 | 1.0000 | 0.3640 | 0.5260 | 0.0506 | 0.5450 | **0.0135** |
| CD11b+ | 1.0000 | 0.5670 | 0.5140 | 0.5340 | 0.5630 | 0.8330 | 0.5340 | 0.7620 | 0.6210 |
| **DN B Cells** | | | | | | | | | |
| CD38+ | 0.5450 | **0.0338** | 0.1210 | 0.6570 | 0.8690 | 0.6470 | 1.0000 | 0.8210 | 0.1020 |
| CD11c+ | 0.2410 | 0.0864 | 0.4140 | 0.0621 | 0.4090 | 0.5260 | 0.7900 | 0.6500 | 0.2710 |
| CD11b+ | 0.7620 | 0.1910 | 0.1650 | 0.6570 | 0.6200 | 0.8880 | 0.4240 | 0.7050 | 0.3050 |
| **Naïve B Cells** | | | | | | | | | |
| CD38+ | 0.5450 | 0.2200 | 0.5670 | 0.9290 | 0.2150 | 0.1050 | 0.1310 | 0.4500 | 0.4250 |
| CD11c+ | 0.4730 | 0.9670 | 0.5390 | 0.9290 | 0.2830 | 0.3240 | 0.9290 | 0.3450 | 0.1590 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| CD11b+ | 0.8800 | 0.5680 | 0.5140 | 0.5340 | 0.3640 | 0.5260 | 0.2140 | 0.5970 | 0.6210 |
| **Transitional B Cells** | | | | | | | | | |
| CD11c+ | 0.6790 | 1.0000 | 0.6270 | 0.1700 | 0.3520 | 0.7940 | 0.5150 | 0.6280 | 0.7450 |
| CD11b+ | 0.3070 | 0.6210 | 0.1410 | 0.8590 | 0.1600 | 0.2050 | 0.4770 | 0.1210 | 0.2380 |
| **T Cells** | | | | | | | | | |
| CD38+ | 0.0588 | 0.5140 | 0.5140 | 1.0000 | 0.2480 | 0.4390 | 0.5940 | 0.2900 | 0.2390 |
| HLA-DR+ | 0.2260 | 0.0864 | 0.2210 | 0.4240 | **0.0166** | 0.1210 | 0.5340 | 0.9400 | 0.6210 |
| CD11b+ | 1.0000 | 0.5680 | 0.8060 | 0.7900 | 0.5090 | 0.6220 | 0.2140 | 0.4500 | 0.6210 |
| CD27+ | 0.5450 | 0.2880 | 0.6240 | 0.7900 | 0.8040 | 0.9440 | 0.5940 | 0.3640 | 0.1600 |
| CD38+HLA-DR+ | 0.1510 | **0.0412** | 0.1910 | 0.0756 | **0.0013** | 0.0573 | 0.4770 | 0.9400 | 0.4250 |
| **NKT Cells** | | | | | | | | | |
| CD38+ | 0.2570 | 0.1020 | 0.3910 | 0.1550 | **0.0064** | 0.0573 | 0.3740 | 0.8800 | 0.9700 |
| HLA-DR+ | 0.7330 | 0.1300 | 0.1910 | 0.3280 | **0.0105** | 0.0907 | 0.4240 | 0.8200 | 0.8490 |
| CD11c+ | 0.4960 | **0.0113** | 0.2210 | 0.5940 | 0.8690 | 0.6210 | 0.5340 | 0.6770 | 0.0623 |
| CD11b+ | 0.6770 | 0.8700 | 0.4130 | 0.1310 | 0.4820 | 0.6980 | 0.2860 | 0.2570 | 0.8490 |
| CD27+ | 0.6230 | 0.7130 | 0.8380 | 0.6890 | 0.5910 | 0.7250 | 0.7220 | 0.2260 | 0.0742 |
| **CD4+ T Cells** | | | | | | | | | |
| CD38+ | **0.0052** | 0.2530 | 0.2880 | 0.8590 | 0.9340 | 1.0000 | 0.3280 | 0.1740 | 0.4250 |
| HLA-DR+ | 0.4500 | 0.0500 | 0.1020 | 0.3740 | **0.0166** | 0.0910 | 0.9290 | 0.8800 | 0.7900 |
| CD11b+ | 0.7620 | 0.5680 | 0.8700 | 0.7900 | 0.5090 | 0.4390 | 0.4240 | 0.4960 | 0.5690 |
| CD27+ | 0.1310 | 0.0500 | 1.0000 | 1.0000 | 0.6200 | 0.2910 | 0.7220 | 0.2570 | **0.0109** |
| CD38+HLA-DR+ | 0.3260 | **0.0090** | 0.0864 | 0.1830 | **0.0039** | 0.0783 | 0.8590 | 0.7620 | 0.9090 |
| **CD8+ T Cells** | | | | | | | | | |
| CD38+ | 0.1510 | 0.5140 | 1.0000 | 0.7220 | 0.0575 | 0.2310 | 0.1550 | 0.5450 | 0.1190 |
| HLA-DR+ | 0.4500 | 0.3690 | 0.5680 | 0.6570 | **0.0082** | 0.0910 | 0.8590 | 0.7620 | 0.4250 |
| CD11b+ | 0.9400 | 0.8060 | 0.6830 | 0.4770 | 0.1600 | 0.2310 | 0.1830 | 0.4060 | 0.4250 |
| CD27+ | 0.8210 | 0.7440 | 0.7440 | 0.6570 | 0.3640 | 0.5730 | 0.1310 | 0.4960 | 0.6760 |
| CD38+HLA-DR+ | 0.2570 | 0.5140 | 0.6240 | 0.0621 | **0.0010** | **0.0201** | 0.4770 | 0.7050 | 0.2390 |
| **DN T Cells** | | | | | | | | | |
| CD38+ | 0.1510 | **0.0412** | 0.6240 | **0.0077** | **0.0023** | 0.0671 | 0.8590 | 0.5970 | 0.1600 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| HLA-DR+ | 0.2260 | 0.1110 | 0.4140 | 0.2860 | 0.1370 | 0.0671 | 0.2860 | 0.3260 | 0.9090 |
| CD11b+ | 0.1510 | 0.3690 | 0.6240 | 0.3280 | 0.6200 | 0.9440 | **0.0129** | 0.3260 | 0.5690 |
| CD27+ | 0.4500 | 1.0000 | 0.7440 | 0.3740 | 0.6200 | 0.7250 | 0.1550 | 0.0588 | **0.0304** |
| CD38+HLA-DR+ | **0.0211** | **0.0090** | 0.2880 | 0.3740 | **0.0105** | **0.0411** | 0.2860 | 0.5450 | 0.4250 |
| **CD4+ Naïve/Effector T Cells** | | | | | | | | | |
| CD38+ | 0.1310 | 0.3690 | 0.8700 | 0.4770 | 0.1860 | 0.7780 | 0.8590 | 0.3640 | 0.7320 |
| HLA-DR+ | 0.3640 | 0.3270 | 0.9020 | 0.9290 | **0.0208** | **0.0092** | 0.7220 | 0.2900 | 0.4250 |
| CD11b+ | 0.7620 | 0.6240 | 0.9350 | 0.7220 | 0.6200 | 0.4810 | 0.4240 | 0.4500 | 0.5690 |
| CD27+ | 0.1510 | 0.2210 | 0.8380 | 0.8590 | 0.4090 | 0.6220 | 0.1830 | 0.5970 | 0.1590 |
| CD38+HLA-DR+ | 0.7620 | 0.2210 | 0.4870 | 0.7900 | 0.0986 | 0.1930 | 0.7220 | 0.6230 | 0.7610 |
| **CD4+ Memory T Cells** | | | | | | | | | |
| CD38+ | 0.3260 | 0.5140 | 0.0724 | 0.7900 | **0.0166** | 0.0910 | 0.3740 | 0.5970 | 0.6760 |
| HLA-DR+ | 0.2900 | 0.0864 | 0.0500 | 0.3280 | **0.0208** | 0.1590 | 0.1830 | 0.2570 | 0.5690 |
| CD11b+ | 0.8800 | 0.6240 | 0.7440 | 0.8590 | 0.5090 | 0.5730 | 0.3280 | 0.5970 | 0.4250 |
| CD27+ | 0.5970 | 0.2530 | 0.5140 | 0.6570 | 0.3220 | 0.1590 | 0.7220 | 0.8800 | **0.0056** |
| CD38+HLA-DR+ | 1.0000 | **0.0338** | **0.0338** | 0.3740 | **0.0039** | 0.0573 | 0.7220 | 0.5970 | 0.9700 |
| **CD8+ Naïve/Effector T Cells** | | | | | | | | | |
| CD38+ | 0.5450 | 0.6830 | 0.7440 | 1.0000 | 0.2480 | 0.2910 | 0.1830 | 0.7050 | 0.1190 |
| HLA-DR+ | 0.6500 | 0.2210 | 0.5680 | 0.7900 | **0.0390** | 0.2050 | 0.9290 | 0.8800 | 0.6210 |
| CD11b+ | 0.8800 | 0.5140 | 0.8060 | 0.2480 | 0.0986 | 0.2310 | 0.1310 | 0.4960 | 0.2390 |
| CD27+ | 0.9400 | 1.0000 | 0.9350 | 0.7900 | 0.3220 | 0.5730 | 0.1830 | 0.6500 | 0.5690 |
| CD38+HLA-DR+ | 0.0963 | 0.6240 | 0.3270 | 0.0506 | 0.7410 | 0.1210 | 0.1830 | 0.4500 | 0.3050 |
| **CD8+ Memory T Cells** | | | | | | | | | |
| CD38+ | 0.1740 | 0.1420 | 0.3690 | **0.0263** | **0.0010** | 0.0783 | 0.7900 | 0.7620 | 0.3820 |
| HLA-DR+ | 0.4500 | 0.2880 | 0.5680 | 0.1550 | **0.0050** | 0.1390 | 0.4240 | 0.3260 | 0.2100 |
| CD11b+ | 0.7050 | 0.6830 | 0.8060 | 0.9290 | 0.6800 | 0.5730 | 0.5940 | 0.6500 | 0.7320 |
| CD27+ | 0.3260 | 0.9350 | 0.3270 | 0.7220 | 0.8040 | 0.9440 | 0.3740 | 0.8800 | 0.6760 |
| CD38+HLA-DR+ | 0.1990 | 0.1910 | 0.6240 | **0.0077** | **0.0017** | 0.0573 | 0.7220 | 0.2260 | 0.1380 |
| **NK Cells** | | | | | | | | | |
| CD38+ | 0.7620 | 0.3690 | 0.5130 | 0.5940 | 0.0985 | **0.0486** | 0.8590 | 0.4960 | 0.8490 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| HLA-DR+ | 0.8210 | 0.8060 | 0.5140 | 0.6570 | 0.1370 | 0.3240 | 0.5940 | 0.5970 | 0.6210 |
| CD11c+ | 0.7340 | 0.2210 | 0.1420 | 0.4240 | 0.4570 | 0.7250 | 0.9290 | 0.4500 | 0.4250 |
| CD11b+ | 0.7340 | 0.6830 | 0.8700 | 0.7900 | 0.3210 | 0.3770 | 0.9290 | 0.9100 | 0.2670 |
| CD27+ | 0.2260 | 0.4140 | 0.4140 | 0.5050 | 0.8360 | 0.4600 | 0.7220 | 0.0963 | 0.6210 |
| **Monocytes** | | | | | | | | | |
| CD38+ | 0.1120 | 0.4140 | **0.0412** | 0.2140 | **0.0593** | 0.2310 | **0.0129** | 0.4060 | 0.2710 |
| **Classical Monocytes** | | | | | | | | | |
| CD38+ | 0.3260 | 0.2530 | 0.4140 | 0.9290 | 0.6800 | 0.9440 | 0.1310 | 0.4960 | 0.5690 |
| **Intermediate Monocytes** | | | | | | | | | |
| CD38+ | 0.7910 | 0.9350 | 0.7750 | 0.5940 | 0.6800 | 0.6470 | 0.0560 | **0.0155** | **0.0167** |
| **Non-Classical Monocytes** | | | | | | | | | |
| CD38+ | 0.7050 | 0.1210 | 0.3270 | 0.3740 | **0.0318** | 0.3600 | **0.0263** | 0.4960 | 0.2390 |
| **Basophils** | | | | | | | | | |
| CD11c+ | 0.7050 | 0.4620 | 0.7750 | 0.9290 | 0.2150 | 0.2310 | 0.5940 | 0.9400 | 0.3050 |
| **DCs** | | | | | | | | | |
| CD38+ | 0.3260 | 0.1640 | **0.0499** | 0.9290 | 0.3640 | 0.4810 | 0.4770 | 0.6500 | **0.0303** |
| **pDCs** | | | | | | | | | |
| CD38+ | 0.1090 | 0.2890 | 0.8950 | 0.2050 | **0.0184** | 0.1970 | 0.7550 | 0.7160 | 0.3490 |

## Supplemental Table 12. TLR gene list

| lps | lps | lps | lps | lps | lps | lps | lps | lps | lps | polyIC | polyIC | polyIC | polyIC | r848 | R848 | tlr7 | tlr9 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ACADM | CCND3 | CTNNB1 | FOS | ID2 | LCP2 | NDUFV2 | PSMA2 | SERPINB9 | TMEM154 | ACSL3 | DDX60L | JUN | RPL11 | ADAR | IRF7 | BANK1 | CAST |
| ACP5 | CCNI | CTSB | FOSB | IER5 | LDHA | NFAT5 | PSMA6 | SLC11A1 | TMSB10/TMSB4X | ADAM10 | DISC1 | JUNB | RPL12 | AIF1 | IRF9 | BCL2 | CCL3 |
| ACSL1 | CCNL1 | CTSC | FOXO1 | IFI16 | LGALS1 | NFE2L2 | PSMB10 | SLC16A3 | TNFAIP2 | ADAR | DUSP1 | KLF4 | RPL13A | APOBEC3A | ISG15 | BCL2A1 | CCL5 |
| ADAR | CCPG1 | CTSL | FPR1 | IFI35 | LGALS3 | NFIL3 | PSMB8 | SLC2A3 | TNFAIP3 | AIMP1 | EEF1G | KLF6 | RPL15 | ATF4 | ISG20 | CCL3 | CCR7 |
| ADGRE2 | CCR1 | CXCL16 | FTH1 | IFI44 | LGALS9 | NFKB1 | PSMB9 | SLC31A2 | TNFAIP6 | ANXA1 | EGR1 | KYNU | RPL17 | ATF6 | JUN | CCND3 | CD300A |
| AFF3 | CCR7 | CXCL2 | FUT8 | IFI44L | LIMS1 | NFKBIA | PSME1 | SLC66A3 | TNFAIP8 | ATF4 | EIF2AK2 | LGALS9 | RPL19 | ATP5F1A | LAP3 | CCR7 | CD300E |
| AHNAK | CD14 | CXCL3 | FYB1 | IFI6 | LIPA | NFKBIZ | PSME2 | SMAD2 | TNFRSF1B | ATP5MG | EIF2S3 | LTA4H | RPL3 | ATP5F1C | LYN | CD300A | CD69 |
| AHR | CD22 | CXCL8 | FYN | IFITM1 | LITAF | NLRP3 | PSMG4 | SMARCE1 | TNFSF10 | AUTS2 | EIF5A | LTB | RPL30 | ATP5PF | LYST | CD44 | CD83 |
| AKAP13 | CD300LF | CXCR4 | G0S2 | IFITM2 | LMO4 | NOTCH2 | PTGS2 | SNAP23 | TNFSF13B | B2M | EREG | LY6E | RPS13 | ATP6V1B2 | MCL1 | CD69 | CD86 |
| ALDH2 | CD36 | CYBA | GABARAP | IFNGR2 | LRBA | NR3C1 | PTPRC | SOCS3 | TOR3A | BAX | ETFB | LYN | RPS2 | BCL2 | MSN | CD79A | CERS6 |
| ALOX5AP | CD37 | CYBB | GADD45B | IGHM | LRP1 | NR4A2 | PYCARD | SOD1 | TPI1 | BCL2 | EZR | LYZ | RPSA | BCL2A1 | MX1 | CD83 | CXCL2 |
| ANXA1 | CD4 | CYCS | GAS5 | IGKC | LRRFIP1 | NT5C3A | QKI | SOD2 | TPT1 | BIRC2 | FAU | M6PR | SAP18 | BST2 | MX2 | CD86 | CXCL3 |
| ANXA5 | CD44 | CYTIP | GBP1 | IGSF6 | LRRK2 | OAS1 | RAB6A | SP140 | TRAF3 | BIRC3 | FCN1 | MX1 | SARS1 | CASP4 | NAMPT | CEBPB | CXCL8 |
| ANXA7 | CD48 | DDX17 | GBP2 | IKZF1 | LST1 | OLR1 | RAN | SPCS1 | TREM1 | BIRC5 | FLI1 | MYC | SAT1 | CCL3 | NFE2L2 | CREB5 | DUSP1 |
| APEX1 | CD53 | DDX27 | GCA | IKZF3 | LTA4H | OSCAR | RARA | SPI1 | TRIM22 | BST2 | FOS | NAAA | SLC25A4 | CCL3L1 | NFKB1 | CXCL2 | EGR1 |
| APOBEC3A | CD55 | DDX3X | GCH1 | IL10RA | LY86 | PALM2AKAP2 | RASGEF1B | SPTLC2 | TSC22D3 | BTLA | FPR1 | NAMPT | SNRPD1 | CCL4L1/CCL4L2 | NFKBIA | CXCL3 | FCER2 |
| AREG | CD58 | DDX6 | GDI2 | IL10RB | LY96 | PARK7 | RB1 | SSB | TSPO | CCL3 | GADD45B | NEDD9 | SNU13 | CCL5 | NFKBIZ | CXCL8 | FCMR |
| ARL4C | CD63 | DICER1 | GMFG | IL15 | LYN | PARP14 | RB1CC1 | SSBP1 | TXN | CCL3L1 | GBP1 | NFIL3 | SOCS3 | CCR1 | NLRP3 | DENND4C | GADD45B |
| ARPC1B | CD68 | DNAJC3 | GOLGA4 | IL1B | LYZ | PARP8 | RBMS1 | SSR1 | TXNDC11 | CCL5 | GBP2 | NFKB1 | SOD2 | CCR7 | OAS1 | DMXL2 | GCH1 |
| ASAP1 | CD69 | DNMT1 | GPD2 | IL2RG | M6PR | PAX5 | REL | ST6GAL1 | TXNIP | CCND3 | GCH1 | NFKBIA | SP110 | CD44 | PARK7 | EIF3J | HMOX1 |
| ASCC3 | CD74 | DOCK10 | GPR183 | IL4R | MAFB | PBRM1 | RELB | STAP1 | TYMP | CCR7 | HIF1A | NFKBIZ | SRGN | CD83 | PAX5 | ETS2 | IFI16 |
| ASH1L | CD83 | DOCK8 | GSK3B | INPP5D | MAP1LC3B | PDCD4 | RFX7 | STAT1 | TYROBP | CCT5 | HLA-A | NLRP3 | SRSF2 | CD86 | PKM | FCER1G | IFI35 |
| ATF4 | CD86 | DUSP1 | GSTP1 | INSIG1 | MAP3K8 | PDE3B | RGS2 | STAT2 | UBE2I | CCT7 | HLA-B | NMI | SSB | CEBPB | PLSCR1 | FCMR | IFI44L |
| ATG7 | CD9 | EAF2 | GZMA | IQGAP1 | MAP4K4 | PDE4B | RHOB | STAT3 | UBE2J1 | CD14 | HLA-C | NOP58 | ST6GAL1 | CLEC4E | PMAIP1 | GNG2 | IFITM1 |
| ATP2B1 | CDC42EP3 | EEF2 | GZMB | IRAK3 | MARCKS | PDIA3 | RIPK2 | STAT4 | UCP2 | CD36 | HLA-DMB | NR4A2 | ST8SIA4 | CLEC7A | PRDM1 | HIVEP2 | IL10RA |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ATP5MC1 | CEBPB | EGR1 | H3-3A/H3-3B | IRF1 | MARCKSL1 | PDIA4 | RNF19A | STIM1 | UTRN | CD44 | HLA-E | NUP153 | STAT1 | CREB5 | PRDX1 | IFI35 | IL1B |
| ATP6AP1 | CEBPD | EGR2 | HADHB | IRF7 | MCL1 | PDIA6 | RNF213 | STMN1 | VCAN | CD47 | HSPA9 | OAS1 | STAT2 | CSF1R | PSMB2 | IFI44 | IRF7 |
| ATP6V0D1 | CEMIP2 | EIF2AK2 | HCK | IRF8 | MDH1 | PECAM1 | RORA | STX11 | VIM | CD69 | HSPD1 | OLR1 | SYK | CXCL2 | PTGS2 | IFI44L | ISG15 |
| ATRX | CFD | EIF2AK3 | HDAC9 | IRF9 | MEF2C | PELI1 | RPLP0 | STXBP2 | VSIR | CD74 | IFI16 | OXA1L | TANK | CXCL3 | PTPRC | IFITM1 | LAMP2 |
| B4GALT5 | CFLAR | ELAVL1 | HERC5 | ISG15 | MIF | PID1 | RPS14 | SUMO1 | VTI1B | CD83 | IFI44 | PARP14 | TET2 | CXCL8 | PYCARD | IL10RA | LYST |
| BACH2 | CFP | ELL2 | HERPUD1 | ISG20 | MOB1A | PIK3AP1 | RPS19 | SUMO2 | WARS1 | CD86 | IFI44L | PDHB | TGFB1 | DENND4C | RAB7A | IL1B | MCL1 |
| BAX | CKAP4 | EMB | HHEX | ITGA4 | MSN | PIM2 | RPS2 | SWAP70 | WTAP | CDK14 | IFI6 | PLAAT4 | THBS1 | DNAJC3 | RAP1A | INPP5D | MX1 |
| BCL2 | CLEC4E | ENO1 | HIF1A | ITGAE | MT-CO1 | PKIG | RPS5 | TAGAP | XAF1 | CEBPB | IFITM1 | PLAUR | THOC2 | EIF2AK2 | REL | IRF7 | MX2 |
| BCL2A1 | CLEC7A | ENTPD1 | HIVEP2 | ITGAM | MT2A | PKM | S100A12 | TALDO1 | XBP1 | CEBPD | IFITM3 | PMAIP1 | THRAP3 | ETS2 | RELB | ISG15 | NAMPT |
| BID | CLIC4 | EP300 | HLA-A | ITGB1 | MTDH | PLAAT4 | S100A8 | TANK | YBX1 | CFLAR | IFNGR1 | PPP1R15A | TLR2 | FCER1G | RIPK2 | ISG20 | NFKBIZ |
| BIRC2 | CLPTM1L | ERCC1 | HLA-DMA | ITGB2 | MTSS1 | PLAUR | S100A9 | TAPBP | YBX3 | CLEC4E | IL10RA | PPP2CA | TLR4 | FCER2 | SFPQ | JUNB | PTGS2 |
| BIRC3 | CMPK2 | EREG | HLA-DMB | IVNS1ABP | MX1 | PLEK | SAMHD1 | TCF4 | YWhiteAE | CLEC7A | IL15 | PSMA3 | TNFAIP2 | FCGR2A | SOD2 | MX1 | PYCARD |
| BTG1 | CNST | ERGIC1 | HLA-DOB | JAK2 | MX2 | PLPP5 | SAMSN1 | TCF7L2 | YWhiteAQ | CMPK2 | IL1B | PSMB8 | TNFAIP3 | GBP1 | SP100 | MX2 | S100A8 |
| C1QA | CORO1A | ERP44 | HLA-DQA1 | JAZF1 | MXD1 | PLSCR1 | SAP18 | TENT5C | YY1 | COX20 | IL2RG | PSMB9 | TNFAIP6 | GNG2 | SPI1 | NCF4 | SOCS3 |
| C5AR1 | COX4I1 | ETS2 | HLA-DQB1 | JCHAIN | MYC | PMAIP1 | SAT1 | TFDP2 | ZBTB7A | COX7A2L | IL4R | PSME2 | TNFSF10 | HCK | STAP1 | NFKB1 | SPTLC2 |
| CALHM6 | CREB3L2 | ETV6 | HLA-DRB5 | JUN | MYH9 | PNOC | SDHB | TFEC | ZC3HAV1 | COX7B | IMMP2L | PTBP2 | TNFSF13B | HERC5 | STAT1 | NFKBIA | STAT1 |
| CALM1 (includes others) | CREBBP | FABP5 | HM13 | JUNB | NAMPT | POU2F2 | SEC11A | TFRC | ZEB1 | CSNK1A1 | IQGAP2 | PTGS2 | TOP1 | HERPUD1 | STAT2 | PTPN6 | STAT2 |
| CALR | CRTAP | FCER1G | HMGB1 | JUND | NCF1 | PPIA | SEC24D | TGFB1 | ZFC3H1 | CTNNB1 | IRF1 | PTPN2 | UBE3A | HHEX | STMN1 | RPL26 | TGFB1 |
| CASP1 | CSF1R | FCER2 | HMGB2 | KLF10 | NCF2 | PPP1CB | SEC61A1 | THBS1 | ZFHX3 | CXCL2 | IRF7 | PTPRJ | USP25 | HIVEP2 | TLR2 | RPL32 | TIMP1 |
| CASP4 | CSF2RA | FCGRT | HMOX1 | KLF2 | NCL | PPP1R15A | SELL | TIMP1 | ZFP36 | CXCL3 | IRF9 | REL | VASP | HSPB1 | TLR4 | SOD2 | TLR4 |
| CAV1 | CSF2RB | FGL2 | HSH2D | KLF3 | NCOA1 | PPP1R16B | SELPLG | TIMP2 | ZFP36L2 | CXCL8 | ISG15 | RELB | VIM | IFI16 | TMEM154 | STAT1 | TNFRSF1B |
| CCL3 | CSF3R | FLI1 | HSP90B1 | KLF4 | NCOA2 | PRDM1 | SEPTIN1 | TKT | ZYX | CXCR4 | ISG20 | RGS2 | WDFY4 | IFI44L | TNFAIP3 | STAT2 | TNFSF10 |
| CCL3L1 | CST3 | FNDC3A | HSPA8 | KLF6 | NCOA3 | PRDX1 | SERPINA1 | TLR2 | | CYC1 | ITGAM | RNF114 | XAF1 | IFITM1 | TNFSF10 | TMEM154 | TNFSF13B |
| CCL5 | CSTB | FNDC3B | HSPB1 | KYNU | NDFIP1 | PRDX5 | SERPINB1 | TLR4 | | DDX3X | JAK2 | RPL10A | YARS1 | IFITM3 | TNFSF13B | TNFAIP3 | |
| | | | | | | | | | | | | | ZBP1 | IL15 | TRIM22 | | |
| | | | | | | | | | | | | | ZC3HAV1 | IL1B | WARS1 | | |
| | | | | | | | | | | | | | ZFP36 | IRAK3 | XBP1 | | |

YWhite
AB

**Supplemental Table 13. Fold change in phospho-proteins following B cell stimulation with various stimuli.** Median metal intensity and IQR shown for unstimulated/basal conditions. Median fold change and IQR over the unstimulated/basal conditions shown for all other stimuli.

| B Cells | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Median (Interquartile Range) | | | | | Median (Interquartile Range) | | | | |
| | **White Controls** | **White SLE INACT** | **White SLE ACT** | **KW p-value** | **FDR q-value** | **Black Controls** | **Black SLE INACT** | **Black SLE ACT** | **KW p-value** | **FDR q-value** |
| **cCASP3** | | | | | | | | | | |
| Basal | 6.56 (6.19-7.2) | 7.29 (6.77-10.5) | 9.99 (7.24-12) | 0.1920 | 0.8207 | 7.16 (6.24-8.27) | 6.91 (6.42-8.98) | 6.87 (6.72-10.8) | 0.6920 | 0.8387 |
| IFNα | 1.13 (1-1.19) | 1.31 (1.05-1.39) | 1.78 (0.979-4.38) | 0.4500 | 0.8363 | 1.11 (1.05-1.49) | 1.67 (1.14-3.38) | 1.27 (1.11-1.49) | 0.3860 | 0.7772 |
| LPS (TLR4) | 1.02 (1-1.07) | 1 (0.81-1.16) | 1.06 (0.536-1.18) | 0.9470 | 0.9918 | 1.07 (0.927-1.17) | 1.12 (1.01-1.28) | 1.01 (0.988-1.1) | 0.4560 | 0.7772 |
| R848 (TLR7/8) | 1.02 (0.951-1.05) | 0.961 (0.856-1.12) | 1.08 (0.912-1.47) | 0.8000 | 0.926 | 1.15 (1.07-1.68) | 1.03 (0.966-1.21) | 1.04 (0.951-1.07) | 0.1610 | 0.7317 |
| CpG (TLR9) | 1.05 (0.935-1.08) | 0.942 (0.693-1.03) | 1.02 (0.882-1.08) | 0.3120 | 0.8207 | 1.53 (1.19-2) | 0.976 (0.954-1.03) | 1.04 (0.964-1.09) | **0.0050** | 0.2263 |
| PMA-Iono | 0.963 (0.916-1.12) | 1.1 (1.05-1.13) | 1.25 (1.04-2.11) | 0.3020 | 0.8207 | 1.13 (1.04-1.32) | 1.16 (1.06-1.72) | 1.14 (1.06-1.42) | 0.9820 | 0.9918 |
| **pCREB** | | | | | | | | | | |
| Basal | 19 (16.2-25.1) | 18.1 (13-22.2) | 21.9 (20.1-31.6) | 0.4460 | 0.8363 | 20.1 (13.8-20.9) | 27.5 (16.8-43.5) | 18.5 (11.8-25.2) | 0.4500 | 0.7772 |
| IFNα | 1.05 (0.989-1.1) | 1.27 (1.09-1.41) | 1.43 (1.06-1.75) | 0.1160 | 0.8207 | 1.23 (1.14-1.5) | 1.11 (0.994-1.26) | 1.18 (1.07-1.53) | 0.3300 | 0.7772 |
| LPS (TLR4) | 1.04 (0.944-1.16) | 1.11 (1-1.25) | 1.08 (0.908-1.32) | 0.7040 | 0.926 | 1.11 (1.08-1.52) | 1.02 (0.946-1.12) | 1.05 (0.926-1.1) | 0.0802 | 0.7254 |
| R848 (TLR7/8) | 1.15 (1.13-1.19) | 1.23 (1.02-1.63) | 1.43 (0.806-2.05) | 0.8570 | 0.9539 | 1.49 (1.35-2.47) | 1.09 (0.982-1.26) | 1.42 (1.21-1.76) | **0.0409** | 0.5577 |
| CpG (TLR9) | 1.02 (0.947-1.09) | 1.03 (0.934-1.15) | 0.949 (0.602-1.15) | 0.7250 | 0.926 | 1.09 (1.02-1.24) | 0.948 (0.834-1.04) | 1.02 (0.943-1.1) | 0.1200 | 0.7254 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| PMA-Iono | 1.87 (1.59-2.64) | 2.69 (2.39-4.13) | 2.1 (1.63-3.88) | 0.3120 | 0.8207 | 2.17 (2.13-4.61) | 2.34 (1.52-2.88) | 2.67 (2.33-3.2) | 0.2930 | 0.7772 |
| **pERK1/2** | | | | | | | | | | |
| Basal | 5.27 (4.71-6.86) | 5.78 (5.07-9.83) | 4.8 (4.02-7.34) | 0.7030 | 0.926 | 5.02 (4.29-5.58) | 4.86 (4.59-6.93) | 4.78 (3.99-6.08) | 0.8240 | 0.8642 |
| IFNα | 0.981 (0.907-1.14) | 1.14 (1.11-1.28) | 1.25 (0.978-1.46) | 0.3860 | 0.8363 | 1.12 (0.985-1.88) | 1.17 (1.06-2.16) | 1.07 (0.946-1.14) | 0.3790 | 0.7772 |
| LPS (TLR4) | 1.01 (0.894-1.08) | 1.14 (0.876-1.21) | 1.29 (1.05-1.51) | 0.1830 | 0.8207 | 1.1 (1.04-1.24) | 1.06 (1.01-1.15) | 1.02 (1.01-1.05) | 0.2100 | 0.7772 |
| R848 (TLR7/8) | 1.04 (0.964-1.14) | 1.15 (1.04-1.36) | 0.927 (0.868-1.3) | 0.4390 | 0.8363 | 1.39 (1.24-1.75) | 1.26 (1.04-1.63) | 1.3 (1.2-2.57) | 0.3640 | 0.7772 |
| CpG (TLR9) | 1.01 (0.989-1.16) | 0.98 (0.879-1.13) | 1.15 (0.843-1.19) | 0.7890 | 0.926 | 1.06 (0.953-1.31) | 1.03 (0.888-1.1) | 0.986 (0.963-1.02) | 0.4790 | 0.7772 |
| PMA-Iono | 5.77 (4.01-6.67) | 5.16 (3.56-10.9) | 5.53 (3.52-6.96) | 0.9720 | 0.9918 | 9.04 (5.55-10.4) | 6.34 (5.22-8.38) | 6.84 (5.16-7.82) | 0.4670 | 0.7772 |
| **p-p38** | | | | | | | | | | |
| Basal | 10.4 (8.64-19.6) | 9.45 (7.68-10.4) | 9.65 (6.64-13.2) | 0.5660 | 0.882 | 6.5 (5.78-10) | 9.7 (6.05-15.7) | 6.34 (5.62-10.7) | 0.4900 | 0.7772 |
| IFNα | 1.05 (0.957-1.14) | 1.2 (0.987-1.41) | 1.41 (1.11-1.79) | **0.0371** | 0.8207 | 1.18 (1.03-1.27) | 1.08 (0.947-1.25) | 1.2 (1.04-1.27) | 0.7870 | 0.8585 |
| LPS (TLR4) | 1.16 (1.04-1.22) | 1.3 (1.07-1.39) | 1.85 (1.38-1.95) | **0.0137** | 0.7472 | 1.39 (1.17-1.83) | 1.13 (1.05-1.28) | 1.11 (1.03-1.36) | 0.3550 | 0.7772 |
| R848 (TLR7/8) | 1.31 (1.19-1.68) | 1.47 (1.24-2.03) | 2.07 (1.91-2.32) | 0.0755 | 0.8207 | 2.34 (1.85-3.08) | 1.49 (1.18-1.75) | 2.57 (1.81-3.01) | 0.1170 | 0.7254 |
| CpG (TLR9) | 1.03 (1.02-1.05) | 0.957 (0.926-1.01) | 1.12 (1.07-1.26) | 0.1210 | 0.8207 | 1.12 (1.01-1.58) | 1 (0.852-1.1) | 1.01 (0.943-1.11) | 0.1970 | 0.7772 |
| PMA-Iono | 1.52 (1.28-2.21) | 1.7 (1.55-2.5) | 2.91 (2.46-3.97) | 0.1920 | 0.8207 | 2.53 (1.99-2.81) | 1.43 (1.29-1.85) | 1.69 (1.26-2.57) | 0.1140 | 0.7254 |
| **p-PLCg2** | | | | | | | | | | |
| Basal | 9.66 (5.48-12) | 10.3 (5.98-12.9) | 10.4 (6.62-12.1) | 0.9700 | 0.9918 | 8.81 (7.78-11) | 8.16 (6.99-9.86) | 9 (7.38-10.2) | 0.8220 | 0.8642 |
| IFNα | 0.925 (0.909-1.01) | 0.953 (0.915-1.1) | 0.962 (0.917-0.993) | 0.7470 | 0.926 | 0.997 (0.959-1.01) | 0.967 (0.888-1.02) | 1.01 (0.939-1.05) | 0.6220 | 0.8272 |

|  |  |  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|
| LPS (TLR4) | 0.964 (0.961-1.04) | 0.936 (0.92-1.12) | 1.02 (0.986-1.06) | 0.4020 | 0.8363 | 1 (0.985-1.02) | 1.01 (0.994-1.07) | 0.976 (0.923-1) | 0.3100 | 0.7772 |
| R848 (TLR7/8) | 1.02 (1-1.04) | 1 (0.908-1.06) | 0.968 (0.91-1.13) | 0.7470 | 0.926 | 1.03 (0.995-1.08) | 0.971 (0.897-1.01) | 0.967 (0.905-1.01) | 0.1300 | 0.7254 |
| CpG (TLR9) | 1.02 (0.87-1.11) | 0.96 (0.94-1.01) | 1.04 (0.946-1.08) | 0.7420 | 0.926 | 1.01 (0.978-1.05) | 1.01 (0.871-1.06) | 0.972 (0.853-1.03) | 0.5130 | 0.7772 |
| PMA-Iono | 0.923 (0.887-1.1) | 0.996 (0.914-1.07) | 1.06 (0.964-1.26) | 0.2710 | 0.8207 | 0.944 (0.92-0.97) | 0.895 (0.853-0.993) | 0.929 (0.888-0.978) | 0.6660 | 0.8387 |
| **pSTAT1** |  |  |  |  |  |  |  |  |  |  |
| Basal | 3.9 (2.71-5.02) | 6.03 (5.48-7.28) | 7.92 (6.06-13.2) | 0.0606 | 0.8207 | 3.7 (2.36-5.31) | 3.7 (3.01-5.63) | 6.04 (3.86-8.54) | 0.4830 | 0.7772 |
| IFNα | 10.1 (5.93-12.5) | 8.83 (3.1-11.4) | 2.48 (1.4-8.3) | 0.2630 | 0.8207 | 9.61 (6.25-13.8) | 8.63 (4.05-14.1) | 4.85 (2.36-13.2) | 0.7170 | 0.8501 |
| LPS (TLR4) | 1 (0.808-1.18) | 0.933 (0.841-1.13) | 0.823 (0.285-1.57) | 0.7520 | 0.926 | 1.06 (0.951-1.2) | 1.17 (1.09-1.31) | 1.08 (0.991-1.22) | 0.5030 | 0.7772 |
| R848 (TLR7/8) | 0.988 (0.893-1.08) | 0.981 (0.811-1.04) | 1.06 (0.267-1.26) | 0.3630 | 0.8363 | 1.09 (0.988-1.3) | 0.973 (0.934-1.11) | 1 (0.903-1.21) | 0.5770 | 0.8154 |
| CpG (TLR9) | 0.971 (0.833-1.07) | 0.892 (0.772-1.16) | 0.787 (0.246-0.921) | 0.7270 | 0.926 | 1.07 (0.96-1.51) | 0.993 (0.771-1.08) | 1.01 (0.899-1.1) | 0.6370 | 0.8272 |
| PMA-Iono | 1.1 (0.972-1.23) | 1.35 (1.01-1.49) | 0.939 (0.734-1.35) | 0.4600 | 0.8363 | 1.2 (0.959-1.5) | 1.46 (0.981-1.63) | 1.37 (1.07-1.46) | 0.7690 | 0.8559 |
| **pSTAT3** |  |  |  |  |  |  |  |  |  |  |
| Basal | 8.45 (6.46-12) | 8.6 (7.11-13.1) | 13.3 (9.72-13.5) | 0.2710 | 0.8207 | 7.41 (5.82-9.04) | 5.74 (4.86-9.23) | 9.82 (5.92-12.3) | 0.4710 | 0.7772 |
| IFNα | 4.38 (2.42-5.59) | 4.31 (2.09-5.33) | 3.81 (1.97-4.16) | 0.9820 | 0.9918 | 4.34 (3.6-5.92) | 3.43 (2.2-6.22) | 2.04 (1.6-2.96) | 0.1330 | 0.7254 |
| LPS (TLR4) | 1.02 (0.953-1.07) | 1.02 (0.895-1.09) | 1.07 (0.778-1.27) | 0.8150 | 0.926 | 1.07 (0.99-1.37) | 1.01 (0.952-1.12) | 1.05 (0.894-1.19) | 0.6850 | 0.8387 |
| R848 (TLR7/8) | 1.04 (0.963-1.13) | 1.02 (0.956-1.1) | 0.973 (0.645-1.09) | 0.5460 | 0.882 | 0.998 (0.938-1.28) | 0.99 (0.909-0.997) | 1.03 (0.928-1.11) | 0.5980 | 0.8154 |
| CpG (TLR9) | 0.982 (0.892-1.11) | 0.973 (0.879-0.995) | 0.828 (0.67-1.02) | 0.4770 | 0.8392 | 0.973 (0.922-1.24) | 0.914 (0.835-1) | 0.961 (0.864-1.06) | 0.5560 | 0.8154 |
| PMA-Iono | 0.955 (0.864-1.01) | 1.03 (0.967-1.11) | 1.08 (0.924-1.32) | 0.1690 | 0.8207 | 1 (0.884-1.09) | 1.06 (0.865-1.19) | 0.951 (0.883-1.07) | 0.7550 | 0.8559 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **pSTAT5** | | | | | | | | | | |
| Basal | 9.21 (6.71-10.3) | 10.6 (6.61-13.2) | 10.9 (9.59-17.6) | 0.3020 | 0.8207 | 7.88 (6.99-11.3) | 9.97 (7.72-12.3) | 11.5 (9.14-17) | 0.3760 | 0.7772 |
| IFNα | 1.9 (1.66-2.12) | 2.16 (1.77-2.49) | 1.42 (1.09-2.92) | 0.4940 | 0.842 | 3.14 (2.52-4.16) | 3.35 (1.92-3.96) | 1.23 (1.07-2) | **0.0083** | 0.2263 |
| LPS (TLR4) | 1.1 (0.98-1.15) | 1.03 (0.9-1.08) | 1.02 (0.953-1.18) | 0.7700 | 0.926 | 1.03 (0.956-1.09) | 1.07 (1.04-1.13) | 0.993 (0.961-1.11) | 0.2960 | 0.7772 |
| R848 (TLR7/8) | 1.08 (1.02-1.27) | 0.965 (0.9-1.06) | 1.08 (0.924-1.2) | 0.2070 | 0.8207 | 1.06 (1.03-1.1) | 1.06 (0.979-1.19) | 0.992 (0.966-1.07) | 0.3900 | 0.7772 |
| CpG (TLR9) | 0.999 (0.931-1.1) | 0.971 (0.829-1.02) | 0.934 (0.904-1.03) | 0.4550 | 0.8363 | 1.1 (0.983-1.51) | 1.02 (0.951-1.05) | 0.975 (0.899-1.06) | 0.3250 | 0.7772 |
| PMA-Iono | 1.06 (0.979-1.07) | 1.08 (1.02-1.28) | 1.08 (1.01-1.34) | 0.7340 | 0.926 | 1.11 (1.02-1.26) | 1.18 (1.12-1.39) | 1.26 (1.12-1.34) | 0.5970 | 0.8154 |
| **Syk** | | | | | | | | | | |
| Basal | 43.9 (30.8-52.6) | 48.7 (34.6-52.1) | 42.9 (37.9-58) | 0.9740 | 0.9918 | 40.9 (34.7-50.9) | 41.9 (33.3-52.3) | 45.1 (37.4-59.1) | 0.7540 | 0.8559 |
| IFNα | 1.01 (0.929-1.07) | 1.29 (1.06-1.43) | 1.49 (0.937-1.6) | 0.1080 | 0.8207 | 1.19 (1.07-1.37) | 1.17 (1.01-1.42) | 1.16 (1.06-1.37) | 0.9500 | 0.9776 |
| LPS (TLR4) | 1.05 (0.942-1.09) | 1.04 (0.936-1.16) | 0.961 (0.801-1.05) | 0.5550 | 0.882 | 1.05 (1.01-1.13) | 1.05 (0.988-1.09) | 1.02 (0.983-1.07) | 0.5050 | 0.7772 |
| R848 (TLR7/8) | 1.04 (0.939-1.06) | 0.942 (0.906-1.03) | 0.824 (0.8-1.01) | 0.1630 | 0.8207 | 1.29 (1.04-1.49) | 0.961 (0.878-1.01) | 1.07 (0.987-1.16) | **0.0227** | 0.4127 |
| CpG (TLR9) | 1.08 (0.904-1.25) | 0.96 (0.919-0.989) | 0.919 (0.825-1.08) | 0.4320 | 0.8363 | 1.08 (1.01-1.37) | 0.97 (0.895-1.06) | 0.995 (0.982-1.03) | 0.1610 | 0.7317 |
| PMA-Iono | 1.04 (0.94-1.14) | 1.16 (1.05-1.26) | 1.12 (0.97-1.52) | 0.3160 | 0.8207 | 1.15 (1.06-1.22) | 1.17 (1.03-1.31) | 1.23 (1.14-1.52) | 0.3680 | 0.7772 |

**Supplemental Table 14. Fold change in phospho-proteins following CD4+ T cell stimulation with various stimuli.** Median metal intensity and IQR shown for unstimulated/basal conditions. Median fold change and IQR over the unstimulated/basal conditions shown for all other stimuli.

| CD4+ T Cells | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Median (Interquartile Range) | | | | | Median (Interquartile Range) | | | | |
| | **White Controls** | **White SLE INACT** | **White SLE ACT** | **KW p-value** | **FDR q-value** | **Black Controls** | **Black SLE INACT** | **Black SLE ACT** | **KW p-value** | **FDR q-value** |
| **cCASP3** | | | | | | | | | | |
| Basal | 5.53 (4.64-6.11) | 5.94 (5.22-7.82) | 6.36 (5.81-7.42) | 0.2480 | 0.8817 | 5.71 (5.01-5.91) | 5.84 (4.89-6.67) | 5.6 (5.15-9.55) | 0.7680 | 0.9109 |
| IFNα | 1.05 (0.993-1.08) | 1.21 (1.06-1.25) | 1.3 (1.13-1.47) | 0.0803 | 0.7299 | 1.1 (1.01-1.25) | 1.38 (1.16-1.59) | 1.12 (1.04-1.23) | 0.0580 | 0.2925 |
| LPS (TLR4) | 1.03 (0.964-1.07) | 1.01 (0.94-1.08) | 0.958 (0.938-1.01) | 0.5510 | 0.9712 | 1.06 (0.996-1.1) | 1.02 (0.998-1.07) | 1.02 (0.978-1.07) | 0.5970 | 0.8683 |
| R848 (TLR7/8) | 0.974 (0.915-1.04) | 0.973 (0.929-1.04) | 1 (0.914-1.03) | 0.9770 | 0.9969 | 1.04 (1-1.21) | 0.982 (0.963-1.07) | 1.01 (0.958-1.04) | 0.3050 | 0.7561 |
| CpG (TLR9) | 0.989 (0.932-1.06) | 0.96 (0.914-1.01) | 0.984 (0.956-1.04) | 0.8050 | 0.9969 | 1.19 (1-1.34) | 1.02 (0.968-1.1) | 1.03 (0.984-1.05) | 0.1750 | 0.5965 |
| PMA-Iono | 1.01 (0.973-1.07) | 1.05 (1-1.14) | 1.17 (1.07-1.37) | 0.0679 | 0.7299 | 1.09 (1.05-1.22) | 1.14 (1.12-1.32) | 1.14 (1.04-1.23) | 0.4870 | 0.8683 |
| **pCREB** | | | | | | | | | | |
| Basal | 9.4 (7.58-13) | 9.57 (8.2-12.8) | 10.5 (7.85-18.5) | 0.6420 | 0.9969 | 7.36 (6.05-12.7) | 10.8 (7.63-16.3) | 7.98 (5.46-12.5) | 0.2100 | 0.6737 |
| IFNα | 1.02 (0.97-1.17) | 1.18 (1.08-1.32) | 1.01 (0.682-1.35) | 0.2930 | 0.8817 | 1.15 (1.02-1.57) | 1.1 (1.05-1.64) | 1.11 (1.09-1.37) | 0.9870 | 1 |
| LPS (TLR4) | 1.04 (0.983-1.15) | 1.1 (1.06-1.15) | 1.06 (0.856-1.17) | 0.5450 | 0.9712 | 1.2 (1.12-1.27) | 1.11 (0.974-1.15) | 1.06 (1.05-1.17) | 0.1200 | 0.4363 |
| R848 (TLR7/8) | 1.02 (0.953-1.17) | 1.04 (0.985-1.08) | 1.03 (0.982-1.14) | 0.9830 | 0.9969 | 1.24 (1.08-1.35) | 0.984 (0.931-1.06) | 1.06 (1.05-1.15) | **0.0066** | 0.1745 |

|  |  |  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|
| CpG (TLR9) | 0.982 (0.963-1.11) | 1 (0.968-1.09) | 1.04 (0.935-1.08) | 0.9770 | 0.9969 | 1.18 (1.13-1.32) | 0.99 (0.872-1.11) | 1.05 (0.988-1.07) | **0.0128** | 0.1745 |
| PMA-Iono | 3.62 (2.76-4.89) | 3.03 (2.01-4.71) | 3.59 (1.96-4.26) | 0.6910 | 0.9969 | 4.64 (4.03-6.05) | 3.8 (2.16-4.83) | 4.18 (2.98-7.22) | 0.3190 | 0.7564 |
| **pERK1/2** |  |  |  |  |  |  |  |  |  |  |
| Basal | 4.37 (3.68-5.63) | 5.46 (4.86-6.21) | 4.39 (4.3-6.09) | 0.5040 | 0.9712 | 3.41 (2.79-4.51) | 3.86 (3.04-4.73) | 3.45 (3.14-5.06) | 0.8990 | 1 |
| IFNα | 1.02 (0.978-1.03) | 1.04 (0.989-1.13) | 1 (0.943-1.25) | 0.8740 | 0.9969 | 0.998 (0.963-1.27) | 1.11 (1.03-1.25) | 1.07 (0.983-1.16) | 0.7340 | 0.9098 |
| LPS (TLR4) | 1.01 (0.974-1.07) | 1 (0.968-1.03) | 1 (0.967-1.06) | 0.9870 | 0.9969 | 1.02 (1-1.03) | 1 (0.958-1.03) | 0.989 (0.973-1.04) | 0.7700 | 0.9109 |
| R848 (TLR7/8) | 1.04 (0.965-1.09) | 0.985 (0.907-0.998) | 0.993 (0.924-1.07) | 0.2700 | 0.8817 | 1.03 (1.01-1.13) | 0.968 (0.948-0.996) | 1.01 (0.953-1.04) | 0.0893 | 0.3746 |
| CpG (TLR9) | 1.01 (0.97-1.05) | 0.899 (0.85-0.965) | 0.993 (0.979-1.01) | **0.0296** | 0.7299 | 1.08 (1.01-1.21) | 0.958 (0.898-1.01) | 0.971 (0.937-1.04) | 0.0590 | 0.2925 |
| PMA-Iono | 4.78 (3.32-6.94) | 3.13 (2.29-3.65) | 3.58 (1.74-4.74) | 0.4900 | 0.9712 | 8.2 (3.21-10.7) | 4.75 (3.23-5.89) | 4.61 (4.14-6.16) | 0.6050 | 0.8683 |
| **p-p38** |  |  |  |  |  |  |  |  |  |  |
| Basal | 3.94 (3.4-5.57) | 4.63 (3.8-5.23) | 4.46 (3.76-4.95) | 0.8000 | 0.9969 | 3.06 (2.91-4.19) | 3.06 (2.75-4.1) | 3.59 (3.3-4.39) | 0.5220 | 0.8683 |
| IFNα | 1.05 (0.98-1.12) | 1.03 (0.959-1.25) | 1.04 (1.01-1.34) | 0.8900 | 0.9969 | 1.08 (1.03-1.12) | 1.2 (1.13-1.31) | 1.03 (0.973-1.14) | 0.0518 | 0.2925 |
| LPS (TLR4) | 1.11 (1.03-1.19) | 1.16 (1.08-1.18) | 1.08 (1.02-1.15) | 0.5090 | 0.9712 | 1.14 (1.07-1.18) | 1.13 (1.09-1.18) | 1.13 (1.04-1.14) | 0.6880 | 0.9098 |
| R848 (TLR7/8) | 1.09 (1.06-1.15) | 1.04 (0.985-1.07) | 1.02 (1.01-1.05) | 0.1430 | 0.8817 | 1.11 (1.06-1.16) | 1.08 (1.03-1.09) | 1.01 (0.97-1.14) | 0.3900 | 0.8275 |
| CpG (TLR9) | 1.03 (0.967-1.15) | 0.964 (0.896-1.02) | 0.957 (0.917-0.991) | 0.0577 | 0.7299 | 1.07 (1.03-1.19) | 0.962 (0.893-1.01) | 0.967 (0.935-1.04) | **0.0096** | 0.1745 |
| PMA-Iono | 3.29 (2.57-4.07) | 1.96 (1.57-2.71) | 2.5 (1.76-2.85) | 0.2740 | 0.8817 | 3.29 (2.25-4.45) | 2.62 (1.93-3.06) | 2.31 (1.61-3) | 0.2690 | 0.6986 |
| **p-PLCg2** |  |  |  |  |  |  |  |  |  |  |
| Basal | 1.47 (1.38-1.76) | 1.7 (1.57-2.14) | 1.94 (1.72-2.69) | 0.3190 | 0.8817 | 1.34 (1.26-1.48) | 1.44 (1.28-1.86) | 1.36 (1.17-2.27) | 0.6700 | 0.9098 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| IFNα | 1.27 (1.12-1.3) | 1.47 (1.31-1.61) | 1.38 (1.1-1.55) | 0.2230 | 0.8817 | 1.5 (1.4-1.54) | 1.43 (1.29-1.63) | 1.22 (1.06-1.53) | 0.2270 | 0.6746 |
| LPS (TLR4) | 1 (0.956-1.04) | 0.996 (0.926-1.08) | 0.9 (0.861-1.03) | 0.6690 | 0.9969 | 1.01 (1-1.05) | 1.04 (0.978-1.06) | 1.07 (0.957-1.1) | 0.7160 | 0.9098 |
| R848 (TLR7/8) | 1.03 (0.97-1.11) | 1 (0.817-1.03) | 0.903 (0.892-1.06) | 0.3880 | 0.8817 | 1.13 (1.01-1.3) | 0.979 (0.933-1) | 1.02 (0.929-1.08) | 0.0806 | 0.3663 |
| CpG (TLR9) | 1.03 (0.939-1.06) | 0.983 (0.881-1.04) | 1 (0.822-1.01) | 0.2630 | 0.8817 | 1.15 (1.03-1.25) | 1.02 (0.942-1.11) | 1.03 (0.95-1.05) | 0.0544 | 0.2925 |
| PMA-Iono | 1.09 (0.971-1.21) | 1.12 (1.03-1.23) | 1.04 (1.02-1.36) | 0.9820 | 0.9969 | 1.11 (1.09-1.18) | 1.17 (1.12-1.35) | 1.19 (0.961-1.3) | 0.6550 | 0.9098 |
| **pSTAT1** | | | | | | | | | | |
| Basal | 13.6 (10.2-23.2) | 24.6 (15.9-37.1) | 20.1 (14.7-31.9) | 0.3870 | 0.8817 | 23.7 (16.6-32.3) | 25.7 (18.3-28.6) | 26.5 (15.1-34.6) | 0.9800 | 1 |
| IFNα | 7.67 (3.7-8.99) | 3.72 (2.76-8.09) | 3.12 (1.92-5.07) | 0.3310 | 0.8817 | 4.29 (3.32-5.95) | 3.56 (2.13-5.07) | 2.84 (1.69-5.07) | 0.5640 | 0.8683 |
| LPS (TLR4) | 0.974 (0.898-1.12) | 1.05 (0.94-1.09) | 0.974 (0.906-1.03) | 0.5520 | 0.9712 | 1.07 (0.925-1.14) | 1.15 (1.06-1.2) | 1.03 (0.946-1.14) | 0.4020 | 0.8275 |
| R848 (TLR7/8) | 0.978 (0.84-1.13) | 0.987 (0.898-1.07) | 1.01 (0.774-1.14) | 0.5720 | 0.9749 | 1.06 (0.906-1.23) | 1.02 (0.915-1.12) | 1.06 (0.96-1.48) | 0.9940 | 1 |
| CpG (TLR9) | 0.88 (0.68-1.19) | 0.993 (0.97-1.22) | 0.968 (0.82-1.03) | 0.9500 | 0.9969 | 1.04 (0.871-1.16) | 0.994 (0.819-1.22) | 1 (0.908-1.25) | 0.6020 | 0.8683 |
| PMA-Iono | 1.23 (1.06-1.46) | 1.2 (1-1.38) | 0.99 (0.848-1.53) | 0.9110 | 0.9969 | 1.15 (0.965-1.49) | 1.38 (0.985-1.57) | 1.36 (1.03-1.76) | 0.8860 | 1 |
| **pSTAT3** | | | | | | | | | | |
| Basal | 10.1 (6.14-13.7) | 11.3 (9.72-12.4) | 12.1 (6.58-17.3) | 0.8800 | 0.9969 | 13.3 (10-15.9) | 8.77 (6.58-12.2) | 8.56 (7.3-15.2) | 0.5380 | 0.8683 |
| IFNα | 4.31 (3.97-6.07) | 2.97 (2.3-4.93) | 2.24 (0.922-7.38) | 0.3290 | 0.8817 | 3.47 (2.47-5.98) | 3.08 (1.73-5.79) | 2.57 (1.17-3.68) | 0.3830 | 0.8275 |
| LPS (TLR4) | 1.01 (0.973-1.04) | 1 (0.934-1.08) | 1.05 (0.889-1.09) | 0.8250 | 0.9969 | 0.984 (0.92-1.03) | 1.03 (0.999-1.11) | 0.96 (0.945-1.02) | 0.1180 | 0.4363 |
| R848 (TLR7/8) | 1.01 (0.958-1.05) | 0.966 (0.911-1.04) | 1.14 (1.01-1.44) | 0.1130 | 0.8804 | 0.995 (0.91-1.04) | 0.995 (0.93-1.04) | 0.956 (0.859-1.03) | 0.5460 | 0.8683 |
| CpG (TLR9) | 1.03 (0.991-1.05) | 0.943 (0.913-1.08) | 1.03 (0.968-1.15) | 0.7360 | 0.9969 | 0.951 (0.867-0.972) | 1.07 (0.987-1.24) | 0.951 (0.891-0.99) | 0.0513 | 0.2925 |

|  |  |  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|
| PMA-Iono | 0.903 (0.863-0.952) | 0.883 (0.836-0.928) | 0.999 (0.919-1.14) | 0.2520 | 0.8817 | 0.841 (0.722-0.968) | 0.962 (0.888-0.989) | 0.857 (0.808-0.91) | 0.2530 | 0.6899 |
| **pSTAT5** |  |  |  |  |  |  |  |  |  |  |
| Basal | 6.66 (5.5-7.73) | 10.3 (8.21-12) | 12.3 (8.39-15.3) | **0.0225** | 0.7299 | 5.4 (5.18-10) | 9 (6.5-10.9) | 8.67 (6.95-16.3) | 0.5190 | 0.8683 |
| IFNα | 4.33 (2.75-5.68) | 3.6 (3.05-5.3) | 1.97 (1.5-4.09) | 0.3770 | 0.8817 | 6.89 (5.21-11.7) | 4.83 (3.2-7.34) | 1.72 (1.23-5.35) | **0.0283** | 0.2925 |
| LPS (TLR4) | 1.02 (0.983-1.03) | 0.977 (0.937-1.01) | 0.917 (0.889-1.09) | 0.3640 | 0.8817 | 1.03 (0.987-1.04) | 1.02 (1.01-1.06) | 1.02 (0.913-1.05) | 0.7850 | 0.9109 |
| R848 (TLR7/8) | 0.992 (0.951-1.01) | 0.964 (0.92-0.977) | 1 (0.868-1.1) | 0.4350 | 0.949 | 0.999 (0.959-1.1) | 0.995 (0.946-1.05) | 1.01 (0.91-1.06) | 0.9200 | 1 |
| CpG (TLR9) | 1.01 (0.976-1.04) | 0.929 (0.896-0.959) | 0.956 (0.886-1.05) | 0.2780 | 0.8817 | 1.07 (0.987-1.16) | 1.03 (0.978-1.1) | 1 (0.87-1.09) | 0.4400 | 0.8275 |
| PMA-Iono | 1.04 (1.01-1.07) | 1.07 (1.03-1.1) | 1.04 (0.994-1.16) | 0.8460 | 0.9969 | 1.11 (1.02-1.17) | 1.18 (1.14-1.36) | 1.14 (1.03-1.32) | 0.2350 | 0.6746 |
| **Syk** |  |  |  |  |  |  |  |  |  |  |
| Basal | 6.13 (5.98-6.96) | 6.36 (5.48-7.53) | 6.59 (5.62-7.88) | 0.8570 | 0.9969 | 6.55 (6.33-7.41) | 6.54 (5.73-7.22) | 6.24 (5.74-7.04) | 0.7230 | 0.9098 |
| IFNα | 1.02 (1.01-1.03) | 1.12 (1.06-1.22) | 1.42 (1.03-1.5) | 0.0577 | 0.7299 | 1.11 (0.993-1.21) | 1.19 (1.09-1.53) | 1.15 (1.07-1.23) | 0.4400 | 0.8275 |
| LPS (TLR4) | 1.03 (1.02-1.08) | 1.03 (1-1.1) | 0.997 (0.931-1.12) | 0.7510 | 0.9969 | 1.07 (1.04-1.1) | 1.04 (1.01-1.12) | 1.02 (1.01-1.06) | 0.4300 | 0.8275 |
| R848 (TLR7/8) | 1.02 (0.998-1.14) | 1.01 (0.921-1.04) | 1.04 (0.887-1.18) | 0.6180 | 0.9969 | 1.14 (1.05-1.24) | 1.01 (0.974-1.02) | 1.05 (0.99-1.09) | **0.0412** | 0.2925 |
| CpG (TLR9) | 1.02 (0.924-1.09) | 0.964 (0.919-1) | 1.04 (0.898-1.06) | 0.6800 | 0.9969 | 1.19 (1.06-1.24) | 0.991 (0.937-1.09) | 0.986 (0.979-1.03) | **0.0119** | 0.1745 |
| PMA-Iono | 1.04 (0.997-1.1) | 1.11 (1.08-1.17) | 1.2 (1.06-1.77) | 0.2000 | 0.8817 | 1.23 (1.14-1.29) | 1.27 (1.12-1.31) | 1.21 (1.15-1.34) | 0.9510 | 1 |

**Supplemental Table 15. Fold change in phospho-proteins following CD8+ T cell stimulation with various stimuli.** Median metal intensity and IQR shown for unstimulated/basal conditions. Median fold change and IQR over the unstimulated/basal conditions shown for all other stimuli.

| CD8+ T Cells | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Median (Interquartile Range) | | | | | Median (Interquartile Range) | | | | |
| | **White Controls** | **White SLE INACT** | **White SLE ACT** | **KW p-value** | **FDR q-value** | **Black Controls** | **Black SLE INACT** | **Black SLE ACT** | **KW p-value** | **FDR q-value** |
| **cCASP3** | | | | | | | | | | |
| Basal | 5.36 (5.28-5.78) | 5.25 (4.9-7.3) | 6.72 (5.34-7.62) | 0.3850 | 0.9712 | 5.15 (4.52-5.49) | 5.56 (5.04-6.54) | 5.57 (4.79-11.2) | 0.3870 | 0.6627 |
| IFNα | 1 (1-1.1) | 1.21 (1.18-1.37) | 1.31 (0.971-1.76) | 0.1840 | 0.9712 | 1.14 (1.01-1.39) | 1.52 (1.18-1.65) | 1.31 (1.12-1.33) | 0.2590 | 0.6421 |
| LPS (TLR4) | 0.998 (1-1.09) | 1.04 (1.03-1.2) | 0.963 (0.902-1.02) | 0.3600 | 0.9712 | 1.04 (1.01-1.06) | 1.07 (1-1.12) | 1.03 (1.01-1.04) | 0.6510 | 0.8493 |
| R848 (TLR7/8) | 0.962 (0.998-1.05) | 1.04 (1.01-1.07) | 0.964 (0.876-1.06) | 0.7700 | 0.9712 | 1.06 (1.01-1.2) | 1.01 (0.976-1.04) | 1.01 (0.994-1.07) | 0.3120 | 0.6627 |
| CpG (TLR9) | 1.04 (1.02-1.1) | 0.993 (1-1.08) | 0.978 (0.975-1.05) | 0.9140 | 0.9712 | 1.21 (1.05-1.51) | 1.01 (0.946-1.07) | 1.03 (0.961-1.09) | 0.0573 | 0.3094 |
| PMA-Iono | 1.05 (1.04-1.11) | 1.1 (1.1-1.19) | 1.15 (1.07-1.42) | 0.2410 | 0.9712 | 1.16 (1.12-1.21) | 1.14 (1.09-1.42) | 1.25 (1.12-1.33) | 0.8720 | 0.9482 |
| **pCREB** | | | | | | | | | | |
| Basal | 16 (15.7-20.4) | 14.5 (13.7-17.8) | 15.9 (11.5-20.3) | 0.6900 | 0.9712 | 12.3 (9.33-15.6) | 14.7 (11.6-22.3) | 9.38 (8.24-17.5) | 0.2220 | 0.6054 |
| IFNα | 1.04 (1.04-1.11) | 1.09 (1.09-1.41) | 1.08 (0.824-1.45) | 0.4540 | 0.9712 | 1.2 (1.04-1.4) | 1.11 (1.02-1.51) | 1.15 (1.1-1.24) | 0.8840 | 0.9482 |
| LPS (TLR4) | 0.989 (1-1.06) | 1.06 (1.05-1.14) | 1.16 (0.975-1.18) | 0.2350 | 0.9712 | 1.08 (1.05-1.15) | 1.05 (1.01-1.14) | 1.08 (1.04-1.17) | 0.6540 | 0.8493 |
| R848 (TLR7/8) | 0.939 (0.951-1.04) | 0.957 (0.96-1) | 1.07 (0.969-1.12) | 0.2360 | 0.9712 | 1.14 (1.11-1.22) | 1.01 (0.919-1.06) | 1.08 (1.04-1.12) | **0.0072** | 0.1023 |
| CpG (TLR9) | 0.977 (0.996-1.04) | 0.978 (0.999-1.07) | 1.03 (1.02-1.19) | 0.7430 | 0.9712 | 1.23 (1.13-1.38) | 1.04 (0.882-1.08) | 1.11 (0.99-1.14) | **0.0131** | 0.1236 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| PMA-Iono | 1.83 (1.77-2.43) | 2.07 (1.99-3.03) | 2.41 (1.72-2.99) | 0.7820 | 0.9712 | 3.08 (2.9-3.74) | 2.8 (1.88-3.06) | 3.14 (2.21-5.16) | 0.3100 | 0.6627 |
| **pERK1/2** | | | | | | | | | | |
| Basal | 4.07 (3.93-5.31) | 4.6 (4.28-6.12) | 4.11 (3.79-5.66) | 0.6280 | 0.9712 | 2.91 (2.3-4.19) | 3.34 (2.66-3.99) | 3.08 (2.64-4.51) | 0.9040 | 0.9482 |
| IFNα | 1 (1-1.07) | 1.01 (1-1.07) | 0.971 (0.929-1.15) | 0.9060 | 0.9712 | 0.994 (0.93-1.12) | 1.11 (1.06-1.2) | 1.05 (0.982-1.13) | 0.2490 | 0.6421 |
| LPS (TLR4) | 1.04 (1.02-1.11) | 1 (1-1.09) | 1 (0.967-1.01) | 0.3690 | 0.9712 | 1.02 (0.998-1.06) | 1.02 (1.01-1.06) | 1.02 (0.955-1.06) | 0.8960 | 0.9482 |
| R848 (TLR7/8) | 0.998 (1-1.04) | 1 (1-1.03) | 0.95 (0.91-0.98) | 0.2480 | 0.9712 | 1.06 (1.01-1.08) | 0.99 (0.951-1.03) | 1.02 (0.968-1.05) | 0.1780 | 0.5636 |
| CpG (TLR9) | 1.03 (1.03-1.05) | 0.935 (0.944-1.01) | 0.979 (0.914-1) | **0.0173** | 0.9435 | 1.09 (1.01-1.23) | 0.991 (0.901-1.08) | 1 (0.932-1.03) | 0.0624 | 0.3094 |
| PMA-Iono | 4.26 (3.74-6.25) | 2.62 (2.51-3.44) | 3.25 (1.73-4.06) | 0.5550 | 0.9712 | 6.54 (3.29-9.58) | 4.7 (3.21-5.56) | 3.91 (3.1-5.52) | 0.5920 | 0.8493 |
| **p-p38** | | | | | | | | | | |
| Basal | 3.88 (3.84-6.8) | 4.74 (4.58-5.4) | 4.06 (4.02-5.3) | 0.9090 | 0.9712 | 2.91 (2.78-4.01) | 2.94 (2.58-4.01) | 3.43 (3.09-4.08) | 0.5400 | 0.8415 |
| IFNα | 1.08 (1.07-1.12) | 1.04 (1.03-1.1) | 1.03 (1-1.11) | 0.7880 | 0.9712 | 1.03 (0.908-1.13) | 1.16 (1.13-1.18) | 1.02 (0.97-1.13) | 0.0862 | 0.3616 |
| LPS (TLR4) | 1.25 (1.23-1.34) | 1.12 (1.1-1.21) | 1.12 (1.11-1.23) | 0.4590 | 0.9712 | 1.07 (1.03-1.13) | 1.08 (1.06-1.14) | 1.07 (1.01-1.1) | 0.8270 | 0.9482 |
| R848 (TLR7/8) | 1.05 (1.04-1.14) | 1.02 (1-1.11) | 1.08 (0.941-1.1) | 0.7980 | 0.9712 | 1.12 (1.08-1.17) | 1.04 (0.991-1.08) | 0.978 (0.967-1.09) | 0.0804 | 0.3616 |
| CpG (TLR9) | 1 (1-1.09) | 0.976 (1-1.05) | 1.02 (0.973-1.03) | 0.8960 | 0.9712 | 1.1 (1.03-1.13) | 1.02 (0.973-1.06) | 0.968 (0.933-1.01) | **0.0136** | 0.1236 |
| PMA-Iono | 2.82 (2.64-3.82) | 1.85 (1.83-2.93) | 2.14 (1.72-3.89) | 0.4150 | 0.9712 | 2.9 (2.12-4.39) | 2.18 (1.78-2.64) | 2.22 (1.59-2.97) | 0.3420 | 0.6627 |
| **p-PLCg2** | | | | | | | | | | |
| Basal | 1.52 (1.49-1.86) | 1.87 (1.87-2.53) | 1.78 (1.53-2.71) | 0.4400 | 0.9712 | 1.33 (1.25-1.51) | 1.66 (1.26-2.06) | 1.53 (1.25-2.79) | 0.3830 | 0.6627 |
| IFNα | 1.19 (1.18-1.29) | 1.15 (1.12-1.51) | 1.16 (1.05-1.41) | 0.9460 | 0.9716 | 1.37 (1.27-1.52) | 1.38 (1.15-1.48) | 1.1 (0.856-1.23) | 0.0560 | 0.3094 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| LPS (TLR4) | 1.06 (1.06-1.22) | 0.992 (0.995-1.01) | 1.02 (0.935-1.14) | 0.0565 | 0.9712 | 1.05 (1.03-1.09) | 1.02 (0.952-1.11) | 0.976 (0.827-1.02) | 0.1610 | 0.5636 |
| R848 (TLR7/8) | 1.02 (1.01-1.06) | 0.916 (0.923-1.02) | 1.01 (0.946-1.08) | 0.2010 | 0.9712 | 1.14 (1.05-1.23) | 1.04 (0.936-1.06) | 0.979 (0.854-1.01) | **0.0075** | 0.1023 |
| CpG (TLR9) | 0.978 (0.994-1.02) | 0.979 (0.989-1.1) | 1.01 (0.985-1.07) | 0.8150 | 0.9712 | 1.15 (1.11-1.36) | 0.957 (0.904-1.04) | 0.926 (0.837-0.986) | **0.0029** | 0.1023 |
| PMA-Iono | 1.08 (1.05-1.22) | 1.06 (1.03-1.28) | 1.14 (1.04-1.22) | 0.5550 | 0.9712 | 1.2 (1.14-1.27) | 1.27 (1.14-1.39) | 1.2 (1.04-1.27) | 0.3910 | 0.6627 |
| **pSTAT1** | | | | | | | | | | |
| Basal | 10.7 (10-15.4) | 19.1 (19-23.6) | 15.2 (13.4-18.9) | 0.2920 | 0.9712 | 13.9 (11-20.6) | 14.5 (8.95-18.3) | 19.4 (10.3-24.8) | 0.8250 | 0.9482 |
| IFNα | 7.36 (7.2-7.64) | 4.03 (3.72-8.16) | 2.38 (2.05-3.85) | 0.2200 | 0.9712 | 5.83 (4.3-8.37) | 4.13 (2.85-9.16) | 3.29 (1.91-5.19) | 0.3530 | 0.6627 |
| LPS (TLR4) | 0.985 (0.994-1.07) | 1.02 (1.01-1.1) | 0.964 (0.928-1.04) | 0.7950 | 0.9712 | 1.03 (0.933-1.1) | 1.07 (1.06-1.19) | 1.01 (0.986-1.18) | 0.4560 | 0.7315 |
| R848 (TLR7/8) | 0.979 (0.988-1.07) | 0.988 (0.989-1.04) | 1.02 (0.842-1.08) | 0.4760 | 0.9712 | 1.08 (0.966-1.15) | 1.02 (0.972-1.14) | 1.05 (0.917-1.28) | 0.7070 | 0.8764 |
| CpG (TLR9) | 0.962 (1-1.05) | 1 (1-1.09) | 0.919 (0.872-1.01) | 0.9260 | 0.9712 | 1.01 (0.935-1.03) | 0.997 (0.893-1.17) | 1.08 (0.92-1.15) | 0.8620 | 0.9482 |
| PMA-Iono | 1.19 (1.18-1.28) | 1.19 (1.17-1.26) | 1.07 (0.974-1.53) | 0.9620 | 0.9716 | 1.15 (0.935-1.37) | 1.38 (0.968-1.68) | 1.27 (1.12-1.73) | 0.6430 | 0.8493 |
| **pSTAT3** | | | | | | | | | | |
| Basal | 5.82 (4.89-8.59) | 6.63 (6.34-8.64) | 6.42 (5.13-10.1) | 0.7110 | 0.9712 | 7.69 (3.98-10) | 6.25 (4.51-8.72) | 6.55 (5.48-8.52) | 0.8620 | 0.9482 |
| IFNα | 6.28 (5.9-8.15) | 3.95 (3.84-7.16) | 2.36 (1.62-10.6) | 0.4290 | 0.9712 | 5.22 (3.84-11.3) | 3.72 (3.03-7.75) | 2.88 (1.46-6.48) | 0.3420 | 0.6627 |
| LPS (TLR4) | 0.994 (1-1.03) | 1.02 (1-1.15) | 1 (0.908-1.07) | 0.5660 | 0.9712 | 0.961 (0.916-1.02) | 1.03 (0.999-1.07) | 0.992 (0.941-1.04) | 0.1170 | 0.4558 |
| R848 (TLR7/8) | 0.988 (1-1.11) | 1.02 (1.01-1.04) | 1.07 (1-1.09) | 0.7660 | 0.9712 | 0.963 (0.853-0.985) | 1 (0.93-1.09) | 0.947 (0.932-1) | 0.3110 | 0.6627 |
| CpG (TLR9) | 1.01 (1-1.05) | 1 (1-1.06) | 1 (0.959-1.03) | 0.9030 | 0.9712 | 0.93 (0.905-1.02) | 1.08 (0.979-1.22) | 0.95 (0.876-0.979) | **0.0404** | 0.2754 |
| PMA-Iono | 0.945 (0.948-0.959) | 0.962 (0.967-1.06) | 0.997 (0.966-1.22) | 0.1880 | 0.9712 | 0.908 (0.809-0.976) | 1 (0.958-1.04) | 0.936 (0.845-1) | 0.1690 | 0.5636 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **pSTAT5** | | | | | | | | | | |
| Basal | 6.2 (5.7-8.18) | 8.26 (8.14-13) | 12.9 (6.53-14.3) | 0.2420 | 0.9712 | 5.17 (5-8.74) | 8.97 (7.19-12.9) | 7.48 (6.63-18.3) | 0.4010 | 0.6627 |
| IFNα | 3.17 (2.95-3.58) | 2.94 (2.8-4.66) | 1.95 (1.3-2.28) | 0.2960 | 0.9712 | 4.72 (3.66-7.61) | 3.38 (2.16-4.89) | 1.35 (1.19-3.16) | **0.0268** | 0.2088 |
| LPS (TLR4) | 0.988 (0.995-1.07) | 0.994 (1-1.05) | 1.02 (0.928-1.13) | 0.8570 | 0.9712 | 1.03 (0.983-1.07) | 1.03 (0.965-1.07) | 1 (0.931-1.04) | 0.6350 | 0.8493 |
| R848 (TLR7/8) | 0.983 (0.984-0.991) | 0.989 (1-1.02) | 1.02 (0.904-1.07) | 0.3820 | 0.9712 | 0.979 (0.941-1.18) | 0.962 (0.946-0.981) | 1.02 (0.941-1.11) | 0.6280 | 0.8493 |
| CpG (TLR9) | 0.956 (0.979-1.01) | 0.985 (0.986-0.996) | 0.994 (0.811-1.04) | 0.8900 | 0.9712 | 0.987 (0.901-1.13) | 0.974 (0.944-1.06) | 1.01 (0.918-1.04) | 0.9830 | 0.9989 |
| PMA-Iono | 1.03 (1.03-1.08) | 1.12 (1.11-1.15) | 1.18 (1.05-1.27) | 0.1000 | 0.9712 | 1.12 (0.934-1.18) | 1.18 (1.1-1.28) | 1.24 (1.08-1.37) | 0.5880 | 0.8493 |
| **Syk** | | | | | | | | | | |
| Basal | 6.77 (6.76-7.56) | 7.4 (7.16-8.16) | 7.94 (6.19-8.15) | 0.8740 | 0.9712 | 7.08 (6.67-8.42) | 6.88 (6.27-7.46) | 6.89 (6.3-8.02) | 0.6780 | 0.86 |
| IFNα | 1.01 (1-1.12) | 1.24 (1.2-1.32) | 1.25 (1.07-1.31) | 0.0798 | 0.9712 | 1.14 (1.02-1.33) | 1.27 (1.11-1.58) | 1.13 (1.1-1.22) | 0.3750 | 0.6627 |
| LPS (TLR4) | 1.04 (1.02-1.1) | 1.04 (1.03-1.08) | 1.05 (0.882-1.13) | 0.8360 | 0.9712 | 1.08 (1.06-1.09) | 1.05 (0.997-1.13) | 1.04 (1.02-1.05) | 0.2210 | 0.6054 |
| R848 (TLR7/8) | 0.974 (0.977-1.05) | 0.958 (0.962-0.994) | 0.985 (0.885-1.05) | 0.9160 | 0.9712 | 1.06 (1.04-1.22) | 1 (0.964-1.06) | 1.01 (0.992-1.07) | 0.1860 | 0.5636 |
| CpG (TLR9) | 1.01 (1-1.08) | 0.987 (0.996-1.03) | 0.948 (0.893-1.02) | 0.7350 | 0.9712 | 1.22 (1.07-1.31) | 0.974 (0.957-1.05) | 0.997 (0.963-1.05) | **0.0047** | 0.1023 |
| PMA-Iono | 1.07 (1.04-1.12) | 1.16 (1.15-1.21) | 1.07 (1.04-1.47) | 0.4800 | 0.9712 | 1.26 (1.18-1.29) | 1.24 (1.13-1.33) | 1.16 (1.15-1.33) | 0.9890 | 0.9989 |

**Supplemental Table 16**. **Fold change in phospho-proteins following dendritic cell stimulation with various stimuli.** Median metal intensity and IQR shown for unstimulated/basal conditions. Median fold change and IQR over the unstimulated/basal conditions shown for all other stimuli.

| **Dendritic Cells** | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Median (Interquartile Range) | | | | | Median (Interquartile Range) | | | | |
| | **White Controls** | **White SLE INACT** | **White SLE ACT** | **KW p-value** | **FDR q-value** | **Black Controls** | **Black SLE INACT** | **Black SLE ACT** | **KW p-value** | **FDR q-value** |
| **cCASP3** | | | | | | | | | | |
| Basal | 15.6 (10.9-25.4) | 17 (11.8-21.1) | 11.3 (8.02-16.6) | 0.1280 | 0.6121 | 11.7 (10.8-15.1) | 19.5 (12.6-24) | 20.1 (9.59-28.5) | 0.7100 | 0.9303 |
| IFNα | 0.914 (0.842-1.06) | 1.01 (0.812-1.22) | 1.12 (1.08-1.77) | 0.1980 | 0.6121 | 1.05 (0.843-1.41) | 0.983 (0.762-1.38) | 1.25 (1.04-1.88) | 0.3090 | 0.8426 |
| LPS (TLR4) | 0.879 (0.715-0.997) | 1.02 (0.637-1.14) | 1.03 (0.88-1.51) | 0.5260 | 0.9766 | 1.08 (0.964-1.3) | 1.08 (0.818-1.18) | 0.863 (0.768-1.22) | 0.8540 | 0.9303 |
| R848 (TLR7/8) | 0.952 (0.873-1.34) | 0.81 (0.65-0.843) | 1.22 (0.861-1.32) | **0.0173** | 0.6121 | 1.2 (0.576-1.34) | 0.97 (0.832-1.36) | 0.994 (0.87-1.2) | 0.9500 | 0.9736 |
| CpG (TLR9) | 0.909 (0.72-1.06) | 0.868 (0.792-0.984) | 0.957 (0.801-1.37) | 0.4620 | 0.9691 | 1.27 (0.88-1.32) | 0.928 (0.812-1.15) | 0.785 (0.732-0.975) | 0.1580 | 0.6288 |
| PMA-Iono | 0.822 (0.759-0.95) | 0.925 (0.746-1.14) | 1.38 (1.03-2.43) | **0.0289** | 0.6121 | 1.39 (1.29-1.48) | 1.03 (0.618-1.22) | 1.19 (0.853-1.52) | 0.1960 | 0.6288 |
| **pCREB** | | | | | | | | | | |
| Basal | 50.7 (42.6-83.6) | 60.5 (42.1-71.7) | 62.3 (46.5-71.4) | 0.9700 | 0.9797 | 56.6 (43.8-68.7) | 63 (45.8-102) | 58.7 (44.4-77.1) | 0.7580 | 0.9303 |
| IFNα | 1.01 (0.895-1.22) | 1.25 (1.18-1.72) | 0.873 (0.793-1.38) | 0.1380 | 0.6121 | 1.1 (0.988-1.36) | 1.15 (0.909-1.28) | 1.15 (1.07-1.68) | 0.6130 | 0.9303 |
| LPS (TLR4) | 1.07 (0.957-1.36) | 1.37 (1.15-1.49) | 1.07 (0.905-1.41) | 0.6830 | 0.9766 | 1.29 (1.24-1.58) | 1.22 (1.03-1.33) | 1.21 (1.09-1.29) | 0.3840 | 0.9022 |
| R848 (TLR7/8) | 1.01 (0.904-1.26) | 1.11 (0.973-1.24) | 1.08 (0.742-1.27) | 0.9110 | 0.9766 | 1.51 (1.36-1.75) | 1.04 (0.922-1.2) | 1.24 (1.07-1.38) | **0.0216** | 0.589 |
| CpG (TLR9) | 0.89 (0.85-1.14) | 0.89 (0.764-0.951) | 0.976 (0.804-1.06) | 0.8760 | 0.9766 | 1.07 (1-1.23) | 0.983 (0.783-1.16) | 1.07 (0.921-1.18) | 0.4350 | 0.9184 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| PMA-Iono | 1.29 (1.24-1.47) | 1.46 (1.37-1.63) | 1.38 (1.29-1.61) | 0.1920 | 0.6121 | 1.75 (1.59-1.98) | 1.54 (1.18-1.61) | 1.87 (1.58-1.97) | 0.1180 | 0.6288 |
| **pERK1/2** | | | | | | | | | | |
| Basal | 10 (7.92-119) | 17.4 (13.2-111) | 10.7 (8.12-40.8) | 0.4520 | 0.9691 | 9.84 (6.7-20) | 9.33 (6.43-12.8) | 9.24 (5.38-13.4) | 0.7010 | 0.9303 |
| IFNα | 1.18 (1.06-1.52) | 1.31 (1.19-2.51) | 1.5 (0.949-1.84) | 0.4370 | 0.9691 | 1.36 (0.96-1.85) | 2.17 (1.78-2.93) | 1.31 (0.922-3.37) | 0.5130 | 0.9184 |
| LPS (TLR4) | 1.24 (1-1.54) | 1.92 (1.5-2.35) | 1.47 (0.976-2.34) | 0.1290 | 0.6121 | 3.48 (1.74-5.88) | 2.4 (1.41-4.21) | 4.16 (1.45-5.41) | 0.8030 | 0.9303 |
| R848 (TLR7/8) | 1.4 (0.976-1.62) | 1.67 (0.956-2.23) | 1.25 (1.07-1.32) | 0.9180 | 0.9766 | 3.51 (1.57-5.69) | 2.49 (1.77-4.87) | 2.53 (1.98-7.34) | 0.8850 | 0.9303 |
| CpG (TLR9) | 1.03 (0.864-1.23) | 0.624 (0.357-0.923) | 1.04 (0.645-1.13) | 0.0792 | 0.6121 | 1.38 (0.631-1.73) | 0.85 (0.746-1.32) | 1.07 (0.945-1.75) | 0.6480 | 0.9303 |
| PMA-Iono | 4.37 (2.41-5.81) | 3.57 (2.19-3.99) | 3.97 (2.99-5.24) | 0.5720 | 0.9766 | 5.45 (4.09-9.61) | 6.79 (4.77-8.03) | 6.2 (3.56-12.5) | 0.8610 | 0.9303 |
| **p-p38** | | | | | | | | | | |
| Basal | 21.4 (14.1-58) | 23.5 (17.7-44.5) | 28.8 (21.5-36.1) | 0.8530 | 0.9766 | 18.2 (16.8-28.2) | 23.9 (14.2-34.4) | 31.8 (23.5-44.4) | 0.1790 | 0.6288 |
| IFNα | 1.19 (0.8-1.31) | 1.15 (0.815-2.07) | 1.19 (0.908-1.52) | 0.8800 | 0.9766 | 1.05 (0.859-1.36) | 0.901 (0.626-1.23) | 1.02 (0.527-1.47) | 0.7860 | 0.9303 |
| LPS (TLR4) | 3.03 (2.12-3.9) | 2.95 (2.67-3.64) | 2.47 (2.06-3.09) | 0.5020 | 0.9766 | 3.66 (2.33-6.1) | 2.66 (2.11-3.84) | 2.27 (2-2.72) | 0.2310 | 0.6999 |
| R848 (TLR7/8) | 2.6 (2.32-3.21) | 2.94 (2.37-3.96) | 2.82 (2.23-3.38) | 0.7500 | 0.9766 | 4.05 (2.85-6.33) | 2.96 (1.98-3.85) | 2.47 (2.05-2.9) | 0.1220 | 0.6288 |
| CpG (TLR9) | 1.17 (0.948-1.55) | 0.849 (0.608-1.33) | 0.801 (0.628-1.08) | 0.1990 | 0.6121 | 1.19 (1.04-1.35) | 0.852 (0.547-1.13) | 0.932 (0.523-1.23) | 0.1950 | 0.6288 |
| PMA-Iono | 2.24 (1.69-2.6) | 2.51 (1.87-3.36) | 2.2 (1.72-2.48) | 0.7090 | 0.9766 | 3.09 (2.01-3.37) | 1.87 (1.25-2.87) | 1.59 (1.11-2.03) | 0.0653 | 0.6288 |
| **p-PLCg2** | | | | | | | | | | |
| Basal | 20.6 (12.8-23.4) | 16.4 (13.5-18.7) | 16.5 (15.1-17.9) | 0.3180 | 0.7541 | 15.7 (14.8-17.8) | 12.3 (10.5-12.6) | 11.7 (9.28-14.3) | **0.0352** | 0.6288 |
| IFNα | 1.03 (0.919-1.15) | 1.18 (0.921-1.48) | 1.27 (0.781-1.35) | 0.8800 | 0.9766 | 0.93 (0.912-0.957) | 1.06 (0.997-1.27) | 1.2 (0.816-1.46) | 0.0652 | 0.6288 |

|  |  |  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|
| LPS (TLR4) | 1.09 (0.977-1.19) | 0.937 (0.888-1.06) | 0.832 (0.765-1) | 0.1360 | 0.6121 | 0.963 (0.806-1.05) | 1.1 (0.987-1.38) | 1.09 (0.816-1.21) | 0.1420 | 0.6288 |
| R848 (TLR7/8) | 0.929 (0.839-1.05) | 0.986 (0.96-1.03) | 0.872 (0.749-0.938) | 0.0817 | 0.6121 | 0.941 (0.903-1.04) | 1.14 (0.958-1.28) | 0.886 (0.81-1.22) | 0.1550 | 0.6288 |
| CpG (TLR9) | 0.867 (0.713-1.12) | 0.96 (0.927-0.981) | 0.952 (0.699-1.01) | 0.8430 | 0.9766 | 1.03 (1.02-1.17) | 1.2 (0.983-1.32) | 1.18 (0.804-1.2) | 0.5060 | 0.9184 |
| PMA-Iono | 0.874 (0.852-0.925) | 0.896 (0.796-1.24) | 0.886 (0.633-1.06) | 0.8900 | 0.9766 | 0.775 (0.663-0.964) | 0.979 (0.774-1.13) | 0.96 (0.836-1.04) | 0.5020 | 0.9184 |
| **pSTAT1** |  |  |  |  |  |  |  |  |  |  |
| Basal | 21.8 (18.5-32.6) | 27.6 (11.4-31.7) | 25.6 (20.8-42.5) | 0.7190 | 0.9766 | 27.7 (25.2-37.2) | 26.3 (23.1-33.6) | 33.2 (27.2-36.8) | 0.5140 | 0.9184 |
| IFNα | 3.81 (3.63-4.73) | 8.01 (4.04-11.6) | 2.67 (1.34-4.89) | 0.1490 | 0.6121 | 3.18 (2.74-3.62) | 3.78 (3.34-4.88) | 4.23 (1.98-6.23) | 0.7320 | 0.9303 |
| LPS (TLR4) | 0.922 (0.683-1.03) | 1.06 (0.964-1.29) | 0.967 (0.355-1.06) | 0.1850 | 0.6121 | 0.961 (0.895-1.03) | 1.23 (0.98-1.32) | 1.05 (0.91-1.13) | 0.1720 | 0.6288 |
| R848 (TLR7/8) | 0.757 (0.644-1.03) | 0.925 (0.843-1.02) | 0.91 (0.439-1.05) | 0.1400 | 0.6121 | 0.985 (0.901-1.12) | 1.16 (0.945-1.53) | 0.887 (0.855-1.03) | 0.1910 | 0.6288 |
| CpG (TLR9) | 0.827 (0.674-1.01) | 0.979 (0.897-1.18) | 0.822 (0.394-1.04) | 0.4930 | 0.9766 | 0.865 (0.816-0.994) | 1.02 (0.903-1.36) | 1.07 (0.979-1.08) | 0.1660 | 0.6288 |
| PMA-Iono | 1.01 (0.794-1.22) | 1.31 (1.13-1.55) | 1.04 (0.788-1.15) | 0.1700 | 0.6121 | 1.06 (0.955-1.15) | 1.24 (0.975-1.49) | 1.19 (0.929-1.36) | 0.7860 | 0.9303 |
| **pSTAT3** |  |  |  |  |  |  |  |  |  |  |
| Basal | 11.6 (8.99-15) | 15.4 (11-20.7) | 15.3 (9.13-19.9) | 0.5450 | 0.9766 | 12.2 (7.92-16.7) | 9.95 (6.65-13.3) | 11 (7.82-13.8) | 0.6860 | 0.9303 |
| IFNα | 6.31 (4.94-7.26) | 4.08 (2.27-6.67) | 1.45 (0.971-8.38) | 0.3050 | 0.7541 | 7.18 (3.29-10.2) | 4.47 (2.76-5.83) | 2.74 (1.31-3.82) | 0.1150 | 0.6288 |
| LPS (TLR4) | 1.14 (0.851-1.18) | 0.995 (0.803-1.11) | 1.09 (0.975-1.16) | 0.7380 | 0.9766 | 1.03 (0.96-1.14) | 1.16 (0.912-1.41) | 0.974 (0.781-1.07) | 0.3030 | 0.8426 |
| R848 (TLR7/8) | 0.831 (0.705-1.1) | 0.97 (0.907-1.12) | 0.951 (0.659-1.29) | 0.7880 | 0.9766 | 1.06 (0.937-1.29) | 1.01 (0.879-1.25) | 1.11 (1.04-1.22) | 0.8070 | 0.9303 |
| CpG (TLR9) | 0.998 (0.755-1.06) | 1.02 (0.841-1.18) | 0.856 (0.773-1.07) | 0.7510 | 0.9766 | 1.03 (0.879-1.15) | 1.1 (0.847-1.2) | 0.983 (0.833-1.28) | 0.9640 | 0.9736 |
| PMA-Iono | 0.913 (0.804-0.99) | 0.98 (0.905-1.21) | 0.998 (0.76-1.2) | 0.7560 | 0.9766 | 0.939 (0.787-1.04) | 1.05 (0.824-1.22) | 1.09 (1.01-1.18) | 0.3660 | 0.9022 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **pSTAT5** | | | | | | | | | | |
| Basal | 15.1 (14.1-17.8) | 15.3 (13.1-20) | 17.4 (14.6-18.5) | 0.7520 | 0.9766 | 15.8 (13.3-19.1) | 15.1 (12.7-23.9) | 20.3 (16.2-22.2) | 0.3280 | 0.8519 |
| IFNα | 2.74 (2.07-3.46) | 3.42 (2.07-4.7) | 1.36 (1.24-3.61) | 0.2940 | 0.7541 | 4.54 (4.23-5.57) | 2.14 (1.54-4.56) | 1.88 (1.35-2.32) | **0.0195** | 0.589 |
| LPS (TLR4) | 0.972 (0.786-1.18) | 0.985 (0.798-1.17) | 0.957 (0.67-0.971) | 0.3100 | 0.7541 | 0.967 (0.914-1.03) | 1.04 (0.894-1.38) | 0.973 (0.692-1.15) | 0.5440 | 0.9272 |
| R848 (TLR7/8) | 0.97 (0.912-1.15) | 0.919 (0.787-1.21) | 1.02 (0.818-1.13) | 0.8800 | 0.9766 | 0.885 (0.82-0.914) | 0.956 (0.718-1.2) | 1.08 (0.805-1.21) | 0.5220 | 0.9184 |
| CpG (TLR9) | 0.877 (0.781-1.1) | 0.94 (0.923-1.07) | 0.974 (0.666-1.01) | 0.7470 | 0.9766 | 0.998 (0.952-1.04) | 0.889 (0.838-1.15) | 1.02 (0.867-1.19) | 0.8870 | 0.9303 |
| PMA-Iono | 0.999 (0.861-1.05) | 1.06 (0.995-1.28) | 0.961 (0.852-1.1) | 0.1260 | 0.6121 | 1.04 (0.983-1.17) | 1.11 (0.978-1.41) | 1.13 (0.941-1.32) | 0.8150 | 0.9303 |
| **Syk** | | | | | | | | | | |
| Basal | 39.5 (35.7-60.6) | 45 (36.7-60.9) | 44.2 (30.9-53.7) | 0.8740 | 0.9766 | 49.9 (44.2-59.2) | 49.2 (35.8-78.5) | 45.1 (34.8-58.9) | 0.7160 | 0.9303 |
| IFNα | 0.968 (0.831-1.24) | 1.21 (1.09-1.93) | 1.45 (0.876-1.87) | 0.2020 | 0.6121 | 1.13 (1.05-1.3) | 1.36 (1.02-1.52) | 1.12 (0.938-1.54) | 0.8370 | 0.9303 |
| LPS (TLR4) | 0.972 (0.917-1.1) | 1.03 (0.892-1.21) | 0.995 (0.886-1.08) | 0.9490 | 0.9766 | 1.07 (1.06-1.13) | 1.09 (0.993-1.12) | 1.05 (0.975-1.18) | 0.8300 | 0.9303 |
| R848 (TLR7/8) | 1.01 (0.895-1.16) | 1.02 (0.927-1.06) | 0.951 (0.897-1.11) | 0.9390 | 0.9766 | 1.03 (0.838-1.33) | 0.986 (0.876-1.05) | 1.01 (0.935-1.19) | 0.6750 | 0.9303 |
| CpG (TLR9) | 0.852 (0.781-1.13) | 1.01 (0.953-1.13) | 0.888 (0.842-0.965) | 0.2740 | 0.7541 | 0.911 (0.762-1.14) | 1.02 (0.915-1.16) | 1.1 (0.943-1.31) | 0.3970 | 0.9022 |
| PMA-Iono | 1.02 (0.871-1.2) | 1.3 (1.28-1.62) | 1.47 (1.06-1.54) | **0.0492** | 0.6121 | 1.25 (1.19-1.31) | 1.23 (0.988-1.42) | 1.35 (1.15-1.55) | 0.4790 | 0.9184 |

**Supplemental Table 17. Fold change in phospho-proteins following plasmacytoid dendritic cell stimulation with various stimuli.** Median metal intensity and IQR shown for unstimulated/basal conditions. Median fold change and IQR over the unstimulated/basal conditions shown for all other stimuli.

| Plasmacytoid Dendritic Cells | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Median (Interquartile Range) | | | | | Median (Interquartile Range) | | | | |
| | **White Controls** | **White SLE INACT** | **White SLE ACT** | **KW p-value** | **FDR q-value** | **Black Controls** | **Black SLE INACT** | **Black SLE ACT** | **KW p-value** | **FDR q-value** |
| **cCASP3** | | | | | | | | | | |
| Basal | 8.98 (8.04-12.7) | 12.5 (10.8-13.8) | 10.4 (8.9-12) | 0.1860 | 0.8493 | 10.7 (9.64-11.8) | 11.4 (6.97-15.3) | 12.2 (9.25-13.9) | 0.5710 | 0.9625 |
| IFNα | 1.01 (0.88-1.17) | 1.29 (0.937-1.42) | 1.1 (0.851-1.28) | 0.4070 | 0.8493 | 1.17 (1.05-1.31) | 1.27 (1.02-1.61) | 1.67 (0.985-1.98) | 0.4150 | 0.9625 |
| LPS (TLR4) | 0.926 (0.837-1.01) | 0.949 (0.556-1.2) | 1.1 (0.908-1.32) | 0.3340 | 0.8493 | 0.907 (0.771-1.1) | 0.996 (0.791-1.08) | 1.11 (0.9-1.2) | 0.5490 | 0.9625 |
| R848 (TLR7/8) | 0.971 (0.923-1.14) | 0.988 (0.842-1.03) | 1.04 (0.962-1.27) | 0.6280 | 0.8493 | 1.06 (0.837-1.33) | 1.07 (0.78-1.54) | 0.94 (0.779-1.33) | 0.8770 | 0.9625 |
| CpG (TLR9) | 0.976 (0.659-1.09) | 0.932 (0.703-1.08) | 0.949 (0.927-1.12) | 0.9960 | 1 | 1.06 (0.706-1.24) | 1.07 (0.884-1.22) | 0.882 (0.76-1.07) | 0.7110 | 0.9625 |
| PMA-Iono | 0.897 (0.726-1.12) | 1.16 (0.985-1.42) | 1.27 (0.941-1.34) | 0.0932 | 0.8493 | 1.23 (1-1.39) | 1.2 (0.917-1.62) | 1.31 (0.996-1.7) | 0.9760 | 0.9858 |
| **pCREB** | | | | | | | | | | |
| Basal | 14.3 (8.97-28.6) | 18 (14.8-27) | 12.1 (7.11-25.8) | 0.5730 | 0.8493 | 10.2 (9.1-13.8) | 22 (13.6-42.1) | 23.6 (10.1-31.8) | 0.2120 | 0.9565 |
| IFNα | 0.984 (0.725-1.27) | 1.13 (0.485-1.52) | 1.89 (0.942-2.09) | 0.3200 | 0.8493 | 1.67 (0.995-2.24) | 0.914 (0.581-1.78) | 1.46 (0.712-3.81) | 0.2960 | 0.9625 |
| LPS (TLR4) | 0.839 (0.509-1.06) | 0.766 (0.447-1.27) | 1.76 (1.04-2.77) | **0.0423** | 0.8493 | 1.09 (0.886-1.27) | 1 (0.645-1.47) | 0.833 (0.598-1.28) | 0.7940 | 0.9625 |
| R848 (TLR7/8) | 1.53 (0.706-1.66) | 0.997 (0.646-2.25) | 1.4 (0.901-4.92) | 0.4270 | 0.8493 | 2.72 (1.76-3.99) | 2.16 (1.55-2.66) | 2.35 (1.6-6.16) | 0.6590 | 0.9625 |
| CpG (TLR9) | 0.998 (0.624-1.48) | 0.638 (0.277-1.14) | 1.03 (0.821-1.51) | 0.4810 | 0.8493 | 1.19 (0.858-2.6) | 0.882 (0.645-2.04) | 1.2 (0.853-1.86) | 0.8570 | 0.9625 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| PMA-Iono | 2.91 (1.69-3.44) | 2.6 (1.08-3.08) | 1.8 (1.7-5.9) | 0.6080 | 0.8493 | 5.97 (3.09-8.73) | 2.43 (1.82-5.21) | 3.25 (1.75-6.69) | 0.3130 | 0.9625 |
| **pERK1/2** | | | | | | | | | | |
| Basal | 5.35 (4.54-7.25) | 5.76 (4.16-7.58) | 7.39 (3.78-13.2) | 0.9680 | 0.9961 | 4.7 (3.93-5.02) | 6 (4.19-10.8) | 5.45 (3.23-6.51) | 0.4650 | 0.9625 |
| IFNα | 1.16 (1.04-1.29) | 1.21 (0.879-1.56) | 0.94 (0.888-1.86) | 0.8320 | 0.99 | 1.18 (0.963-1.61) | 1.06 (0.693-1.65) | 1.22 (0.743-2.13) | 0.7860 | 0.9625 |
| LPS (TLR4) | 1.18 (0.896-1.28) | 0.929 (0.846-1.08) | 1.32 (0.468-1.5) | 0.4510 | 0.8493 | 1.05 (0.894-1.22) | 1.04 (0.758-1.92) | 0.601 (0.5-0.718) | **0.0070** | 0.1549 |
| R848 (TLR7/8) | 1.33 (1.16-1.64) | 1.65 (1.29-2.79) | 1.79 (1.02-2.2) | 0.6000 | 0.8493 | 3.82 (1.19-7.44) | 2.95 (1.26-5.75) | 3.18 (1.86-4.16) | 0.9000 | 0.9625 |
| CpG (TLR9) | 1.07 (0.954-1.16) | 1.01 (0.762-1.19) | 0.565 (0.361-1.22) | 0.6500 | 0.8493 | 1.16 (0.961-1.2) | 0.62 (0.536-1.11) | 1.09 (0.715-1.51) | 0.3590 | 0.9625 |
| PMA-Iono | 2.25 (1.85-5.5) | 3.26 (2.41-5.12) | 2.39 (1.34-3.59) | 0.3880 | 0.8493 | 4.39 (3.06-4.76) | 3.32 (2.36-5.72) | 2.15 (2.01-3.25) | 0.1910 | 0.9565 |
| **p-p38** | | | | | | | | | | |
| Basal | 5.75 (4.19-11.6) | 7.69 (6.46-9.15) | 4.75 (4.41-13) | 0.8350 | 0.99 | 4.32 (3.37-5.78) | 3.55 (2.82-10.2) | 4.51 (3.66-5.47) | 0.6370 | 0.9625 |
| IFNα | 0.85 (0.679-1.14) | 0.773 (0.58-1.45) | 0.838 (0.465-1.34) | 0.9160 | 0.9954 | 1.29 (0.816-1.54) | 1.17 (0.55-1.57) | 0.705 (0.433-1.05) | 0.4900 | 0.9625 |
| LPS (TLR4) | 0.988 (0.531-1.39) | 0.832 (0.671-1.33) | 1.2 (1.14-1.58) | 0.4180 | 0.8493 | 1.24 (1.03-1.33) | 0.98 (0.683-1.44) | 1.08 (0.71-1.28) | 0.7090 | 0.9625 |
| R848 (TLR7/8) | 3.69 (1.8-5.6) | 4.3 (2.65-6.7) | 5.49 (3.97-9) | 0.4750 | 0.8493 | 15.4 (5.89-22) | 13.2 (7.42-17.4) | 14.3 (6.75-19.1) | 0.8290 | 0.9625 |
| CpG (TLR9) | 1.02 (0.854-1.15) | 0.724 (0.377-0.879) | 0.784 (0.653-0.81) | 0.1460 | 0.8493 | 1 (0.909-3.11) | 1.14 (0.755-1.98) | 1.08 (0.525-2.59) | 0.8080 | 0.9625 |
| PMA-Iono | 2.23 (1.43-2.52) | 2.16 (1.96-3.16) | 1.99 (1.17-2.88) | 0.9280 | 0.9954 | 3.42 (2.71-4.79) | 1.94 (0.963-2.31) | 3.02 (1.6-5.31) | 0.2220 | 0.9565 |
| **p-PLCg2** | | | | | | | | | | |
| Basal | 7.22 (4.03-10.2) | 8.1 (5.63-9.35) | 7.7 (5.33-9.17) | 0.9490 | 0.9954 | 6.52 (6.03-8.18) | 4.19 (3.64-4.75) | 5.84 (4.39-7.76) | **0.0179** | 0.1627 |
| IFNα | 1.29 (1.08-1.48) | 0.964 (0.891-1.3) | 1.06 (0.746-1.73) | 0.6500 | 0.8493 | 0.807 (0.753-0.915) | 1.32 (1.01-1.89) | 0.894 (0.543-1.18) | **0.0137** | 0.1549 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| LPS (TLR4) | 1.21 (1.13-1.41) | 0.806 (0.54-1.23) | 0.875 (0.618-1.13) | 0.2520 | 0.8493 | 0.752 (0.59-0.929) | 1.2 (0.872-2) | 0.812 (0.603-1.19) | 0.1070 | 0.7295 |
| R848 (TLR7/8) | 1.05 (0.942-1.25) | 0.985 (0.742-1.33) | 0.872 (0.531-1) | 0.4090 | 0.8493 | 0.772 (0.636-0.922) | 1.14 (0.966-1.32) | 0.805 (0.729-1.04) | **0.0142** | 0.1549 |
| CpG (TLR9) | 1.04 (1.01-1.19) | 0.906 (0.668-1.25) | 1.02 (0.913-1.05) | 0.6540 | 0.8493 | 0.978 (0.853-1.13) | 1.21 (0.962-1.61) | 0.895 (0.689-1.48) | 0.3160 | 0.9625 |
| PMA-Iono | 1.18 (0.974-1.35) | 0.874 (0.751-1.22) | 1.42 (1.06-1.47) | 0.3050 | 0.8493 | 0.778 (0.726-0.897) | 1.5 (1.15-2.04) | 0.646 (0.461-0.96) | **0.0039** | 0.1549 |
| **pSTAT1** | | | | | | | | | | |
| Basal | 24.3 (14-31.4) | 29.4 (20.4-34.6) | 30.4 (24.9-39) | 0.4700 | 0.8493 | 28.5 (23.3-33.8) | 31.4 (25.8-36.6) | 20.3 (17.1-38.1) | 0.6510 | 0.9625 |
| IFNα | 6.49 (4.19-8.58) | 7 (3.54-11.1) | 3.15 (1.72-7.52) | 0.4660 | 0.8493 | 6.21 (4.16-7.82) | 6.6 (5.35-9.41) | 8.49 (2.42-12.3) | 0.9640 | 0.9858 |
| LPS (TLR4) | 1.08 (0.801-1.15) | 1.25 (0.847-1.46) | 0.895 (0.523-0.977) | 0.2630 | 0.8493 | 0.995 (0.828-1.15) | 1.21 (0.913-1.25) | 0.862 (0.592-1.16) | 0.3200 | 0.9625 |
| R848 (TLR7/8) | 1.01 (0.799-1.13) | 0.926 (0.664-1.02) | 0.829 (0.451-1.52) | 0.6210 | 0.8493 | 0.99 (0.843-1.13) | 0.912 (0.732-1.13) | 1.41 (0.758-1.69) | 0.8110 | 0.9625 |
| CpG (TLR9) | 0.965 (0.614-1.27) | 1.09 (0.999-1.17) | 0.807 (0.511-1.34) | 0.7630 | 0.9458 | 0.783 (0.728-0.978) | 0.83 (0.737-0.951) | 0.962 (0.669-1.36) | 0.4950 | 0.9625 |
| PMA-Iono | 1.2 (1.04-1.27) | 1.21 (0.92-1.82) | 0.709 (0.596-1.04) | 0.1410 | 0.8493 | 1.09 (0.996-1.23) | 1.11 (0.811-1.2) | 1.05 (0.798-1.37) | 0.8390 | 0.9625 |
| **pSTAT3** | | | | | | | | | | |
| Basal | 6.83 (6.2-10.2) | 6.53 (5.7-9.34) | 8.05 (7.32-16.4) | 0.4160 | 0.8493 | 5.99 (4.63-7.49) | 5.04 (3.95-7.88) | 6.95 (5.15-8.54) | 0.7320 | 0.9625 |
| IFNα | 9.76 (8.19-15.8) | 11 (7.19-12.8) | 4.14 (3.04-10.4) | 0.2370 | 0.8493 | 14.2 (9.29-20.4) | 10.7 (7.59-19.1) | 6.42 (3.98-13.7) | 0.2280 | 0.9565 |
| LPS (TLR4) | 0.789 (0.681-0.989) | 0.907 (0.779-1.38) | 0.689 (0.464-0.922) | 0.4100 | 0.8493 | 0.936 (0.674-1.07) | 1.25 (1.17-1.66) | 0.824 (0.794-1.24) | **0.0424** | 0.3304 |
| R848 (TLR7/8) | 0.88 (0.605-1.36) | 1.04 (0.882-1.38) | 0.81 (0.654-1.43) | 0.5360 | 0.8493 | 0.998 (0.8-1.13) | 0.964 (0.795-1.3) | 1.09 (0.922-1.33) | 0.8130 | 0.9625 |
| CpG (TLR9) | 0.852 (0.739-0.931) | 1.02 (0.666-1.52) | 0.798 (0.527-1.57) | 0.7450 | 0.9449 | 1.13 (0.921-1.17) | 0.995 (0.784-1.2) | 0.984 (0.837-1.3) | 0.9680 | 0.9858 |
| PMA-Iono | 1.07 (1.03-1.16) | 1.02 (0.76-1.48) | 0.801 (0.383-1.2) | 0.4480 | 0.8493 | 1.04 (0.73-1.15) | 1.02 (0.779-1.05) | 1 (0.518-1.28) | 0.8930 | 0.9625 |

|  |  |  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|
| **pSTAT5** |  |  |  |  |  |  |  |  |  |  |
| Basal | 11 (9.99-15.1) | 11.1 (8.94-16.9) | 12.5 (8.77-19.7) | 0.8840 | 0.9954 | 9.81 (8.41-11.6) | 8.83 (7.14-18) | 10.5 (8.51-20.7) | 0.6440 | 0.9625 |
| IFNα | 2.93 (2.12-3.73) | 3.21 (1.84-6.9) | 2.24 (1.03-3.46) | 0.4720 | 0.8493 | 5.99 (4.48-7.06) | 5.22 (3.23-7.37) | 2.06 (1.09-3.3) | **0.0120** | 0.1549 |
| LPS (TLR4) | 0.951 (0.74-1.03) | 0.982 (0.829-1.31) | 0.78 (0.494-1.07) | 0.4940 | 0.8493 | 0.865 (0.803-0.904) | 1.12 (0.699-1.21) | 0.907 (0.811-1.01) | 0.6720 | 0.9625 |
| R848 (TLR7/8) | 1.11 (0.933-1.13) | 0.958 (0.784-1.14) | 0.789 (0.499-1.07) | 0.4180 | 0.8493 | 0.93 (0.822-1.04) | 0.803 (0.655-1.11) | 0.906 (0.714-1.21) | 0.7330 | 0.9625 |
| CpG (TLR9) | 0.955 (0.81-1.05) | 1.01 (0.712-1.24) | 0.83 (0.645-0.869) | 0.5710 | 0.8493 | 0.788 (0.708-1.07) | 0.965 (0.898-1.26) | 1.01 (0.828-1.28) | 0.3660 | 0.9625 |
| PMA-Iono | 1.07 (0.871-1.31) | 1.04 (0.846-1.53) | 1.03 (0.918-1.19) | 0.9490 | 0.9954 | 1.04 (0.92-1.11) | 1.6 (0.944-1.96) | 1.15 (0.742-1.41) | 0.4210 | 0.9625 |
| **Syk** |  |  |  |  |  |  |  |  |  |  |
| Basal | 37.7 (32.9-65.1) | 56.4 (38.7-60) | 38.8 (28.5-57.7) | 0.5460 | 0.8493 | 54.7 (46.3-61.5) | 55.3 (32.6-79) | 39.4 (33.9-50.3) | 0.5780 | 0.9625 |
| IFNα | 1.02 (0.844-1.22) | 1.41 (1.19-1.57) | 1.05 (0.953-1.54) | 0.2140 | 0.8493 | 1.16 (0.972-1.58) | 1.2 (0.954-1.65) | 1.28 (1.12-1.5) | 0.8020 | 0.9625 |
| LPS (TLR4) | 0.933 (0.877-1.05) | 0.901 (0.877-1.08) | 0.941 (0.785-1.24) | 0.8770 | 0.9954 | 1.03 (0.981-1.09) | 1.14 (0.985-1.3) | 1.17 (0.777-1.52) | 0.8180 | 0.9625 |
| R848 (TLR7/8) | 0.984 (0.844-1.17) | 0.964 (0.806-1.08) | 0.838 (0.663-0.867) | 0.3540 | 0.8493 | 1.02 (0.849-1.11) | 0.996 (0.81-1.05) | 1.25 (0.722-1.46) | 0.6730 | 0.9625 |
| CpG (TLR9) | 0.953 (0.905-0.989) | 0.866 (0.809-0.94) | 0.889 (0.844-1.07) | 0.2330 | 0.8493 | 0.986 (0.958-1.14) | 0.894 (0.744-1.41) | 1.1 (0.934-1.19) | 0.6890 | 0.9625 |
| PMA-Iono | 1.03 (0.945-1.26) | 1.28 (1.22-1.51) | 1.08 (0.922-1.31) | 0.4640 | 0.8493 | 1.24 (1.21-1.3) | 1.4 (0.979-1.61) | 1.75 (1.38-2.08) | 0.1560 | 0.9454 |

**Supplemental Table 18**. **Fold change in phospho-proteins following natural killer (NK) cell stimulation with various stimuli.** Median metal intensity and IQR shown for unstimulated/basal conditions. Median fold change and IQR over the unstimulated/basal conditions shown for all other stimuli.

| NK Cells | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Median (Interquartile Range) | | | | | Median (Interquartile Range) | | | | |
| | **White Controls** | **White SLE INACT** | **White SLE ACT** | **KW p-value** | **FDR q-value** | **Black Controls** | **Black SLE INACT** | **Black SLE ACT** | **KW p-value** | **FDR q-value** |
| **cCASP3** | | | | | | | | | | |
| Basal | 8.45 (7.45-9.93) | 9.36 (7.81-11.4) | 13.8 (9.73-14.2) | 0.1120 | 0.953 | 8.72 (7.59-10) | 10.2 (9.03-11.5) | 10.6 (9.56-18.1) | 0.1630 | 0.6408 |
| IFNα | 1.05 (0.971-1.31) | 1.36 (1.06-1.58) | 0.93 (0.835-1.47) | 0.1930 | 0.953 | 1.5 (1.13-1.73) | 1.32 (1.17-1.97) | 1.28 (1.05-1.84) | 0.7630 | 0.9156 |
| LPS (TLR4) | 1.02 (0.911-1.13) | 0.972 (0.863-1.6) | 0.917 (0.708-0.97) | 0.3820 | 0.953 | 1.09 (1.07-1.23) | 1.04 (0.999-1.12) | 0.9 (0.809-1.13) | 0.2210 | 0.6969 |
| R848 (TLR7/8) | 1 (0.935-1.13) | 0.979 (0.85-1.07) | 0.915 (0.808-1.1) | 0.8600 | 0.9969 | 1.13 (1.04-1.38) | 1.07 (0.988-1.18) | 0.92 (0.861-1.11) | 0.1780 | 0.6408 |
| CpG (TLR9) | 1.04 (0.985-1.09) | 1.05 (0.92-1.3) | 0.823 (0.707-1.11) | 0.5080 | 0.953 | 1.26 (1.1-1.5) | 1.04 (0.745-1.21) | 1.05 (0.924-1.3) | 0.1790 | 0.6408 |
| PMA-Iono | 1.07 (0.997-1.17) | 1.34 (1.24-1.57) | 1.03 (0.98-1.45) | 0.0540 | 0.953 | 1.28 (1.19-1.51) | 1.28 (1.16-1.41) | 1.39 (1.16-1.54) | 0.8960 | 0.922 |
| **pCREB** | | | | | | | | | | |
| Basal | 43.2 (35.1-57) | 40 (29.9-60.7) | 44.3 (26.2-50.1) | 0.9630 | 0.9969 | 43.2 (35.6-48.1) | 50.5 (32.9-61.3) | 40.6 (34.4-49.4) | 0.8080 | 0.9174 |
| IFNα | 0.988 (0.934-1.05) | 1.2 (1.04-1.61) | 1.25 (1.02-1.71) | 0.1180 | 0.953 | 1.05 (0.935-1.14) | 1.16 (0.98-1.41) | 1.13 (0.964-1.47) | 0.4950 | 0.7893 |
| LPS (TLR4) | 1.07 (0.952-1.28) | 1.31 (1.2-1.55) | 1.21 (1.03-1.6) | 0.3780 | 0.953 | 1.54 (1.12-1.62) | 1.19 (1.15-1.67) | 1.27 (1.02-1.79) | 0.9680 | 0.9777 |
| R848 (TLR7/8) | 1.08 (1.01-1.18) | 1.24 (1.03-1.33) | 1.15 (1.13-1.26) | 0.3470 | 0.953 | 1.29 (1.17-1.59) | 1.23 (1.06-1.34) | 1.48 (1.22-1.78) | 0.6330 | 0.8597 |
| CpG (TLR9) | 1.05 (0.931-1.13) | 1.11 (0.795-1.18) | 0.999 (0.881-1.17) | 0.9870 | 0.9969 | 1.15 (1.01-1.29) | 0.951 (0.865-1) | 1.03 (0.92-1.22) | 0.1280 | 0.6408 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| PMA-Iono | 1.2 (1.18-1.39) | 1.39 (1.17-1.75) | 1.37 (1.26-1.87) | 0.3370 | 0.953 | 1.37 (1.24-1.53) | 1.68 (1.42-1.83) | 1.54 (1.19-1.85) | 0.4840 | 0.7893 |
| **pERK1/2** | | | | | | | | | | |
| Basal | 8.91 (4.94-34) | 9.6 (7.35-16.4) | 5.19 (4.57-15.8) | 0.3590 | 0.953 | 5.69 (4.17-6.96) | 6.69 (4.89-13.5) | 7.4 (4.23-15.5) | 0.6800 | 0.8625 |
| IFNα | 0.874 (0.756-1.29) | 1.56 (0.908-1.71) | 1.22 (1.04-1.46) | 0.1430 | 0.953 | 1.05 (0.65-1.42) | 1.43 (1.18-1.78) | 1.14 (0.834-1.33) | 0.2970 | 0.733 |
| LPS (TLR4) | 1.81 (1.16-2.16) | 2.02 (1.55-3.25) | 2.93 (1.74-4.96) | 0.5080 | 0.953 | 5.89 (1.6-8.99) | 2.2 (1.53-5.04) | 1.78 (1-4.77) | 0.3790 | 0.7656 |
| R848 (TLR7/8) | 1.24 (1.11-1.92) | 1.46 (1.09-2.38) | 2.55 (1.41-2.77) | 0.0997 | 0.953 | 1.03 (0.857-5.9) | 2.73 (1.64-4.31) | 3.21 (1.6-6.98) | 0.5110 | 0.7893 |
| CpG (TLR9) | 1.12 (0.951-2.33) | 0.844 (0.62-1.23) | 1.26 (1.09-1.47) | 0.1700 | 0.953 | 1.01 (0.836-1.29) | 1.11 (0.818-1.52) | 1.12 (0.569-1.29) | 0.8740 | 0.922 |
| PMA-Iono | 4.26 (3.58-5.86) | 2.88 (2.31-5.55) | 4.18 (2.87-5.75) | 0.6010 | 0.953 | 5.71 (2.32-6.51) | 4.63 (2.68-5.41) | 2.91 (2.21-4.78) | 0.6030 | 0.8433 |
| **p-p38** | | | | | | | | | | |
| Basal | 13.5 (9.71-33.9) | 12.8 (9.27-16.4) | 8.82 (7.49-15.8) | 0.4200 | 0.953 | 7.41 (6-8.96) | 8.88 (6.27-12.9) | 13.3 (8.14-17) | 0.3150 | 0.733 |
| IFNα | 0.945 (0.813-1.04) | 1.13 (0.94-1.29) | 1 (0.97-1.18) | 0.3030 | 0.953 | 0.976 (0.55-1.32) | 1.14 (0.992-1.63) | 0.915 (0.814-1.24) | 0.4500 | 0.7893 |
| LPS (TLR4) | 3.74 (2.44-4.39) | 5.44 (4.21-7.04) | 5.09 (4.62-5.47) | **0.0197** | 0.6954 | 8.69 (4.33-12) | 6.02 (4.97-7.95) | 4.16 (1.91-7.64) | 0.2870 | 0.733 |
| R848 (TLR7/8) | 3.41 (2.56-4.95) | 4.56 (3.65-6.22) | 4.82 (4.12-7.71) | 0.2520 | 0.953 | 4.41 (2.3-9.17) | 6.17 (4.74-10.1) | 6.27 (2.96-6.91) | 0.7600 | 0.9156 |
| CpG (TLR9) | 0.985 (0.946-1.14) | 1.03 (0.856-1.25) | 1.07 (1-1.31) | 0.5550 | 0.953 | 1.18 (1.1-1.39) | 1.03 (0.904-1.16) | 0.851 (0.72-1.33) | 0.1720 | 0.6408 |
| PMA-Iono | 1.86 (1.72-2.27) | 2.19 (1.72-2.65) | 2.1 (1.49-2.55) | 0.7330 | 0.9635 | 2.39 (1.25-3.14) | 2.38 (1.94-3.12) | 1.34 (1.04-2.13) | 0.1480 | 0.6408 |
| **p-PLCg2** | | | | | | | | | | |
| Basal | 29 (14-34.1) | 22.4 (17.2-27.9) | 19.8 (17.6-25.6) | 0.7370 | 0.9635 | 14.6 (12.8-25.6) | 15 (7.91-26.4) | 23.5 (13.8-35.4) | 0.3790 | 0.7656 |
| IFNα | 0.881 (0.802-0.956) | 1.01 (0.802-1.31) | 0.669 (0.633-1.5) | 0.6590 | 0.953 | 0.809 (0.469-0.983) | 0.935 (0.818-1.34) | 0.713 (0.523-0.848) | **0.0228** | 0.4145 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| LPS (TLR4) | 1 (0.925-1.07) | 0.918 (0.774-1.17) | 1.01 (0.76-1.38) | 0.8360 | 0.9969 | 0.82 (0.677-1.08) | 0.928 (0.768-1.1) | 0.836 (0.711-1.08) | 0.6500 | 0.8597 |
| R848 (TLR7/8) | 0.964 (0.863-1.15) | 0.932 (0.84-0.989) | 1.06 (0.791-1.34) | 0.6070 | 0.953 | 0.992 (0.611-1.19) | 1.03 (0.734-1.33) | 0.936 (0.782-1.26) | 0.8940 | 0.922 |
| CpG (TLR9) | 0.836 (0.783-1.13) | 0.976 (0.786-1.13) | 0.864 (0.81-1.4) | 0.7420 | 0.9635 | 1 (0.891-1.34) | 0.988 (0.91-1.22) | 0.822 (0.686-1.05) | 0.2770 | 0.733 |
| PMA-Iono | 0.858 (0.791-0.922) | 0.888 (0.661-0.984) | 0.849 (0.682-1.08) | 0.9310 | 0.9969 | 0.527 (0.423-0.638) | 0.93 (0.772-1.3) | 0.613 (0.349-0.69) | **0.0048** | 0.1309 |
| **pSTAT1** | | | | | | | | | | |
| Basal | 15.8 (9.61-18.6) | 22.5 (10.2-27.2) | 17.3 (14.3-36.9) | 0.7380 | 0.9635 | 21.8 (12.6-28.2) | 18.7 (15.3-32) | 24.9 (18.1-28.8) | 0.8300 | 0.9174 |
| IFNα | 6.22 (3.73-10.9) | 8.22 (2.81-9.78) | 6.19 (1.6-7.83) | 0.5270 | 0.953 | 3.5 (3.07-5.28) | 4.24 (3.64-6.12) | 4.38 (1.41-7.28) | 0.7890 | 0.9156 |
| LPS (TLR4) | 0.962 (0.822-1.12) | 1.01 (0.901-1.32) | 0.957 (0.914-1.39) | 0.7780 | 0.9868 | 0.879 (0.784-0.983) | 1.03 (0.955-1.3) | 0.791 (0.632-1.02) | 0.1500 | 0.6408 |
| R848 (TLR7/8) | 0.936 (0.695-1.26) | 1.12 (0.845-1.42) | 0.955 (0.708-1.2) | 0.3990 | 0.953 | 0.863 (0.674-0.992) | 1.09 (0.789-1.2) | 1.02 (0.899-1.18) | 0.5700 | 0.8181 |
| CpG (TLR9) | 1.03 (0.714-1.3) | 1.11 (0.955-1.32) | 0.946 (0.636-1.19) | 0.6450 | 0.953 | 1.17 (0.933-1.43) | 1.1 (0.855-1.33) | 0.97 (0.87-1.01) | 0.1490 | 0.6408 |
| PMA-Iono | 1.09 (0.963-1.45) | 1.26 (0.962-1.53) | 1.14 (0.948-1.61) | 0.8670 | 0.9969 | 0.769 (0.507-0.883) | 1.23 (0.892-1.45) | 1 (0.73-1.18) | 0.1660 | 0.6408 |
| **pSTAT3** | | | | | | | | | | |
| Basal | 6.93 (6.55-9.09) | 10.3 (8.12-14.7) | 9.16 (7.7-12.7) | 0.2530 | 0.953 | 5.32 (4.35-7.6) | 5.45 (4.27-6.14) | 7.32 (4.98-8) | 0.4820 | 0.7893 |
| IFNα | 9.02 (6.03-9.69) | 3.69 (2.07-7.51) | 2.75 (1.03-12.1) | 0.2350 | 0.953 | 8.58 (6.19-14) | 4.55 (3.73-11.6) | 4.07 (1.89-8.04) | 0.2590 | 0.733 |
| LPS (TLR4) | 1.05 (0.949-1.33) | 0.949 (0.802-1.32) | 0.932 (0.824-1.05) | 0.4030 | 0.953 | 1.08 (0.937-1.15) | 1.17 (0.916-1.33) | 1.11 (0.981-1.39) | 0.8410 | 0.9174 |
| R848 (TLR7/8) | 1.03 (0.821-1.23) | 0.876 (0.727-1.04) | 0.822 (0.64-1.11) | 0.5400 | 0.953 | 0.996 (0.911-1.07) | 1.14 (1.02-1.28) | 1 (0.916-1.19) | 0.3310 | 0.733 |
| CpG (TLR9) | 1.04 (0.918-1.16) | 0.955 (0.842-1.04) | 0.933 (0.623-1.11) | 0.6400 | 0.953 | 1.27 (0.96-1.48) | 1.03 (0.852-1.25) | 1 (0.924-1.16) | 0.6620 | 0.8597 |
| PMA-Iono | 1.04 (0.892-1.09) | 0.824 (0.676-0.876) | 0.828 (0.607-0.952) | **0.0255** | 0.6954 | 0.769 (0.714-0.869) | 1.11 (0.896-1.5) | 0.97 (0.839-1.09) | 0.0862 | 0.6408 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **pSTAT5** | | | | | | | | | | |
| Basal | 14.1 (10.9-18.4) | 15 (12.2-18.1) | 14.3 (11.1-15.3) | 0.9800 | 0.9969 | 9.06 (8.5-13) | 12.1 (6.74-13.8) | 19.5 (12.9-27.4) | **0.0415** | 0.4527 |
| IFNα | 2.54 (1.94-3.08) | 2.05 (1.62-4.22) | 1.61 (0.953-3.46) | 0.6640 | 0.953 | 4.35 (3.09-5.99) | 3 (1.94-4.5) | 1.03 (0.828-1.39) | **0.0012** | 0.0654 |
| LPS (TLR4) | 0.981 (0.939-1.05) | 0.914 (0.814-0.984) | 1.09 (0.797-1.12) | 0.5350 | 0.953 | 0.941 (0.869-1.04) | 0.92 (0.88-1.21) | 0.949 (0.681-1.15) | 0.7730 | 0.9156 |
| R848 (TLR7/8) | 0.944 (0.86-1.01) | 0.917 (0.817-1.06) | 0.998 (0.894-1.24) | 0.6380 | 0.953 | 0.967 (0.776-1.14) | 0.99 (0.846-1.2) | 0.892 (0.682-1.01) | 0.3360 | 0.733 |
| CpG (TLR9) | 0.935 (0.876-1.01) | 1.03 (0.874-1.14) | 0.879 (0.753-1.29) | 0.5550 | 0.953 | 1.11 (0.997-1.36) | 1.05 (0.934-1.35) | 0.932 (0.84-1.09) | 0.2300 | 0.6969 |
| PMA-Iono | 0.956 (0.912-1.1) | 0.943 (0.84-1.27) | 1.03 (0.833-1.14) | 0.9640 | 0.9969 | 0.86 (0.774-0.957) | 1.09 (0.968-1.53) | 0.963 (0.828-1.06) | **0.0376** | 0.4527 |
| **Syk** | | | | | | | | | | |
| Basal | 31.9 (30.1-38) | 33.8 (27.7-44.7) | 35.1 (31-40.1) | 0.8900 | 0.9969 | 42.7 (41.2-44.3) | 37.3 (29-45.9) | 36.3 (33.9-45.4) | 0.4660 | 0.7893 |
| IFNα | 1.02 (0.94-1.06) | 1.12 (1.03-1.42) | 1.2 (1.04-1.21) | 0.1980 | 0.953 | 1 (0.964-1.06) | 1.09 (0.92-1.42) | 1.21 (0.964-1.46) | 0.5580 | 0.8181 |
| LPS (TLR4) | 0.994 (0.952-1.1) | 1.07 (0.914-1.32) | 1 (0.902-1.06) | 0.8980 | 0.9969 | 1.02 (0.906-1.05) | 1.06 (0.968-1.25) | 0.961 (0.916-1.15) | 0.4140 | 0.7893 |
| R848 (TLR7/8) | 1 (0.952-1.08) | 1.09 (0.916-1.19) | 0.951 (0.912-0.993) | 0.4020 | 0.953 | 0.947 (0.896-1.01) | 1.05 (0.879-1.16) | 0.992 (0.923-1.15) | 0.5210 | 0.7893 |
| CpG (TLR9) | 0.998 (0.945-1.03) | 0.965 (0.859-1.18) | 1 (0.878-1.09) | 0.8960 | 0.9969 | 1.01 (0.953-1.18) | 0.912 (0.878-1.15) | 0.999 (0.951-1.07) | 0.5040 | 0.7893 |
| PMA-Iono | 0.991 (0.954-1.06) | 1.13 (0.944-1.24) | 1.18 (0.963-1.34) | 0.4680 | 0.953 | 0.96 (0.891-1.07) | 1.15 (0.994-1.35) | 1.08 (0.948-1.3) | 0.1880 | 0.6408 |

**Supplemental Table 19. Fold change in phospho-proteins following monocyte stimulation with various stimuli.** Median metal intensity and IQR shown for unstimulated/basal conditions. Median fold change and IQR over the unstimulated/basal conditions shown for all other stimuli.

| Monocytes | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Median (Interquartile Range) | | | | | Median (Interquartile Range) | | | | |
| | **White Controls** | **White SLE INACT** | **White SLE ACT** | **KW p-value** | **FDR q-value** | **Black Controls** | **Black SLE INACT** | **Black SLE ACT** | **KW p-value** | **FDR q-value** |
| **cCASP3** | | | | | | | | | | |
| Basal | 9.37 (7.61-11.2) | 9.99 (9.19-11.7) | 10.4 (8.7-10.6) | 0.7630 | 0.9854 | 9.22 (8.61-10.4) | 9.24 (8.49-10.5) | 9.64 (8.64-12.7) | 0.7470 | 0.9318 |
| IFNα | 1.07 (1.06-1.12) | 1.19 (1.02-1.26) | 1.19 (1.06-1.25) | 0.3180 | 0.8831 | 1.14 (1.04-1.17) | 1.23 (1.13-1.63) | 1.13 (1.04-1.25) | 0.1700 | 0.8429 |
| LPS (TLR4) | 1.06 (1.02-1.12) | 1.01 (0.985-1.08) | 0.97 (0.951-1.02) | 0.0918 | 0.8817 | 1.11 (1.07-1.15) | 1.12 (1.05-1.15) | 1.04 (1.02-1.11) | 0.1580 | 0.8429 |
| R848 (TLR7/8) | 1.02 (0.968-1.05) | 0.977 (0.932-1.07) | 0.995 (0.93-1.02) | 0.6400 | 0.9776 | 1.11 (1.09-1.12) | 1.01 (0.96-1.04) | 1.02 (0.989-1.04) | **0.0284** | 0.5163 |
| CpG (TLR9) | 1.02 (0.936-1.09) | 0.982 (0.941-1.02) | 0.973 (0.956-0.996) | 0.4700 | 0.9234 | 1.08 (1.04-1.11) | 0.979 (0.965-1.06) | 1.01 (0.945-1.03) | 0.0694 | 0.6062 |
| PMA-Iono | 1.13 (1.04-1.22) | 1.16 (1.08-1.33) | 1.11 (1.07-1.22) | 0.6680 | 0.9776 | 1.3 (1.18-1.46) | 1.38 (1.25-1.61) | 1.25 (1.22-1.43) | 0.5460 | 0.9006 |
| **pCREB** | | | | | | | | | | |
| Basal | 56.2 (47.6-80.7) | 59.1 (45.9-71.2) | 64.3 (45.9-75.6) | 0.8320 | 0.9865 | 58.8 (52-73.3) | 67.6 (44.4-100) | 54.8 (47.5-66.9) | 0.5620 | 0.9006 |
| IFNα | 1.09 (1.05-1.1) | 1.26 (1.11-1.35) | 1.26 (0.869-1.38) | 0.2470 | 0.8831 | 1.19 (1.15-1.33) | 1.06 (0.984-1.44) | 1.29 (1.21-1.33) | 0.2320 | 0.9006 |
| LPS (TLR4) | 1.03 (1.01-1.09) | 1.15 (1.08-1.22) | 1.07 (1.06-1.26) | 0.0839 | 0.8817 | 1.17 (1.09-1.4) | 1.2 (1.05-1.26) | 1.26 (1.1-1.35) | 0.6510 | 0.9118 |
| R848 (TLR7/8) | 1.05 (0.969-1.15) | 1.09 (0.96-1.17) | 1.04 (0.917-1.14) | 0.9390 | 1 | 1.31 (1.13-1.46) | 1.13 (0.997-1.19) | 1.25 (1.17-1.35) | 0.0923 | 0.6293 |
| CpG (TLR9) | 1.02 (0.963-1.1) | 0.972 (0.938-1.02) | 1.02 (0.914-1.07) | 0.6010 | 0.9776 | 1.07 (1.03-1.18) | 0.972 (0.832-1.12) | 1.01 (0.985-1.09) | 0.2240 | 0.9006 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| PMA-Iono | 1.2 (1.13-1.26) | 1.4 (1.28-1.47) | 1.35 (1.29-1.47) | **0.0413** | 0.8817 | 1.49 (1.3-1.69) | 1.47 (1.28-1.63) | 1.59 (1.4-1.9) | 0.4720 | 0.9006 |
| **pERK1/2** | | | | | | | | | | |
| Basal | 9.11 (6.1-99.6) | 18 (12.9-31.4) | 8.66 (7.46-32.3) | 0.3860 | 0.8831 | 8.33 (7.02-11.6) | 9.42 (6.53-11.6) | 7.09 (4.61-14.6) | 0.6520 | 0.9118 |
| IFNα | 1.2 (1.09-1.35) | 1.38 (1.29-2) | 1.27 (1.03-1.65) | 0.3160 | 0.8831 | 1.84 (1.46-2.32) | 1.54 (1.3-1.98) | 1.21 (1.09-1.52) | 0.3120 | 0.9006 |
| LPS (TLR4) | 1.72 (1.35-1.9) | 1.75 (1.43-2.22) | 1.61 (1.15-3.87) | 0.8130 | 0.9854 | 4.16 (2.54-7.22) | 1.65 (1.42-4.27) | 2.05 (1.45-4.85) | 0.4780 | 0.9006 |
| R848 (TLR7/8) | 1.26 (1.12-1.45) | 1.16 (1.07-1.47) | 1.18 (0.924-1.69) | 0.9180 | 1 | 3.69 (1.28-6.5) | 1.73 (1.27-3.82) | 2.41 (1.75-4.72) | 0.5440 | 0.9006 |
| CpG (TLR9) | 1.08 (0.965-1.18) | 0.956 (0.856-1.23) | 1.01 (0.787-1.11) | 0.6910 | 0.9776 | 1.39 (1.28-1.55) | 1.09 (0.939-1.2) | 1.05 (0.935-1.22) | 0.0778 | 0.6062 |
| PMA-Iono | 4.88 (2.54-6.03) | 2.72 (2.09-4.81) | 4.18 (2.69-5.33) | 0.4780 | 0.9234 | 5.7 (4.81-11.3) | 4.94 (4.34-6.84) | 6.38 (4.06-8.66) | 0.7890 | 0.9318 |
| **p-p38** | | | | | | | | | | |
| Basal | 20.6 (15.6-68.8) | 24 (16-36.1) | 21.6 (19.1-25.3) | 0.9940 | 1 | 16.8 (12.4-22.2) | 16.3 (8.92-29.6) | 15.6 (12.6-22.6) | 0.9900 | 0.9999 |
| IFNα | 1.18 (1.16-1.22) | 1.19 (1.09-1.57) | 1.07 (0.922-1.27) | 0.5220 | 0.9413 | 1.59 (1.25-1.83) | 1.45 (1.13-1.62) | 1.36 (1.17-1.47) | 0.6030 | 0.9006 |
| LPS (TLR4) | 3.83 (3.52-4.46) | 4.49 (3.32-5.38) | 3.91 (3.18-4.17) | 0.5350 | 0.9413 | 6.26 (3.92-7.88) | 5.06 (3.22-6.6) | 5.82 (3.28-7.13) | 0.7520 | 0.9318 |
| R848 (TLR7/8) | 4.03 (3.37-4.62) | 4.66 (3.21-5.64) | 3.97 (3.4-4.78) | 0.7170 | 0.9776 | 6.25 (3.9-8.73) | 5.28 (3.2-6.79) | 6.31 (3.76-7.23) | 0.7060 | 0.9318 |
| CpG (TLR9) | 1.17 (1.08-1.37) | 1.1 (0.905-1.32) | 1.06 (1.05-1.14) | 0.2680 | 0.8831 | 1.41 (1.19-1.75) | 1.14 (0.836-1.45) | 1.25 (1.15-1.43) | 0.3240 | 0.9006 |
| PMA-Iono | 2.48 (1.8-3.24) | 2.32 (2.07-3.06) | 2.77 (2.27-2.86) | 0.9870 | 1 | 2.88 (2.35-4.03) | 3.19 (2.05-4.21) | 3.51 (2.36-4.2) | 0.9720 | 0.9999 |
| **p-PLCg2** | | | | | | | | | | |
| Basal | 7.57 (4.5-9) | 6.37 (5.78-8.09) | 6.27 (5.19-6.51) | 0.8940 | 1 | 4.62 (4.01-5.83) | 4.35 (3.73-5.04) | 3.59 (3.05-4.71) | 0.3820 | 0.9006 |
| IFNα | 1.05 (1.01-1.07) | 1.18 (1.07-1.62) | 1.04 (0.928-1.11) | 0.1280 | 0.8831 | 1.08 (1-1.27) | 1.23 (1.11-1.44) | 1.07 (1.04-1.13) | 0.3560 | 0.9006 |

|  |  |  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|
| LPS (TLR4) | 1.08 (0.97-1.12) | 0.991 (0.928-1.09) | 0.947 (0.933-0.997) | 0.2680 | 0.8831 | 0.968 (0.94-1.02) | 1.03 (1.01-1.09) | 0.989 (0.92-1.01) | 0.1540 | 0.8429 |
| R848 (TLR7/8) | 1.03 (1-1.11) | 0.99 (0.931-1.02) | 0.982 (0.938-1) | 0.2000 | 0.8831 | 1.06 (1.02-1.09) | 0.98 (0.917-1.03) | 0.989 (0.961-1.01) | 0.1990 | 0.9006 |
| CpG (TLR9) | 1 (0.961-1.07) | 1.03 (0.926-1.12) | 0.948 (0.909-0.956) | 0.1940 | 0.8831 | 1.03 (1.01-1.08) | 1.02 (0.942-1.06) | 0.983 (0.92-1.03) | 0.3020 | 0.9006 |
| PMA-Iono | 1.04 (0.996-1.07) | 1.01 (0.972-1.15) | 1.02 (0.966-1.09) | 0.9180 | 1 | 1.03 (0.952-1.11) | 1.07 (0.971-1.22) | 1.11 (1.06-1.17) | 0.5970 | 0.9006 |
| **pSTAT1** |  |  |  |  |  |  |  |  |  |  |
| Basal | 16.8 (11.5-28.2) | 25.6 (16.8-33.4) | 21 (17.2-26.1) | 0.7030 | 0.9776 | 21.1 (17.1-30.3) | 25.4 (19.2-30.3) | 21.9 (15.1-26.7) | 0.8030 | 0.9318 |
| IFNα | 6.63 (4.23-9.95) | 6.35 (3.64-10.8) | 2.94 (2.01-8.74) | 0.4130 | 0.8831 | 6.88 (4.09-8.34) | 5.6 (3.8-8.28) | 5.75 (2.22-9.87) | 0.9250 | 0.9892 |
| LPS (TLR4) | 0.981 (0.8-1.03) | 1.14 (1.05-1.23) | 0.961 (0.837-1.11) | 0.0970 | 0.8817 | 1.03 (0.978-1.13) | 1.07 (1.02-1.15) | 1.08 (0.997-1.13) | 0.8480 | 0.955 |
| R848 (TLR7/8) | 0.952 (0.752-1.02) | 1.03 (0.913-1.1) | 0.995 (0.712-1.02) | 0.4910 | 0.9234 | 0.95 (0.88-1.02) | 1.01 (0.914-1.08) | 1.02 (0.945-1.12) | 0.7640 | 0.9318 |
| CpG (TLR9) | 0.952 (0.829-1.07) | 0.996 (0.897-1.11) | 0.834 (0.768-1.03) | 0.3830 | 0.8831 | 0.986 (0.966-1.02) | 1.02 (0.939-1.09) | 1.03 (0.917-1.1) | 0.5110 | 0.9006 |
| PMA-Iono | 1.23 (1.14-1.5) | 1.33 (1.19-1.87) | 1.19 (1.08-1.42) | 0.3610 | 0.8831 | 1.44 (1.23-1.46) | 1.35 (1.16-1.71) | 1.28 (1.26-1.79) | 0.7720 | 0.9318 |
| **pSTAT3** |  |  |  |  |  |  |  |  |  |  |
| Basal | 10.5 (8.03-11.1) | 14 (11.2-18.6) | 14.3 (9.58-26.7) | 0.4040 | 0.8831 | 8.87 (6.79-10.7) | 8.35 (6.39-9.67) | 9.34 (8.32-13.1) | 0.5100 | 0.9006 |
| IFNα | 8.94 (6.54-10.9) | 4.61 (3.35-7.98) | 2.26 (1.19-10.8) | 0.2080 | 0.8831 | 12.4 (8.47-15.5) | 4.98 (3.82-13.6) | 2.29 (1.83-6.44) | **0.0410** | 0.559 |
| LPS (TLR4) | 1.04 (0.979-1.08) | 1.06 (0.913-1.14) | 0.95 (0.942-0.977) | 0.2170 | 0.8831 | 1.03 (0.999-1.05) | 1.07 (1.03-1.14) | 0.966 (0.937-1.01) | **0.0248** | 0.5163 |
| R848 (TLR7/8) | 1.01 (0.974-1.08) | 0.945 (0.885-1.08) | 0.962 (0.871-1.02) | 0.4210 | 0.8831 | 1.03 (0.99-1.1) | 1.01 (0.967-1.08) | 0.987 (0.892-1.07) | 0.3490 | 0.9006 |
| CpG (TLR9) | 1.05 (0.985-1.06) | 1.02 (0.953-1.05) | 0.97 (0.92-1.01) | 0.4160 | 0.8831 | 1.08 (1.06-1.11) | 1.04 (0.962-1.1) | 0.991 (0.925-1.03) | 0.0569 | 0.6062 |
| PMA-Iono | 1.04 (0.975-1.08) | 1.05 (1.01-1.11) | 1.04 (0.994-1.08) | 0.7870 | 0.9854 | 1.09 (0.989-1.12) | 1.18 (1.06-1.26) | 1.11 (0.983-1.19) | 0.5080 | 0.9006 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **pSTAT5** | | | | | | | | | | |
| Basal | 9.87 (8.47-11.6) | 10.4 (9.38-13.2) | 11.8 (9.69-12.2) | 0.7050 | 0.9776 | 8.02 (7.51-8.86) | 9.35 (7.14-13.5) | 10.2 (7.77-16.7) | 0.5130 | 0.9006 |
| IFNα | 3.3 (2.91-3.75) | 3.56 (2.16-5) | 1.56 (1.31-4.49) | 0.3740 | 0.8831 | 8.06 (5.92-9.23) | 4.36 (2.15-6.48) | 1.55 (1.31-1.69) | **0.0005** | **0.0273** |
| LPS (TLR4) | 1.05 (1.03-1.06) | 1.04 (0.996-1.12) | 1.06 (0.956-1.16) | 0.8930 | 1 | 1.04 (1.01-1.08) | 1.07 (1.03-1.08) | 1.03 (0.981-1.1) | 0.8580 | 0.955 |
| R848 (TLR7/8) | 0.994 (0.945-1.01) | 1.01 (0.946-1.07) | 1.03 (0.916-1.08) | 0.7800 | 0.9854 | 1.02 (0.984-1.08) | 1.01 (0.977-1.03) | 1.05 (0.951-1.17) | 0.9720 | 0.9999 |
| CpG (TLR9) | 1 (0.976-1.09) | 1 (0.97-1.04) | 0.952 (0.926-0.975) | 0.2710 | 0.8831 | 1.06 (1.01-1.1) | 1.02 (0.929-1.07) | 1 (0.955-1.12) | 0.6110 | 0.9006 |
| PMA-Iono | 1.06 (1.02-1.08) | 1.17 (1.13-1.34) | 1.16 (1.08-1.32) | **0.0124** | 0.6763 | 1.33 (1.28-1.4) | 1.35 (1.29-1.45) | 1.43 (1.25-1.51) | 0.5220 | 0.9006 |
| **Syk** | | | | | | | | | | |
| Basal | 39.8 (35-65.9) | 43.8 (39.3-57.5) | 48.1 (36-55.5) | 0.9770 | 1 | 54 (43.6-60.5) | 58.1 (40.7-80.5) | 44.2 (40.8-57.5) | 0.5530 | 0.9006 |
| IFNα | 1.02 (0.908-1.08) | 1.19 (1.07-1.54) | 1.21 (0.942-1.41) | 0.0951 | 0.8817 | 1.13 (1.04-1.31) | 1.05 (0.955-1.35) | 1.17 (1.05-1.25) | 0.9120 | 0.9892 |
| LPS (TLR4) | 1.01 (0.927-1.05) | 1.02 (0.983-1.09) | 1.02 (0.893-1.1) | 0.7040 | 0.9776 | 1.04 (0.994-1.08) | 1.01 (0.915-1.04) | 1.01 (0.953-1.06) | 0.6780 | 0.9245 |
| R848 (TLR7/8) | 1.02 (0.921-1.06) | 0.948 (0.919-1.04) | 0.999 (0.913-1.04) | 0.8100 | 0.9854 | 1.03 (0.972-1.24) | 0.997 (0.933-1.02) | 1.03 (0.985-1.09) | 0.2950 | 0.9006 |
| CpG (TLR9) | 1.01 (0.981-1.05) | 0.987 (0.947-1.03) | 1.02 (0.881-1.04) | 0.6750 | 0.9776 | 1.02 (0.945-1.08) | 0.946 (0.918-1.02) | 1.02 (0.971-1.06) | 0.4640 | 0.9006 |
| PMA-Iono | 1.09 (1.06-1.16) | 1.24 (1.07-1.38) | 1.3 (1.06-1.42) | 0.3180 | 0.8831 | 1.15 (1.08-1.19) | 1.16 (0.961-1.29) | 1.22 (1.05-1.47) | 0.5860 | 0.9006 |

**Supplemental Table 20**. **Fold change in phospho-proteins following granulocyte stimulation with various stimuli.** Median metal intensity and IQR shown for unstimulated/basal conditions. Median fold change and IQR over the unstimulated/basal conditions shown for all other stimuli.

| **Granulocytes** | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Median (Interquartile Range) | | | | | Median (Interquartile Range) | | | | |
| | **White Controls** | **White SLE INACT** | **White SLE ACT** | **KW p-value** | **FDR q-value** | **Black Controls** | **Black SLE INACT** | **Black SLE ACT** | **KW p-value** | **FDR q-value** |
| **cCASP3** | | | | | | | | | | |
| Basal | 8.82 (7.9-9.61) | 8.35 (7.97-10.7) | 9.21 (8.6-9.7) | 0.7900 | 0.8833 | 8.18 (7.84-9.88) | 9.05 (8.79-10.3) | 9.07 (8.75-11.2) | 0.5360 | 0.8226 |
| IFNα | 1 (0.962-1.06) | 1.1 (1.04-1.16) | 1.03 (1.01-1.06) | 0.1890 | 0.8833 | 1.03 (0.994-1.09) | 1.15 (1.04-1.35) | 1.07 (1.02-1.31) | 0.3170 | 0.7171 |
| LPS (TLR4) | 1.03 (0.994-1.04) | 1.02 (0.992-1.07) | 0.985 (0.967-1.03) | 0.5350 | 0.8833 | 1.06 (1.03-1.07) | 1.04 (0.999-1.09) | 1.02 (1.01-1.03) | 0.1990 | 0.6783 |
| R848 (TLR7/8) | 0.997 (0.969-1.02) | 0.997 (0.947-1.03) | 0.999 (0.971-1.03) | 0.9940 | 1 | 1.04 (1.03-1.07) | 0.996 (0.968-1.02) | 1 (0.983-1.03) | **0.0219** | 0.5945 |
| CpG (TLR9) | 1.02 (0.977-1.05) | 0.984 (0.94-1.02) | 0.992 (0.978-0.999) | 0.3800 | 0.8833 | 1.02 (1.01-1.04) | 0.988 (0.961-1.02) | 0.986 (0.953-1.01) | 0.1680 | 0.6763 |
| PMA-Iono | 1.08 (1.03-1.2) | 1.2 (1.14-1.28) | 1.14 (1.11-1.3) | 0.3330 | 0.8833 | 1.39 (1.29-1.45) | 1.28 (1.19-1.44) | 1.41 (1.25-1.49) | 0.7270 | 0.8924 |
| **pCREB** | | | | | | | | | | |
| Basal | 24.5 (22.5-36.9) | 26.9 (22.2-33.2) | 25.3 (21.5-28.4) | 0.8130 | 0.8833 | 25.2 (21.3-32) | 23 (18.5-37.8) | 17.9 (13.8-28.6) | 0.2770 | 0.7171 |
| IFNα | 0.999 (0.887-1.07) | 0.997 (0.871-1.24) | 1.08 (0.961-1.23) | 0.4830 | 0.8833 | 1.06 (0.975-1.11) | 1.07 (0.927-1.24) | 1.24 (1.12-1.38) | 0.1110 | 0.6763 |
| LPS (TLR4) | 1.54 (1.17-1.69) | 1.29 (1.17-1.78) | 1.47 (1.36-1.49) | 0.8800 | 0.923 | 1.34 (1.25-1.42) | 1.44 (1.3-1.5) | 1.43 (1.15-1.94) | 0.7000 | 0.8924 |
| R848 (TLR7/8) | 1.31 (1.05-1.59) | 1.18 (0.983-1.4) | 1.29 (1.26-1.37) | 0.5450 | 0.8833 | 1.41 (1.31-1.59) | 1.3 (1.19-1.41) | 1.36 (1.12-1.85) | 0.7230 | 0.8924 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| CpG (TLR9) | 0.981 (0.931-1.04) | 0.923 (0.894-1.02) | 0.973 (0.919-1.07) | 0.4840 | 0.8833 | 1.13 (0.948-1.19) | 0.981 (0.862-1.1) | 1 (0.944-1.08) | 0.2640 | 0.7171 |
| PMA-Iono | 1.44 (1.14-1.49) | 1.26 (1.06-1.51) | 1.43 (1.39-1.49) | 0.7120 | 0.8833 | 1.21 (0.975-1.54) | 1.27 (1.07-1.44) | 1.42 (1.08-2.02) | 0.4010 | 0.7711 |
| **pERK1/2** | | | | | | | | | | |
| Basal | 5.45 (4.68-6.86) | 6.63 (6.12-8.59) | 5.47 (4.84-8.32) | 0.4900 | 0.8833 | 5.35 (4.24-6.23) | 4.77 (3.68-6.99) | 4.5 (3.7-6.88) | 0.9300 | 0.9642 |
| IFNα | 1.04 (0.995-1.11) | 1.16 (1.02-1.28) | 1.01 (0.964-1.09) | 0.3750 | 0.8833 | 1.09 (0.981-1.31) | 1.12 (1.04-1.3) | 1.12 (1.04-1.29) | 0.8790 | 0.9642 |
| LPS (TLR4) | 1.1 (1.03-1.19) | 1.21 (1.14-1.31) | 1.12 (0.984-1.52) | 0.4340 | 0.8833 | 1.25 (1.15-1.59) | 1.22 (1.11-1.33) | 1.08 (1.04-1.16) | 0.1540 | 0.6763 |
| R848 (TLR7/8) | 1.04 (0.994-1.09) | 1 (0.944-1.05) | 1 (0.959-1.07) | 0.8100 | 0.8833 | 1.16 (1.12-1.27) | 1.16 (1.09-1.21) | 1.08 (1.04-1.14) | 0.1860 | 0.6763 |
| CpG (TLR9) | 1.02 (0.967-1.04) | 0.949 (0.876-0.977) | 0.975 (0.958-1.03) | 0.1590 | 0.8833 | 1.06 (1.03-1.12) | 0.999 (0.918-1.05) | 0.988 (0.947-1) | **0.0254** | 0.5945 |
| PMA-Iono | 3.46 (2.83-4.97) | 3.37 (2.45-4.6) | 2.69 (2.1-3.95) | 0.6820 | 0.8833 | 4.84 (3.92-6.26) | 3.46 (3.16-4.31) | 3.36 (3.07-4.3) | 0.1490 | 0.6763 |
| **p-p38** | | | | | | | | | | |
| Basal | 30 (23.1-38.1) | 27.3 (24.3-28.8) | 28.3 (26.6-35.3) | 0.6000 | 0.8833 | 25.7 (22-28.1) | 24.7 (19.5-29.4) | 22.5 (17.7-23.8) | 0.3440 | 0.7171 |
| IFNα | 1.02 (0.943-1.11) | 1.05 (0.941-1.08) | 0.94 (0.899-0.997) | 0.5540 | 0.8833 | 1.04 (1.01-1.06) | 1.1 (1.06-1.13) | 1.08 (1.03-1.15) | 0.2950 | 0.7171 |
| LPS (TLR4) | 2.7 (2.42-2.89) | 3.39 (2.73-4.08) | 2.48 (1.57-2.78) | 0.1060 | 0.8833 | 3.07 (2.69-3.38) | 3.05 (2.31-3.69) | 3.25 (2.9-3.78) | 0.7130 | 0.8924 |
| R848 (TLR7/8) | 2.42 (2.14-2.76) | 1.96 (1.81-3.31) | 2.17 (1.63-2.27) | 0.5590 | 0.8833 | 2.86 (2.65-3.15) | 2.7 (1.92-3.34) | 3.04 (2.5-3.65) | 0.4100 | 0.7711 |
| CpG (TLR9) | 0.975 (0.913-1.06) | 0.981 (0.909-1.04) | 0.964 (0.922-0.984) | 0.7760 | 0.8833 | 1.02 (0.998-1.12) | 0.985 (0.815-1.05) | 0.998 (0.972-1.04) | 0.2450 | 0.7171 |
| PMA-Iono | 1.73 (1.46-1.94) | 1.85 (1.67-2.11) | 1.73 (1.54-1.91) | 0.6840 | 0.8833 | 2 (1.61-2.17) | 1.85 (1.27-2.15) | 2.05 (1.92-2.16) | 0.5430 | 0.8226 |
| **p-PLCg2** | | | | | | | | | | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Basal | 8.07 (6.07-9.78) | 6.48 (5.92-7.08) | 6.31 (5.98-7.96) | 0.5450 | 0.8833 | 6.29 (5.56-7.28) | 6.4 (5.55-9.48) | 5.41 (5.23-6.74) | 0.6020 | 0.8874 |
| IFNα | 0.99 (0.962-1.01) | 0.957 (0.898-1.02) | 0.981 (0.964-1.07) | 0.6840 | 0.8833 | 0.992 (0.931-1.02) | 1.01 (0.946-1.05) | 1.01 (0.877-1.04) | 0.8960 | 0.9642 |
| LPS (TLR4) | 0.967 (0.937-0.989) | 0.965 (0.942-0.981) | 0.957 (0.936-0.995) | 0.9400 | 0.9673 | 1.01 (0.942-1.08) | 0.968 (0.929-1.04) | 0.965 (0.954-1.01) | 0.6900 | 0.8924 |
| R848 (TLR7/8) | 0.992 (0.913-1.02) | 0.971 (0.955-0.986) | 0.961 (0.938-0.995) | 0.7330 | 0.8833 | 1.03 (0.966-1.05) | 0.97 (0.957-1.08) | 0.986 (0.956-1.01) | 0.4900 | 0.8226 |
| CpG (TLR9) | 0.993 (0.954-1.04) | 0.965 (0.929-1.02) | 0.981 (0.97-0.993) | 0.7470 | 0.8833 | 1.03 (1.01-1.05) | 0.998 (0.942-1.03) | 0.992 (0.96-1.01) | 0.3130 | 0.7171 |
| PMA-Iono | 0.964 (0.953-1.03) | 1 (0.956-1.2) | 0.979 (0.944-1.03) | 0.8100 | 0.8833 | 1.12 (1.03-1.21) | 1.06 (1.02-1.15) | 1.1 (1.05-1.15) | 0.7690 | 0.8924 |
| **pSTAT1** | | | | | | | | | | |
| Basal | 4.23 (3.41-5.26) | 5.73 (4.31-7.16) | 4.26 (3.9-4.93) | 0.4630 | 0.8833 | 3.77 (3.56-5.53) | 4.59 (3.67-7.06) | 4.68 (3.32-6.48) | 0.8080 | 0.9181 |
| IFNα | 5.39 (2.53-6.19) | 4.96 (2.58-6.33) | 2.34 (1.25-4.28) | 0.3670 | 0.8833 | 4.98 (4.14-7.87) | 4.05 (3.47-8.08) | 3.53 (1.56-4.53) | 0.1780 | 0.6763 |
| LPS (TLR4) | 1.02 (0.978-1.09) | 1.16 (1.05-1.31) | 0.991 (0.952-1.1) | 0.0708 | 0.8833 | 1.09 (1.03-1.15) | 1.1 (1.04-1.14) | 0.998 (0.979-1.06) | 0.1390 | 0.6763 |
| R848 (TLR7/8) | 0.982 (0.871-1.07) | 1.01 (0.916-1.11) | 0.961 (0.912-1.03) | 0.7520 | 0.8833 | 1.1 (1.04-1.16) | 1.05 (1-1.15) | 0.987 (0.958-1.05) | 0.3290 | 0.7171 |
| CpG (TLR9) | 0.969 (0.897-1.1) | 0.976 (0.918-1.12) | 0.967 (0.955-0.992) | 0.6200 | 0.8833 | 0.981 (0.955-1.02) | 0.995 (0.968-1.07) | 0.947 (0.903-0.995) | 0.0887 | 0.6763 |
| PMA-Iono | 1.15 (1.07-1.23) | 1.47 (1.29-1.64) | 1.12 (1.07-1.18) | **0.0456** | 0.8833 | 1.33 (1.27-1.45) | 1.31 (1.2-1.44) | 1.15 (1.01-1.47) | 0.4820 | 0.8226 |
| **pSTAT3** | | | | | | | | | | |
| Basal | 87.4 (73.7-102) | 84.1 (76.5-86.1) | 88.5 (85.1-99.4) | 0.4790 | 0.8833 | 73.7 (62.1-78.3) | 75.7 (61.2-88.8) | 67.9 (51.8-83.5) | 0.7610 | 0.8924 |
| IFNα | 1.72 (1.27-2.04) | 1.57 (1.32-2.05) | 1.24 (0.931-2.09) | 0.5270 | 0.8833 | 2.02 (1.86-2.35) | 1.67 (1.4-2) | 1.18 (1.1-1.57) | **0.0436** | 0.5945 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| LPS (TLR4) | 0.95 (0.92-0.979) | 0.941 (0.909-1) | 0.97 (0.841-0.981) | 0.7510 | 0.8833 | 0.982 (0.913-0.999) | 0.963 (0.94-1.03) | 0.957 (0.955-0.988) | 0.9270 | 0.9642 |
| R848 (TLR7/8) | 0.974 (0.93-1) | 1 (0.923-1.02) | 0.962 (0.954-1) | 0.7890 | 0.8833 | 1.01 (0.96-1.02) | 0.94 (0.898-0.968) | 0.977 (0.957-1.01) | 0.1260 | 0.6763 |
| CpG (TLR9) | 0.984 (0.936-1.04) | 1 (0.94-1.05) | 0.968 (0.923-0.992) | 0.4120 | 0.8833 | 1.01 (0.993-1.02) | 0.996 (0.944-1.04) | 1.02 (0.996-1.04) | 0.6370 | 0.8924 |
| PMA-Iono | 0.94 (0.874-0.944) | 0.888 (0.832-0.908) | 0.905 (0.852-0.929) | 0.6560 | 0.8833 | 0.953 (0.852-1.03) | 0.91 (0.875-0.952) | 0.906 (0.859-1.04) | 0.9370 | 0.9642 |
| **pSTAT5** | | | | | | | | | | |
| Basal | 67.5 (59.1-90.4) | 63.6 (55.7-74.3) | 59.3 (53.9-77.2) | 0.5590 | 0.8833 | 70.9 (68.1-74.2) | 78.3 (67.8-91.1) | 75.1 (69.8-80.6) | 0.4450 | 0.809 |
| IFNα | 1 (0.949-1.09) | 0.992 (0.923-1.07) | 0.9 (0.788-1.1) | 0.7430 | 0.8833 | 1.13 (1.02-1.19) | 1.04 (0.805-1.1) | 1.06 (0.956-1.1) | 0.3550 | 0.7171 |
| LPS (TLR4) | 0.973 (0.918-0.997) | 0.971 (0.947-1.01) | 0.947 (0.902-0.998) | 0.7360 | 0.8833 | 0.981 (0.939-1.05) | 0.986 (0.97-1.04) | 0.992 (0.964-1.03) | 0.9900 | 0.9999 |
| R848 (TLR7/8) | 0.996 (0.95-1.01) | 0.992 (0.954-1) | 0.959 (0.927-0.998) | 0.8000 | 0.8833 | 1.04 (0.941-1.05) | 0.988 (0.908-1.02) | 0.978 (0.966-1) | 0.5320 | 0.8226 |
| CpG (TLR9) | 1 (0.932-1.04) | 0.998 (0.97-1.02) | 0.977 (0.879-0.997) | 0.6330 | 0.8833 | 1.03 (1.01-1.05) | 0.987 (0.962-1) | 0.976 (0.959-1) | 0.1320 | 0.6763 |
| PMA-Iono | 0.986 (0.951-1.03) | 1.06 (1.01-1.11) | 0.976 (0.95-1) | **0.0358** | 0.8833 | 1.07 (0.972-1.19) | 0.994 (0.975-1.05) | 1.11 (0.954-1.19) | 0.5130 | 0.8226 |
| **Syk** | | | | | | | | | | |
| Basal | 25.2 (24.1-26.7) | 24.4 (23-26.2) | 24.4 (24.1-26.1) | 0.7040 | 0.8833 | 23.3 (20.7-25) | 24.4 (19.4-29.8) | 22.9 (18.7-26.1) | 0.7190 | 0.8924 |
| IFNα | 0.945 (0.938-0.969) | 1.04 (1.01-1.13) | 1.01 (0.921-1.06) | 0.0986 | 0.8833 | 0.995 (0.941-1.02) | 1.09 (0.928-1.19) | 1.13 (1.03-1.14) | 0.1480 | 0.6763 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| LPS (TLR4) | 0.985 (0.943-1) | 0.958 (0.925-1.09) | 0.954 (0.923-1.02) | 0.8260 | 0.8833 | 0.969 (0.922-1) | 0.952 (0.925-1.03) | 0.921 (0.91-0.999) | 0.7460 | 0.8924 |
| R848 (TLR7/8) | 0.982 (0.952-1.02) | 0.951 (0.943-0.96) | 0.973 (0.935-1.01) | 0.6400 | 0.8833 | 0.999 (0.979-1.05) | 0.95 (0.893-0.97) | 0.971 (0.931-0.995) | **0.0405** | 0.5945 |
| CpG (TLR9) | 0.953 (0.934-1.02) | 0.969 (0.942-0.993) | 1.02 (0.983-1.02) | 0.7760 | 0.8833 | 1.01 (0.988-1.04) | 0.949 (0.92-1.02) | 1 (0.949-1.03) | 0.2730 | 0.7171 |
| PMA-Iono | 0.94 (0.921-0.989) | 0.976 (0.911-1.04) | 0.967 (0.933-1.01) | 0.7800 | 0.8833 | 0.952 (0.927-1.01) | 0.921 (0.847-0.965) | 0.969 (0.906-1.06) | 0.2560 | 0.7171 |

**Supplemental Table 21. Demographics for the scRNA-seq replication study (GSE135779).**

| Names | Age | Sex | Race | Ethnicity | SLEDAI | sledai_class | study_group | PBMC_total |
|---|---|---|---|---|---|---|---|---|
| aHD2 | 50 | F | White | NH | ND | CTRL | White CTRL | 5754 |
| aHD5 | 46 | F | White | NH | ND | CTRL | White CTRL | 7501 |
| cHD1 | 7 | F | White | NH | ND | CTRL | White CTRL | 12170 |
| cHD10 | 18 | F | White | NH | ND | CTRL | White CTRL | 5700 |
| cHD11 | 17 | F | White | NH | ND | CTRL | White CTRL | 6199 |
| cHD3 | 13 | F | White | NH | ND | CTRL | White CTRL | 8176 |
| aSLE3 | 36 | F | White | not reported | 0 | SLE.INACT | White SLE.INACT | 6825 |
| cSLE2 | 18 | F | White | NH | 0 | SLE.INACT | White SLE.INACT | 4819 |
| cSLE4 | 17 | F | White | NH | 0 | SLE.INACT | White SLE.INACT | 5826 |
| aSLE7 | 47 | F | White | NH | 6 | SLE.ACT | White SLE.ACT | 2964 |
| cSLE22 | 17 | F | White | NH | 4 | SLE.ACT | White SLE.ACT | 3466 |
| aHD1 | 39 | F | Black | NH | ND | CTRL | Black CTRL | 6586 |
| aHD6 | 47 | F | Black | NH | ND | CTRL | Black CTRL | 10907 |
| cHD5 | 12 | F | Black | NH | ND | CTRL | Black CTRL | 5058 |
| cHD7 | 8 | F | Black | NH | ND | CTRL | Black CTRL | 6461 |
| cHD8 | 8 | F | Black | NH | ND | CTRL | Black CTRL | 6826 |
| cHD9 | 14 | M | Black | NH | ND | CTRL | Black CTRL | 6792 |
| aSLE8 | 62 | F | Black | NH | 2 | SLE.INACT | Black SLE.INACT | 5777 |
| cSLE30 | 10 | F | Black | NH | 0 | SLE.INACT | Black SLE.INACT | 7036 |
| cSLE7 | 17 | F | Black | NH | 0 | SLE.INACT | Black SLE.INACT | 3575 |
| cSLE8 | 16 | F | Black | NH | 2 | SLE.INACT | Black SLE.INACT | 5712 |
| aSLE1 | 37 | F | Black | NH | 15 | SLE.ACT | Black SLE.ACT | 3855 |
| cSLE11 | 17 | F | Black | NH | 8 | SLE.ACT | Black SLE.ACT | 8711 |
| cSLE16 | 13 | F | Black | NH | 6 | SLE.ACT | Black SLE.ACT | 4995 |
| cSLE19 | 16 | F | Black | NH | 6 | SLE.ACT | Black SLE.ACT | 6182 |
| cSLE21 | 13 | F | Black | NH | 6 | SLE.ACT | Black SLE.ACT | 2379 |
| cSLE23 | 17 | F | Black | NH | 6 | SLE.ACT | Black SLE.ACT | 3037 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| cSLE26 | 17 | F | Black | NH | 6 | SLE.ACT | Black SLE.ACT | 5319 |
| cSLE27 | 15 | F | Black | NH | 19 | SLE.ACT | Black SLE.ACT | 5450 |

**Supplemental Table 22. Comparisons of plasma soluble mediator levels in White (White) and Black (Black) controls and systemic lupus erythematosus (SLE) with inactive (INACT) and active (ACT) disease activity.**

| | Mean MFI (IQR) | | | | | Mean MFI (IQR) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Soluble Mediator** | **White Controls** | **White SLE INACT** | **White SLE ACT** | **KW p-value** | **FDR Q-value** | **Black Controls** | **Black SLE INACT** | **Black SLE ACT** | **KW p-value** | **FDR Q-value** |
| BLyS | 91 (74.375-95.5) | 81.5 (73.25-93.875) | 75 (70-83) | 0.5260 | 0.8376 | 83.5 (76.5-90.125) | 87 (85-117) | 91 (80.25-119.75) | 0.4380 | 0.4913 |
| CXCL13 | 43.5 (38.375-71) | 57.5 (39.75-124.375) | 44.5 (36-94) | 0.8310 | 0.9205 | 41.5 (30.875-51.125) | 58 (42-101) | 94 (52.75-268.25) | 0.0700 | 0.4552 |
| Eotaxin | 290 (66.25-927.5) | 222.25 (152-301.5) | 132 (90-460.5) | 0.5940 | 0.8376 | 40.5 (19.25-179.75) | 29 (21-55.5) | 46 (29.5-98.625) | 0.3790 | 0.4913 |
| GM-CSF | 6 (5-7.5) | 10 (6.5-12.75) | 8 (7-9) | **0.0450** | 0.5909 | 6.5 (6-7.25) | 7 (6-8.5) | 9 (7-18.25) | 0.1880 | 0.4657 |
| GRO-α | 43 (36.5-50) | 44.5 (42.125-70.375) | 42 (39-74) | 0.6250 | 0.8376 | 39.25 (36.5-62.25) | 58.5 (41.5-85.5) | 60.5 (48.75-82.75) | 0.2870 | 0.48 |
| IFN-α | 180 (158.875-183) | 151.5 (134.5-209) | 185 (140.5-224) | 0.6900 | 0.8376 | 131.25 (121.375-217.75) | 189 (144-227) | 178 (130.75-213.375) | 0.5350 | 0.5546 |
| IFN-γ | 30.5 (22.75-40) | 32.5 (25.25-49.25) | 37 (30-55) | 0.4920 | 0.8376 | 24.5 (20.5-35.875) | 45 (29.5-48) | 44.5 (40-90.25) | 0.1740 | 0.4657 |
| IL-1α | 352.5 (328.75-405) | 356.5 (317.125-377) | 321.5 (297-360) | 0.6500 | 0.8376 | 363.5 (328.375-407.75) | 387 (312-431.5) | 352 (325-376.25) | 0.4430 | 0.4913 |
| IL-1β | 9 (6.75-10) | 10 (8.25-10.75) | 12 (10-13) | 0.3160 | 0.8365 | 8 (7-9.75) | 10 (8-12) | 18 (10.75-22.875) | 0.0982 | 0.4552 |
| IL-1RA | 59 (36.125-121) | 43 (37.375-59.25) | 61 (54-68) | 0.4430 | 0.8376 | 65 (45-91.25) | 59 (48-90.5) | 106 (60-134.25) | 0.4240 | 0.4913 |
| IL-10 | 16 (11.75-22.5) | 18 (16.25-20.625) | 20 (17-33) | 0.2110 | 0.8311 | 17.25 (14.375-18.625) | 26 (18-43) | 27.5 (16.75-74.5) | 0.1320 | 0.4657 |
| IL-12p70 | 9 (7.875-10) | 9.5 (8.25-11.5) | 11 (8-15.5) | 0.5480 | 0.8376 | 7.5 (6.75-10.5) | 10.5 (9-11) | 12 (10.5-38.25) | 0.0922 | 0.4552 |
| IL-13 | 10 (9-12) | 10.5 (10-12.875) | 12 (8.5-16) | 0.7060 | 0.8376 | 10.75 (9-16.75) | 15 (12-19) | 19 (12.5-27.875) | 0.3070 | 0.48 |
| IL-15 | 11 (10-17) | 19.75 (13.25-36.5) | 17 (15-19.5) | 0.1950 | 0.8311 | 13 (9-23.5) | 17 (13-19) | 22 (15-51) | 0.2370 | 0.4668 |
| IL-17A | 8 (6.875-9.5) | 15 (9.5-24.5) | 11.5 (11-17) | **0.0281** | 0.5534 | 9.5 (7.75-10.75) | 10.5 (8-15) | 12 (9.5-33.5) | 0.4270 | 0.4913 |
| IL-18 | 29.5 (20.25-36.5) | 31.25 (25.125-46.125) | 39 (18-82) | 0.6490 | 0.8376 | 19 (14.875-28) | 25 (20-29) | 72 (24.5-168.75) | 0.0975 | 0.4552 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| IL-2 | 7.5 (5.75-11) | 18.5 (10.75-24) | 13.5 (9-20.5) | **0.0259** | 0.5534 | 8.5 (6-11.5) | 11 (7-12) | 10.5 (9-18.5) | 0.3970 | 0.4913 |
| IL-21 | 55.5 (39.5-124) | 51.5 (40-68.5) | 56 (37-67) | 0.8720 | 0.9205 | 37 (29.25-82) | 45.5 (35.5-105) | 48 (34.25-66.375) | 0.6090 | 0.6151 |
| IL-22 | 17 (14.375-27) | 24 (18.25-39.375) | 27 (15-31.5) | 0.4810 | 0.8376 | 17.75 (14.875-21.875) | 19 (18-29) | 24 (18-56.375) | 0.3290 | 0.48 |
| IL-23 | 14 (11.5-16) | 14.5 (13.25-22.25) | 16 (12-27.5) | 0.7230 | 0.8376 | 11.75 (9.875-21) | 16 (15-17) | 17 (13.75-37.25) | 0.3150 | 0.48 |
| IL-27 | 9 (7.5-17) | 13.5 (9.25-24.875) | 15 (11-19.5) | 0.3300 | 0.8365 | 10.75 (7.25-15) | 16 (10-19) | 22 (13.5-46.25) | 0.1630 | 0.4657 |
| IL-31 | 15 (12.75-19) | 17.5 (15.875-24.125) | 17 (14-19) | 0.3970 | 0.8376 | 13.25 (11.75-18.25) | 16 (15-20) | 18 (13-35.625) | 0.4450 | 0.4913 |
| IL-4 | 23 (12.25-33) | 15.5 (12.5-20.5) | 25 (20-25.5) | 0.2990 | 0.8365 | 18 (15.75-24.25) | 27 (21-28) | 31 (24-43.5) | 0.1170 | 0.4609 |
| IL-5 | 8 (7-9) | 12.25 (8.875-14.625) | 11 (8-15) | 0.1160 | 0.6753 | 7.5 (7-8.75) | 9 (9-14) | 11 (9.5-20) | 0.1040 | 0.4552 |
| IL-6 | 11 (10.5-13.5) | 12 (10.25-14) | 12 (11-14) | 0.7010 | 0.8376 | 12 (10.125-13.25) | 10.5 (10-18) | 18 (11.5-25.875) | 0.0868 | 0.4552 |
| IL-7 | 8 (8-9) | 9.5 (8.25-10.875) | 9 (8-10.5) | 0.5850 | 0.8376 | 7 (7-9.25) | 7 (7-8) | 10 (8.5-12.75) | **0.0493** | 0.4552 |
| IL-8 | 26 (18.375-37) | 26.5 (21.5-34) | 25 (17-39.5) | 0.9700 | 0.9797 | 20.75 (16.75-51.25) | 30 (20-41.5) | 47 (23.5-57) | 0.3220 | 0.48 |
| IL-9 | 12 (9.75-14.5) | 18.75 (12-24.375) | 11.5 (10-25.5) | 0.2330 | 0.8344 | 13.75 (10.75-22) | 11 (10-17) | 25.5 (15.75-34.125) | 0.0977 | 0.4552 |
| IP-10 | 74 (61.75-103) | 62.5 (49.5-73.75) | 61 (47-196) | 0.5990 | 0.8376 | 65.25 (37.75-102.5) | 44 (41-72) | 61 (50-167) | 0.4830 | 0.5142 |
| MCP-1 | 59 (45.75-139) | 102 (71.75-149.125) | 66.5 (42-375) | 0.8680 | 0.9205 | 54.5 (36.25-131.25) | 33 (22-95) | 149 (69.75-564.75) | **0.0224** | 0.4552 |
| MIP-1α | 105 (53.5-334) | 404.25 (226.125-517.25) | 389 (74-607) | 0.1600 | 0.7878 | 66.25 (51.25-247.875) | 244.5 (109.5-301.5) | 130 (99.75-877) | 0.2290 | 0.4668 |
| MIP-1β | 118.5 (96.75-226) | 98 (87.625-161.875) | 87 (71-93) | 0.1200 | 0.6753 | 85.25 (68.75-204.5) | 104 (85-192) | 162 (118.5-241.375) | 0.4490 | 0.4913 |
| RANTES | 2279 (1831.75-2938) | 1976 (1565.5-2362.75) | 2238.5 (1751-2786) | 0.8880 | 0.9205 | 1599 (1245.625-2664.125) | 2072 (1739-4729) | 1834 (1367.5-2925.125) | 0.3090 | 0.48 |
| sCD40L | 223.5 (141-560.5) | 590.5 (353.75-738.5) | 399.5 (157.5-972) | 0.3590 | 0.8365 | 118.75 (77.25-353) | 253 (116-465) | 196 (133.5-1179.5) | 0.4170 | 0.4913 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SCF | 69.5 (36.5-78) | 39.5 (29.625-51.625) | 74.5 (59-112) | 0.1010 | 0.6753 | 58.5 (26.375-92) | 67 (51-89) | 95 (69.25-131.5) | 0.2000 | 0.4657 |
| SDF-1α | 800 (741.125-860) | 640.25 (632.25-786.625) | 741.5 (720.5-795) | 0.5020 | 0.8376 | 700.5 (630.75-774.375) | 765.5 (702-990.5) | 757 (674.75-863.75) | 0.2710 | 0.48 |
| sICAM-1 | 6815 (6215.25-7714.5) | 3968.5 (2837.25-4617.875) | 7465 (5121-7841.5) | 0.0624 | 0.6145 | 5908 (4090.375-6942.625) | 8052.5 (4763-9687) | 7577 (6132.75-8394.625) | 0.2010 | 0.4657 |
| TNF-α | 22 (19.5-26) | 28 (20.875-31) | 25 (19-31) | 0.3610 | 0.8365 | 23.25 (20.75-28) | 27 (23-39.5) | 39.5 (30.25-49.75) | 0.1870 | 0.4657 |
| TNF-β | 25 (20.875-29) | 33 (27-43.375) | 30 (25.5-47) | 0.3350 | 0.8365 | 20.5 (17.375-36.375) | 26.5 (22.5-40.5) | 30.5 (24.5-78.625) | 0.2190 | 0.4668 |

## Supplemental Table 23. Significance (p-values) of plasma soluble mediator levels across disease groups.

| | White | | | Black | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Soluble Mediator** | **Ctrl vs SLE INACT** | **Ctrl vs SLE ACT** | **SLE INACT vs SLE ACT** | **Ctrl vs SLE INACT** | **Ctrl vs SLE ACT** | **SLE INACT vs SLE ACT** | **White Ctrl vs Black Ctrl** | **White SLE INACT vs Black SLE INACT** | **White SLE ACT vs Black SLE ACT** |
| BLyS | 0.5950 | 0.2330 | 0.6230 | 0.3350 | 0.2150 | 0.8790 | 0.5640 | 0.2700 | **0.0365** |
| CXCL13 | 0.5140 | 0.8950 | 0.7440 | 0.1240 | **0.0318** | 0.3230 | 0.5310 | 0.9350 | 0.2390 |
| Eotaxin | 0.4140 | 0.4020 | 0.6240 | 0.6300 | 0.6800 | 0.1190 | **0.0343** | **0.0055** | 0.0742 |
| GM-CSF | **0.0211** | 0.0616 | 0.5370 | 0.4620 | 0.1040 | 0.1940 | 0.3040 | 0.2850 | 0.4910 |
| GRO-α | 0.4140 | 0.4800 | 0.5950 | 0.2470 | 0.1370 | 0.6480 | 0.9230 | 0.5670 | 0.2390 |
| IFN-α | 0.8060 | 0.3540 | 0.5680 | 0.2900 | 0.4570 | 0.6210 | 0.8470 | 0.4140 | 0.7900 |
| IFN-γ | 0.5670 | 0.3100 | 0.3690 | 0.1940 | 0.0985 | 0.3420 | 0.5310 | 0.5140 | 0.3420 |
| IL-1α | 0.6830 | 0.4020 | 0.5130 | 0.2680 | 0.5630 | 0.3050 | 0.8470 | 0.3270 | 0.5180 |
| IL-1β | 0.3880 | 0.1990 | 0.2840 | 0.3080 | 0.0820 | 0.0870 | 0.8080 | 0.8690 | 0.2230 |
| IL-1RA | 0.4140 | 0.8950 | 0.1770 | 0.9620 | 0.4090 | 0.1840 | 0.8470 | 0.1650 | 0.1020 |
| IL-10 | 0.3680 | 0.0848 | 0.3460 | 0.0537 | 0.1070 | 0.9700 | 0.5960 | 0.1020 | 0.5680 |
| IL-12p70 | 0.6210 | 0.2470 | 0.6220 | 0.1480 | 0.0749 | 0.1380 | 0.3560 | 0.6220 | 0.1820 |
| IL-13 | 0.3830 | 0.5940 | 0.7100 | 0.3110 | 0.1860 | 0.3610 | 0.5580 | **0.0484** | 0.1100 |
| IL-15 | 0.0783 | 0.1830 | 0.9350 | 0.7720 | 0.1260 | 0.1960 | 0.9610 | 0.3900 | 0.3820 |
| IL-17A | **0.0138** | **0.0337** | 0.8380 | 0.6290 | 0.2000 | 0.4460 | 0.3080 | 0.1880 | 0.8790 |
| IL-18 | 0.3070 | 0.6270 | 0.8700 | 0.3600 | 0.0630 | 0.1100 | 0.3860 | 0.1530 | 0.3820 |
| IL-2 | **0.0126** | **0.0422** | 0.4870 | 0.3320 | 0.2470 | 0.4460 | 0.8090 | **0.0491** | 0.7040 |
| IL-21 | 0.5670 | 0.7570 | 1.0000 | 0.2900 | 0.5910 | 0.7040 | 0.4130 | 0.6530 | 0.6210 |
| IL-22 | 0.1910 | 0.5650 | 0.7130 | 0.3120 | 0.1600 | 0.5680 | 0.7720 | 0.6820 | 0.6480 |
| IL-23 | 0.6230 | 0.4510 | 0.6820 | 0.3850 | 0.1600 | 0.4030 | 0.5960 | 0.7430 | 0.5180 |
| IL-27 | 0.1400 | 0.2870 | 0.9670 | 0.3860 | 0.0756 | 0.2390 | 1.0000 | 0.9350 | 0.2700 |
| IL-31 | 0.1640 | 0.5350 | 0.5360 | 0.3600 | 0.2140 | 0.8190 | 0.4400 | 0.5950 | 0.7030 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| IL-4 | 0.5950 | 0.7230 | 0.0656 | 0.1770 | 0.0826 | 0.1830 | 0.9620 | **0.0159** | 0.1380 |
| IL-5 | **0.0442** | 0.1540 | 0.5940 | 0.1890 | **0.0380** | 0.4010 | 0.9220 | 0.5390 | 0.5680 |
| IL-6 | 0.5110 | 0.4510 | 0.8050 | 0.6640 | 0.0626 | 0.0676 | 0.9610 | 0.8370 | 0.1690 |
| IL-7 | 0.3010 | 0.5890 | 0.6490 | 0.7940 | **0.0446** | **0.0383** | 0.1820 | **0.0311** | 0.3980 |
| IL-8 | 0.8700 | 0.8250 | 0.9020 | 0.5640 | 0.1600 | 0.3230 | 1.0000 | 0.6240 | 0.1710 |
| IL-9 | 0.0597 | 0.6900 | 0.4130 | 0.7340 | 0.0829 | 0.0622 | 0.3590 | 0.2020 | 0.1020 |
| IP-10 | 0.2530 | 0.8250 | 0.6530 | 0.8850 | 0.5630 | 0.1830 | 0.5960 | 0.6230 | 0.8490 |
| MCP-1 | 0.5680 | 0.8600 | 0.8060 | 0.1490 | 0.1170 | **0.0109** | 0.7730 | 0.0723 | 0.2240 |
| MIP-1α | 0.0604 | 0.2000 | 0.6240 | 0.1020 | 0.1860 | 0.7320 | 0.5640 | 0.1650 | 0.7900 |
| MIP-1β | 0.3690 | **0.0469** | 0.2050 | 0.4410 | 0.2150 | 0.6210 | 0.2900 | 0.6240 | **0.0109** |
| RANTES | 0.6830 | 0.8950 | 0.6830 | 0.1490 | 0.5090 | 0.3050 | 0.3360 | 0.6240 | 0.3820 |
| sCD40L | 0.1420 | 0.4530 | 0.5950 | 0.2480 | 0.2470 | 0.9700 | 0.4410 | 0.1020 | 0.7320 |
| SCF | 0.1020 | 0.5660 | 0.0549 | 0.5010 | 0.1170 | 0.1840 | 0.8470 | **0.0143** | 0.4700 |
| SDF-1α | 0.4620 | 0.2000 | 0.5680 | 0.1490 | 0.4090 | 0.2710 | 0.2480 | 0.0724 | 0.7900 |
| sICAM-1 | 0.0338 | 0.8950 | 0.0604 | 0.1780 | 0.0829 | 0.6760 | 0.2900 | **0.0114** | 0.4250 |
| TNF-α | 0.1640 | 0.3530 | 0.6530 | 0.3360 | 0.0982 | 0.2540 | 0.6640 | 0.5400 | 0.1020 |
| TNF-β | 0.1640 | 0.2510 | 1.0000 | 0.1940 | 0.1160 | 0.4940 | 0.6650 | 0.6230 | 0.7040 |

**Supplemental Table 24. Fold change (stimulated over unstimulated fluorescence intensity) of cytokine levels following TLR stimulation (R848/CpG/LPS cocktail).**

| | **Median Fold Change (IQR)** | | | | | **Median Fold Change (IQR)** | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Soluble Mediator** | **White Controls** | **White SLE INACT** | **White SLE ACT** | **KW p-value** | **FDR q-value** | **Black Controls** | **Black SLE INACT** | **Black SLE ACT** | **KW p-value** | **FDR q-value** |
| BLyS | 1.22 (1.18-1.3) | 1.22 (1.16-1.31) | 1.16 (1.13-1.36) | 0.9000 | 0.9526 | 1.23 (1.06-1.36) | 1.22 (1.09-1.28) | 1.12 (0.971-1.44) | 0.8400 | 0.8935 |
| CXCL13 | 1.63 (1.46-2.24) | 1.44 (0.914-1.53) | 1.11 (0.995-2.2) | 0.1330 | 0.2698 | 1.89 (1.33-3.56) | 1.35 (1.12-1.95) | 0.938 (0.875-1.4) | 0.1580 | 0.6499 |
| Eotaxin | 1.21 (1.11-1.32) | 1.18 (0.928-1.37) | 1.35 (1.22-1.75) | 0.2210 | 0.3873 | 1.63 (1.14-1.98) | 2.02 (1.65-2.22) | 1.55 (1.29-1.88) | 0.2340 | 0.709 |
| GM-CSF | 2.47 (2-3.9) | 2.03 (1.74-2.82) | 2.46 (2.09-3.99) | 0.4210 | 0.5121 | 2.83 (1.63-3.44) | 2.33 (1.81-2.98) | 2.33 (1.88-3.49) | 0.9970 | 1 |
| GRO-α | 1.5 (1.27-1.79) | 0.707 (0.382-1.7) | 2.44 (1.59-3.3) | **0.0193** | 0.1875 | 1.39 (0.958-2.61) | 1.37 (1.3-2.47) | 1.47 (1.37-1.72) | 0.8300 | 0.8935 |
| IFN-α | 9.61 (5.51-12.2) | 3.87 (3.09-5.43) | 4.78 (2.23-9.01) | 0.0957 | 0.2698 | 7.83 (4.72-14.8) | 10.4 (6.99-12.6) | 4.92 (2.35-7.14) | 0.1650 | 0.6499 |
| IFN-γ | 21.3 (14.6-23.8) | 14.1 (3.48-28.7) | 3.43 (2.62-6.56) | **0.0072** | 0.1875 | 16 (4.94-30.2) | 10.2 (5-14.3) | 2.37 (1.44-5.66) | **0.0363** | 0.3978 |
| IL-1α | 3.87 (2.5-4.36) | 2.08 (1.58-3.63) | 3.87 (2.77-4.79) | 0.1370 | 0.2698 | 4.12 (3.19-5.16) | 2.93 (2.19-3.49) | 3.09 (2.2-4.17) | 0.4750 | 0.8309 |
| IL-1β | 220 (170-243) | 141 (63.9-240) | 166 (127-239) | 0.3170 | 0.446 | 169 (104-186) | 172 (147-212) | 87.5 (70.9-119) | **0.0362** | 0.3978 |
| IL-1RA | 22.4 (12.9-32.1) | 9.67 (5.78-15.1) | 31.5 (15.2-57.5) | 0.0618 | 0.2698 | 13.7 (10.2-23.2) | 21.6 (11.3-36.5) | 8.55 (6.26-10.4) | 0.0532 | 0.4191 |
| IL-10 | 15.5 (11.7-32.3) | 3.48 (1.83-12.3) | 43.9 (14-64.6) | **0.0238** | 0.1875 | 25.2 (14.7-38.7) | 10.5 (7.98-20.3) | 6.78 (3.32-13) | 0.1850 | 0.6499 |
| IL-12p70 | 254 (187-331) | 156 (56-463) | 117 (57.8-217) | 0.2350 | 0.3873 | 58.1 (44.3-177) | 94.6 (50.9-277) | 81.8 (11.5-93.1) | 0.2520 | 0.709 |
| IL-13 | 2.06 (1.78-2.28) | 2.38 (1.69-2.94) | 1.77 (1.45-2.27) | 0.3830 | 0.5121 | 1.4 (1.24-1.99) | 1.75 (1.56-2.31) | 1.63 (1.04-2.1) | 0.6750 | 0.8309 |
| IL-15 | 1.41 (1.22-1.8) | 1.82 (1.43-2.63) | 1.64 (1.55-2.02) | 0.4160 | 0.5121 | 1.86 (1.05-2.29) | 1.67 (1.34-2.26) | 1.3 (1-2.21) | 0.8620 | 0.8935 |
| IL-17A | 1.23 (1.2-1.5) | 1.09 (1-1.16) | 1.4 (1.24-1.5) | **0.0195** | 0.1875 | 1.36 (1.19-1.45) | 1.38 (1.04-1.48) | 1.08 (0.992-1.46) | 0.5520 | 0.8309 |
| IL-18 | 6.22 (4.72-7.27) | 4.3 (2.27-6.89) | 2.85 (2.37-3.29) | **0.0112** | 0.1875 | 5.72 (2.72-8.51) | 4.51 (3.02-7.05) | 2.1 (1.34-3.2) | **0.0242** | 0.3978 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| IL-2 | 2.68 (2.35-2.81) | 2.2 (1.85-2.76) | 2.38 (2.16-3.07) | 0.6410 | 0.7014 | 2.42 (1.73-2.93) | 2.56 (2.19-2.97) | 2.13 (1.57-2.55) | 0.3240 | 0.7976 |
| IL-21 | 2.02 (1.65-2.57) | 2.13 (1.58-2.33) | 1.99 (1.87-2.28) | 0.9780 | 0.9878 | 2.35 (1.41-2.57) | 2.18 (1.8-2.43) | 1.58 (1.36-1.78) | 0.1170 | 0.5761 |
| IL-22 | 5.06 (4.02-6.31) | 4.78 (2.26-6.2) | 3.86 (2.6-5.3) | 0.4290 | 0.5121 | 4.03 (3.24-5.01) | 4.26 (2.84-5.05) | 3.04 (2-4.3) | 0.4670 | 0.8309 |
| IL-23 | 17.2 (12.6-27.5) | 13.5 (7.96-20.5) | 10.8 (6.48-14.8) | 0.2690 | 0.3983 | 13.2 (9.22-17.3) | 11.8 (7.48-17.6) | 8.25 (4.06-11.7) | 0.3510 | 0.8133 |
| IL-27 | 1.42 (1.27-1.86) | 2.16 (1.58-2.69) | 1.58 (1.29-2.03) | 0.2360 | 0.3873 | 1.45 (0.984-1.98) | 1.7 (1.42-2.08) | 1.49 (0.954-1.63) | 0.7080 | 0.8451 |
| IL-31 | 1.3 (1.18-1.55) | 1.39 (1.2-1.71) | 1.17 (0.984-1.94) | 0.5940 | 0.6685 | 1.58 (1.11-2.16) | 1.71 (1.24-1.91) | 1.36 (1.11-1.48) | 0.5110 | 0.8309 |
| IL-4 | 2.1 (1.71-2.86) | 2.22 (2.11-2.62) | 1.53 (1.21-2.34) | 0.2730 | 0.3983 | 2.09 (1.08-3.73) | 1.92 (1.55-2.18) | 1.75 (1.3-2.06) | 0.6040 | 0.8309 |
| IL-5 | 2.69 (2.3-2.85) | 2.49 (2.26-3.17) | 2.84 (2.35-3.11) | 0.9190 | 0.9526 | 2.51 (1.29-2.92) | 2.72 (2.03-2.87) | 2 (1.74-2.91) | 0.5710 | 0.8309 |
| IL-6 | 86.8 (60.7-118) | 34.7 (16.2-55.2) | 75.6 (56.4-131) | 0.1160 | 0.2698 | 68.5 (44.6-98.1) | 78.7 (51.4-113) | 22 (16.7-65.5) | 0.1160 | 0.5761 |
| IL-7 | 1.43 (1.3-1.49) | 1.22 (1.04-1.39) | 1.5 (1.36-1.68) | 0.1340 | 0.2698 | 1.51 (1.08-1.69) | 1.71 (1.11-2.31) | 1.71 (1.05-1.92) | 0.6310 | 0.8309 |
| IL-8 | 10.6 (4.95-17.8) | 2.29 (1.16-9.41) | 9.82 (4.34-53.3) | 0.1270 | 0.2698 | 5.62 (4.47-9.07) | 12.9 (3.92-19.2) | 10.6 (4.81-14.1) | 0.5220 | 0.8309 |
| IL-9 | 4.14 (2.17-5.59) | 2.02 (1.52-4.23) | 4.43 (2.64-11.8) | 0.1190 | 0.2698 | 4.15 (2.93-4.8) | 4.88 (2.84-6.29) | 4.19 (3.19-4.57) | 0.4880 | 0.8309 |
| IP-10 | 5.64 (4.94-6.19) | 4.08 (3.46-5.15) | 4.12 (2.02-5.23) | 0.1370 | 0.2698 | 4.2 (2.55-5.36) | 4.12 (2.48-6.14) | 2.81 (1.65-3.84) | 0.2880 | 0.7563 |
| MCP-1 | 2.03 (0.951-5.97) | 0.53 (0.412-3.73) | 2.93 (1.71-4.58) | 0.4150 | 0.5121 | 1.34 (0.872-9.22) | 2.48 (1.08-10.4) | 1.55 (0.741-4.38) | 0.5740 | 0.8309 |
| MIP-1α | 46.4 (23.5-73.1) | 14.1 (7.5-28.6) | 67.3 (39.5-107) | 0.0936 | 0.2698 | 38.6 (21.6-49.6) | 52.5 (36.5-76.9) | 20.1 (7.81-39.5) | 0.0761 | 0.4996 |
| MIP-1β | 33.2 (6.95-59.6) | 4.25 (1.96-38.4) | 62.7 (18.9-91.2) | 0.0891 | 0.2698 | 43.2 (17.2-52.6) | 39.5 (20.1-61.2) | 14 (3.48-43.5) | 0.1980 | 0.6499 |
| RANTES | 1.14 (0.833-1.3) | 0.907 (0.749-1.06) | 1.17 (0.789-1.4) | 0.5570 | 0.6453 | 0.996 (0.844-1.36) | 1.04 (0.693-1.4) | 1.12 (0.988-1.51) | 0.6640 | 0.8309 |
| sCD40L | 1.16 (1.06-1.34) | 1.15 (1.02-1.33) | 1.32 (1.24-1.41) | 0.2050 | 0.3845 | 1.07 (0.967-1.43) | 1.18 (1.05-1.29) | 1.11 (0.997-1.13) | 0.5860 | 0.8309 |
| SCF | 1.55 (1.33-1.87) | 1.57 (1.42-1.69) | 1.21 (1.01-1.41) | 0.1250 | 0.2698 | 1.26 (0.974-1.79) | 1.58 (1.08-1.9) | 1.22 (0.909-1.7) | 0.6560 | 0.8309 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SDF-1α | 1.57 (1.25-1.7) | 1.03 (0.889-1.49) | 1.67 (1.46-1.92) | **0.0494** | 0.2698 | 1.37 (1.32-1.84) | 1.34 (1.08-2.02) | 1.54 (1.27-2.08) | 0.7980 | 0.8935 |
| sICAM-1 | 0.968 (0.899-1.08) | 1.1 (1.01-1.16) | 1.13 (1.08-1.19) | 0.0643 | 0.2698 | 0.955 (0.789-1.21) | 1.05 (0.992-1.16) | 1.12 (0.958-1.2) | 0.7850 | 0.8935 |
| TNF-α | 134 (119-144) | 105 (90.8-116) | 97.2 (85-122) | **0.0341** | 0.2239 | 96.7 (62.2-144) | 87.1 (66.8-106) | 42.3 (19.3-68.9) | **0.0404** | 0.3978 |
| TNF-β | 1.31 (1.21-1.45) | 1.57 (1.38-1.72) | 1.53 (1.19-1.75) | 0.2590 | 0.3983 | 1.08 (0.935-1.55) | 1.59 (1.03-1.71) | 1.4 (1.2-1.48) | 0.6060 | 0.8309 |

**Supplemental Table 25. Significance (p-values) of soluble mediator fold change differences following TLR stimulation across disease groups.**

| | White | | | Black | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Soluble Mediator** | **Ctrl vs SLE INACT** | **Ctrl vs SLE ACT** | **SLE INACT vs SLE ACT** | **Ctrl vs SLE INACT** | **Ctrl vs SLE ACT** | **SLE INACT vs SLE ACT** | **White Ctrl vs Black Ctrl** | **White SLE INACT vs Black SLE INACT** | **White SLE ACT vs Black SLE ACT** |
| BLyS | 0.9400 | 0.6570 | 0.7220 | 0.9290 | 0.8690 | 0.4810 | 0.7900 | 0.7050 | 0.3640 |
| CXCL13 | 0.0538 | 0.1830 | 0.5940 | 0.4770 | 0.1600 | 0.0783 | 0.6570 | 0.4960 | 0.2480 |
| Eotaxin | 0.8210 | 0.1310 | 0.1310 | 0.2140 | 0.9340 | 0.1050 | 0.1100 | **0.0032** | 0.4090 |
| GM-CSF | 0.3250 | 0.8590 | 0.2140 | 0.9650 | 0.9340 | 0.9720 | 0.7220 | 0.7910 | 0.6200 |
| GRO-α | 0.1990 | 0.0756 | **0.0077** | 0.8590 | 0.5630 | 0.6730 | 0.7220 | 0.0963 | 0.2150 |
| IFN-α | **0.0284** | 0.1830 | 0.7220 | 0.7220 | 0.2480 | 0.0573 | 0.9290 | **0.0102** | 0.9340 |
| IFN-γ | 0.4960 | **0.0004** | 0.1100 | 0.6570 | **0.0390** | **0.0242** | 0.5940 | 0.8800 | 0.3220 |
| IL-1α | 0.0963 | 0.6570 | 0.0914 | 0.2860 | 0.2830 | 1.0000 | 0.5340 | 0.1990 | 0.3640 |
| IL-1β | 0.1990 | 0.2480 | 0.4770 | 0.5940 | 0.0829 | **0.0137** | 0.1100 | 0.4500 | **0.0132** |
| IL-1RA | 0.0963 | 0.3280 | **0.0330** | 0.3280 | 0.1600 | **0.0201** | 0.3280 | 0.0696 | **0.0132** |
| IL-10 | **0.0284** | 0.3280 | **0.0209** | 0.4770 | 0.0829 | 0.2310 | 0.7220 | 0.0588 | **0.0475** |
| IL-12p70 | 0.3640 | 0.0756 | 0.5340 | 0.2860 | 0.6800 | 0.1050 | **0.0059** | 0.5450 | 0.1860 |
| IL-13 | 0.3260 | 0.4240 | 0.2480 | 0.4240 | 0.8690 | 0.4810 | 0.0914 | 0.2900 | 0.5090 |
| IL-15 | 0.1860 | 0.3740 | 1.0000 | 0.9290 | 0.8040 | 0.5490 | 0.5340 | 0.7620 | 0.5090 |
| IL-17A | **0.0220** | 0.6860 | **0.0137** | 0.8940 | 0.4320 | 0.3060 | 0.9290 | 0.2080 | 0.1600 |
| IL-18 | 0.1740 | **0.0007** | 0.3740 | 0.5940 | **0.0208** | **0.0242** | 0.5940 | 0.7050 | 0.2480 |
| IL-2 | 0.4270 | 0.8240 | 0.4240 | 0.5940 | 0.5360 | 0.1130 | 0.5050 | 0.4730 | 0.1070 |
| IL-21 | 0.8800 | 0.7900 | 0.9290 | 0.7900 | 0.2150 | **0.0290** | 0.9290 | 0.5450 | **0.0390** |
| IL-22 | 0.4060 | 0.1830 | 0.7900 | 0.7900 | 0.3640 | 0.2600 | 0.2140 | 0.7620 | 0.4090 |
| IL-23 | 0.2900 | 0.1310 | 0.4770 | 0.9290 | 0.1860 | 0.2600 | 0.3740 | 0.5450 | 0.4570 |
| IL-27 | 0.1210 | 0.7560 | 0.1970 | 0.5340 | 0.9340 | 0.4390 | 0.7220 | 0.2900 | 0.4570 |
| IL-31 | 0.5710 | 0.5940 | 0.3280 | 0.7900 | 0.4570 | 0.2600 | 0.4240 | 0.7050 | 0.6800 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| IL-4 | 0.6770 | 0.3280 | 0.0914 | 0.8590 | 0.3640 | 0.4390 | 0.8590 | 0.1120 | 1.0000 |
| IL-5 | 0.8800 | 0.5340 | 0.9290 | 0.4240 | 0.9340 | 0.3240 | 0.5630 | 1.0000 | 0.4090 |
| IL-6 | 0.0696 | 0.7220 | 0.0914 | 0.7220 | 0.0829 | 0.0783 | 0.3740 | 0.1310 | 0.0986 |
| IL-7 | 0.1980 | 0.3050 | 0.0681 | 0.4770 | 0.4570 | 0.5030 | 0.6570 | 0.1400 | 0.8040 |
| IL-8 | 0.1310 | 0.5940 | 0.0621 | 0.2860 | 0.4090 | 0.6730 | 0.3740 | 0.0588 | 0.6200 |
| IL-9 | 0.1990 | 0.4770 | **0.0410** | 0.3280 | 0.8690 | 0.2910 | 0.7220 | 0.0696 | 0.5630 |
| IP-10 | 0.0963 | 0.0914 | 0.6570 | 0.7220 | 0.3220 | 0.1210 | 0.1100 | 0.8210 | 0.3220 |
| MCP-1 | 0.2260 | 0.5940 | 0.3280 | 0.5940 | 0.6800 | 0.2910 | 0.7900 | 0.1510 | 0.4090 |
| MIP-1α | 0.1120 | 0.2860 | 0.0621 | 0.3280 | 0.1600 | **0.0346** | 0.4240 | **0.0343** | **0.0208** |
| MIP-1β | 0.1310 | 0.2860 | 0.0506 | 1.0000 | 0.1170 | 0.1390 | 0.6570 | **0.0413** | 0.0829 |
| RANTES | 0.4060 | 0.7900 | 0.3280 | 0.7900 | 0.4090 | 0.4810 | 0.8590 | 0.7050 | 0.8690 |
| sCD40L | 0.9700 | 0.0914 | 0.1550 | 0.7900 | 0.9340 | 0.2050 | 0.5940 | 1.0000 | **0.0030** |
| SCF | 0.9400 | 0.0912 | 0.0618 | 0.6250 | 0.9340 | 0.3240 | 0.2480 | 0.8210 | 0.8040 |
| SDF-1α | 0.0963 | 0.5340 | **0.0164** | 0.6570 | 0.5630 | 0.6220 | 0.9290 | 0.0821 | 0.6200 |
| sICAM-1 | 0.0696 | **0.0410** | 0.4240 | 0.6570 | 0.4570 | 0.9440 | 1.0000 | 0.6500 | 0.4090 |
| TNF-α | **0.0126** | 0.0621 | 0.9290 | 0.6570 | **0.0390** | **0.0290** | 0.1310 | 0.4500 | **0.0166** |
| TNF-β | 0.0963 | 0.3740 | 0.5940 | 0.3510 | 0.5630 | 0.5730 | 0.4500 | 0.5970 | 0.4090 |

## Supplemental Table 26. Fold change (stimulated over unstimulated fluorescence intensity) of cytokine levels following PMA/ionomycin stimulation.

| | Median Fold Change (IQR) | | | | | Median Fold Change (IQR) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Soluble Mediator** | **White Controls** | **White SLE INACT** | **White SLE ACT** | **KW p-value** | **FDR q-value** | **Black Controls** | **Black SLE INACT** | **Black SLE ACT** | **KW p-value** | **FDR q-value** |
| BLyS | 1.28 (1-1.64) | 1.21 (1.15-1.39) | 1.22 (1.12-1.67) | 0.9350 | 0.9692 | 1.03 (0.95-1.19) | 1.37 (1.3-1.55) | 1.34 (1.05-1.5) | 0.0797 | 0.2232 |
| CXCL13 | 2.33 (1.88-3.22) | 1.95 (1.68-2.77) | 2.42 (1.42-7.57) | 0.9050 | 0.9635 | 3.23 (2.29-6.53) | 3.26 (2.66-5.26) | 3.2 (2.32-3.64) | 0.9910 | 1 |
| Eotaxin | 0.867 (0.678-1) | 0.908 (0.737-1.15) | 1.06 (0.65-1.23) | 0.6310 | 0.8018 | 1.09 (0.827-1.67) | 1.93 (1.56-2.1) | 1.88 (1.42-1.99) | **0.0479** | 0.221 |
| GM-CSF | 35.2 (21.9-57.4) | 66.7 (16.8-96.4) | 16 (12.2-61.2) | 0.4990 | 0.7353 | 21.2 (6.5-38.3) | 18.5 (13.8-65.1) | 21.4 (11-39.6) | 0.6860 | 0.7111 |
| GRO-α | 3.72 (2.02-4.06) | 3.2 (0.757-9.66) | 5.04 (3.38-6.75) | 0.3780 | 0.6474 | 2.79 (1.91-3.8) | 4.05 (3.09-5.1) | 2.82 (2.22-3.76) | 0.3930 | 0.4838 |
| IFN-α | 1.23 (1.17-1.36) | 1.13 (1.01-1.42) | 1.61 (1.44-1.73) | 0.1220 | 0.4977 | 1.24 (1.14-1.28) | 1.56 (1.11-1.74) | 1.43 (1.26-1.52) | 0.4570 | 0.5294 |
| IFN-γ | 108 (82.5-114) | 128 (39.9-155) | 60.1 (30-69.2) | 0.1340 | 0.4977 | 89.3 (46.7-112) | 71.5 (55.2-124) | 42 (22.7-69.6) | 0.0688 | 0.2232 |
| IL-1α | 2.01 (1.78-2.08) | 1.53 (1.03-2) | 2.15 (1.85-2.81) | 0.2980 | 0.6059 | 2.08 (1.55-2.16) | 2.13 (1.72-2.43) | 2.2 (1.62-2.24) | 0.6540 | 0.6984 |
| IL-1β | 5.52 (4.48-8.06) | 7.33 (5.16-12) | 3.18 (2.43-9.59) | 0.1390 | 0.4977 | 3.6 (1.42-5.91) | 4.39 (3.39-5.5) | 3.23 (2.27-4.91) | 0.4510 | 0.5294 |
| IL-1RA | 24.7 (13.3-39.2) | 12.4 (7.23-24.4) | 32.5 (20.6-37.5) | 0.2580 | 0.6059 | 22.6 (19.6-29.8) | 31.7 (18.6-53.8) | 10.9 (7.75-17.3) | **0.0294** | 0.221 |
| IL-10 | 215 (135-303) | 95.5 (51.5-203) | 54.4 (35.5-102) | **0.0340** | 0.4464 | 140 (65.9-171) | 171 (119-243) | 45.2 (24.5-73.7) | **0.0242** | 0.221 |
| IL-12p70 | 4.45 (2.76-7.44) | 4.54 (3.4-5.61) | 4.36 (2.04-6.2) | 0.8830 | 0.9635 | 3.72 (2.3-5.78) | 5.62 (3.33-8.42) | 2.8 (1.49-4.6) | 0.1580 | 0.3271 |
| IL-13 | 53.9 (41-77.5) | 74.7 (36.6-149) | 23 (12.9-84.3) | 0.1930 | 0.5543 | 33.5 (13.1-46.6) | 60.7 (22.2-134) | 58.3 (21.2-68.9) | 0.2940 | 0.4289 |
| IL-15 | 1.72 (1.25-3.07) | 2.83 (1.48-3.46) | 2.72 (1.84-4.29) | 0.6600 | 0.8124 | 1.21 (0.983-1.86) | 1.98 (1.51-2.82) | 1.93 (1.3-3.61) | 0.1910 | 0.3271 |
| IL-17A | 619 (399-806) | 1050 (364-1610) | 322 (98.5-854) | 0.4320 | 0.6807 | 985 (510-1530) | 1570 (914-2170) | 662 (303-916) | 0.0780 | 0.2232 |
| IL-18 | 22.2 (17.2-28.4) | 21.7 (11.8-24.5) | 13.6 (6.29-18.1) | 0.0505 | 0.4973 | 23.6 (15.2-26.4) | 19.6 (16.9-24.7) | 6.09 (4.59-18.2) | **0.0449** | 0.221 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| IL-2 | 1060 (939-1230) | 954 (816-1030) | 794 (566-1060) | 0.1910 | 0.5543 | 905 (467-1010) | 970 (841-1050) | 804 (302-890) | 0.1830 | 0.3271 |
| IL-21 | 8.58 (4.75-9.72) | 7.93 (5.27-10.3) | 8.11 (4.56-10.2) | 0.9980 | 1 | 6.15 (2.23-9.39) | 8.62 (6.82-13) | 4.29 (2.46-8.66) | 0.2550 | 0.4018 |
| IL-22 | 9.89 (5.69-31.9) | 52.1 (10.3-172) | 5.21 (3.21-10.5) | 0.1160 | 0.4977 | 21.3 (6.09-32.6) | 28.3 (15.9-135) | 10.4 (6.24-19.4) | 0.1690 | 0.3271 |
| IL-23 | 2.87 (1.47-4.1) | 4.58 (2.61-6.86) | 3.98 (3.5-7.18) | 0.3080 | 0.6059 | 1.58 (1.02-2.65) | 3.01 (2.56-5.35) | 3.56 (2.76-4.69) | 0.0505 | 0.221 |
| IL-27 | 1.51 (1.28-3.27) | 3.22 (2.43-4.07) | 2.73 (2.16-3.16) | 0.3230 | 0.6059 | 1.22 (1.05-1.63) | 3.17 (2.15-3.32) | 2.08 (1.3-2.65) | **0.0119** | 0.221 |
| IL-31 | 2.11 (1.42-2.65) | 2.24 (1.98-3.47) | 3.15 (2.04-4.24) | 0.5040 | 0.7353 | 1.51 (0.955-1.79) | 3.06 (2.34-4.17) | 3.25 (2.01-3.79) | **0.0122** | 0.221 |
| IL-4 | 4.66 (2.47-5.98) | 6.14 (5.49-11.5) | 3.17 (1.72-4.05) | **0.0143** | 0.3565 | 3.61 (1.87-4.47) | 3.96 (2.61-4.52) | 2.93 (2.05-4.42) | 0.6560 | 0.6984 |
| IL-5 | 5.31 (3.86-7.15) | 8.03 (5.73-11.1) | 5.28 (2.66-10.4) | 0.2870 | 0.6059 | 5.29 (2.1-6.39) | 5.87 (3.96-10.1) | 3.35 (2.95-8.78) | 0.3930 | 0.4838 |
| IL-6 | 10.4 (6.4-12.4) | 7.82 (4.65-22.8) | 5.45 (4.92-13.1) | 0.6880 | 0.8212 | 21.6 (13.1-24.2) | 19.3 (12.4-28.4) | 6.45 (3.33-29.6) | 0.3880 | 0.4838 |
| IL-7 | 1.17 (1-1.28) | 1.12 (1.02-1.59) | 1.46 (1.19-1.73) | 0.4000 | 0.6565 | 1 (0.686-1.13) | 1.56 (1.29-2.1) | 1.5 (1.18-1.95) | **0.0228** | 0.221 |
| IL-8 | 7.7 (3.71-14.7) | 2.72 (1.09-7.92) | 17.9 (1.94-34.2) | 0.1970 | 0.5543 | 3.66 (3.03-5.29) | 12.5 (3.67-17.7) | 7.64 (5.14-13.2) | 0.1100 | 0.2549 |
| IL-9 | 3.87 (1.74-5.37) | 2.96 (1.35-3.61) | 6.08 (2.28-10.5) | 0.2770 | 0.6059 | 2.64 (2.27-3.86) | 4.97 (3.07-6.39) | 3.69 (2.51-4.81) | 0.1890 | 0.3271 |
| IP-10 | 1.65 (1.25-1.81) | 2.7 (1.86-3.73) | 1.62 (1.44-2.72) | 0.2680 | 0.6059 | 1.64 (1.12-2.3) | 2.29 (1.95-2.44) | 2.01 (1.56-2.37) | 0.2360 | 0.3873 |
| MCP-1 | 5.44 (2.65-10.9) | 2.61 (1.21-10.6) | 3.44 (2.4-20.1) | 0.5430 | 0.7639 | 4.25 (2.73-14) | 17.6 (2.49-40.1) | 3.79 (1.4-8.89) | 0.3430 | 0.4795 |
| MIP-1α | 39.3 (19.5-61.7) | 14.1 (7.43-28.2) | 51.5 (33.4-66.9) | 0.1290 | 0.4977 | 27.3 (12.1-36.2) | 46.6 (34.6-73.8) | 18.9 (5.11-37.2) | 0.0568 | 0.2232 |
| MIP-1β | 19.6 (5.9-41.4) | 4.54 (1.77-30.3) | 25 (12.2-41.5) | 0.3410 | 0.6105 | 28.1 (15.6-40.6) | 33.8 (13.5-57) | 12.4 (3.82-27.9) | 0.1820 | 0.3271 |
| RANTES | 0.847 (0.663-1.02) | 0.853 (0.689-1.12) | 0.764 (0.497-1.13) | 0.7800 | 0.9037 | 0.729 (0.641-0.973) | 0.887 (0.661-1.1) | 1.02 (0.946-1.18) | 0.2870 | 0.4289 |
| sCD40L | 2.23 (2.04-2.67) | 2.13 (1.61-2.54) | 2.27 (2.16-2.37) | 0.8090 | 0.9105 | 1.74 (1.02-1.98) | 1.97 (1.79-2.82) | 1.33 (1.14-1.97) | 0.0850 | 0.2232 |
| SCF | 2.6 (2.28-3.04) | 2.25 (1.91-3.12) | 2.07 (1.25-3.22) | 0.6100 | 0.8009 | 1.74 (1.11-2.23) | 2.42 (2.26-2.57) | 1.88 (1.41-2.67) | **0.0492** | 0.221 |
| SDF-1α | 1.38 (1.08-1.56) | 1.38 (0.893-1.91) | 1.51 (1.24-2.06) | 0.5880 | 0.7987 | 1.38 (1.18-1.58) | 1.49 (1.24-1.77) | 1.71 (1.31-1.93) | 0.6030 | 0.6786 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| sICAM-1 | 0.867 (0.697-0.973) | 1.1 (0.939-1.17) | 1.1 (1-1.2) | **0.0181** | 0.3565 | 0.899 (0.604-1.06) | 0.968 (0.924-1.08) | 1.04 (0.901-1.14) | 0.3530 | 0.4795 |
| TNF-α | 104 (90-135) | 155 (83.7-187) | 47 (38.1-105) | 0.1090 | 0.4977 | 89 (64.3-103) | 104 (72.3-124) | 56.3 (30.6-71.9) | 0.0925 | 0.2277 |
| TNF-β | 1.72 (1.21-2.09) | 2.49 (2.05-3.35) | 2.67 (2.22-2.94) | 0.0821 | 0.4977 | 1.18 (0.975-2.19) | 2.29 (2.09-2.8) | 2.15 (1.78-2.64) | 0.0638 | 0.2232 |

**Supplemental Table 27. Significance (p-values) of soluble mediator fold change differences following PMA/ionomycin stimulation across disease groups.**

| | White | | | Black | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Soluble Mediator** | **Ctrl vs SLE INACT** | **Ctrl vs SLE ACT** | **SLE INACT vs SLE ACT** | **Ctrl vs SLE INACT** | **Ctrl vs SLE ACT** | **SLE INACT vs SLE ACT** | **White Ctrl vs Black Ctrl** | **White SLE INACT vs Black SLE INACT** | **White SLE ACT vs Black SLE ACT** |
| BLγS | 1.0000 | 0.6570 | 0.8590 | **0.0209** | 0.1370 | 0.5730 | 0.2140 | 0.3640 | 0.5090 |
| CXCL13 | 0.5970 | 1.0000 | 0.8590 | 0.9290 | 1.0000 | 0.8330 | 0.3280 | 0.0821 | 0.8040 |
| Eotaxin | 0.4060 | 0.4240 | 0.9290 | **0.0263** | 0.0693 | 0.2910 | 0.1830 | **0.0025** | **0.0132** |
| GM-CSF | 0.3260 | 0.2860 | 0.4770 | 0.3280 | 0.6800 | 0.7780 | 0.2480 | 0.4960 | 0.9340 |
| GRO-α | 1.0000 | 0.1100 | 0.4240 | 0.1830 | 0.8040 | 0.3240 | 0.5940 | 0.5450 | 0.1370 |
| IFN-α | 0.4060 | 0.0621 | 0.1100 | 0.5340 | 0.2150 | 0.2600 | 0.6570 | 0.2570 | 0.0829 |
| IFN-γ | 0.5450 | 0.0506 | 0.1310 | 0.8590 | 0.1170 | **0.0242** | 0.4240 | 0.4060 | 0.4570 |
| IL-1α | 0.3640 | 0.2860 | 0.1830 | 0.3740 | 0.5090 | 0.7780 | 0.5940 | 0.1990 | 0.4090 |
| IL-1β | 0.2900 | 0.2480 | 0.0621 | 0.4770 | 0.9340 | 0.1810 | 0.2480 | **0.0256** | 0.6200 |
| IL-1RA | 0.1740 | 0.7900 | 0.1550 | 0.2860 | 0.1170 | **0.0112** | 0.7220 | 0.0588 | 0.1370 |
| IL-10 | 0.0821 | **0.0129** | 0.3740 | 0.2860 | 0.1370 | **0.0075** | 0.1310 | 0.2900 | 0.6200 |
| IL-12p70 | 0.7050 | 0.6570 | 0.7900 | 0.4240 | 0.7410 | **0.0317** | 0.6570 | 0.2260 | 0.4570 |
| IL-13 | 0.5450 | 0.1830 | 0.0914 | 0.1100 | 0.5630 | 0.3600 | 0.0756 | 0.4960 | 0.6800 |
| IL-15 | 0.3840 | 0.5050 | 0.9290 | 0.0619 | 0.1860 | 0.9440 | 0.1190 | 0.4500 | 0.4570 |
| IL-17A | 0.4060 | 0.4770 | 0.2480 | 0.1310 | 0.6200 | **0.0290** | 0.3280 | 0.1990 | 0.5090 |
| IL-18 | 0.4960 | **0.0164** | 0.0914 | 0.5940 | **0.0475** | **0.0290** | 0.6570 | 0.8210 | 0.6200 |
| IL-2 | 0.2260 | 0.0756 | 0.5940 | 0.2860 | 0.5630 | 0.0671 | 0.0914 | 0.5970 | 0.5630 |
| IL-21 | 1.0000 | 0.9290 | 1.0000 | 0.2140 | 1.0000 | 0.1210 | 0.5340 | 0.5450 | 0.3220 |
| IL-22 | 0.1510 | 0.2480 | 0.0756 | 0.2480 | 0.7410 | 0.0573 | 1.0000 | 0.9400 | 0.3220 |
| IL-23 | 0.1990 | 0.1830 | 0.8940 | **0.0410** | **0.0258** | 0.8880 | 0.1830 | 0.6500 | 0.3640 |
| IL-27 | 0.1310 | 0.5940 | 0.4240 | **0.0044** | 0.1370 | 0.0782 | 0.1200 | 0.5450 | 0.3220 |
| IL-31 | 0.4500 | 0.2480 | 0.7220 | **0.0045** | **0.0208** | 0.6730 | 0.1830 | 0.4960 | 0.6200 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| IL-4 | 0.0588 | 0.1550 | **0.0077** | 0.5340 | 0.9340 | 0.3600 | 0.1830 | **0.0082** | 0.8040 |
| IL-5 | 0.0889 | 1.0000 | 0.3740 | 0.2860 | 0.6200 | 0.2310 | 0.5340 | 0.3840 | 0.8690 |
| IL-6 | 0.7620 | 0.3280 | 0.7220 | 0.9290 | 0.6200 | 0.1050 | 0.2860 | 0.1120 | 0.7410 |
| IL-7 | 0.7620 | 0.1300 | 0.4770 | **0.0128** | **0.0202** | 0.7780 | 0.1950 | 0.1400 | 0.7100 |
| IL-8 | 0.1990 | 0.4240 | 0.1100 | 0.0914 | **0.0475** | 0.7780 | 0.2140 | 0.0588 | 0.3640 |
| IL-9 | 0.6500 | 0.2860 | 0.1100 | 0.0619 | 0.2830 | 0.4810 | 0.2860 | 0.1300 | 0.3220 |
| IP-10 | 0.0963 | 0.6570 | 0.3740 | 0.1550 | 0.3220 | 0.2310 | 0.8240 | 0.6500 | 0.5630 |
| MCP-1 | 0.3260 | 0.9290 | 0.3740 | 0.4240 | 0.4090 | 0.1810 | 1.0000 | 0.0696 | 0.5090 |
| MIP-1α | 0.1510 | 0.4770 | 0.0621 | 0.0506 | 0.7410 | **0.0346** | 0.1310 | **0.0343** | **0.0208** |
| MIP-1β | 0.2570 | 0.5340 | 0.2140 | 0.4770 | 0.2150 | 0.0910 | 0.7900 | **0.0284** | 0.2480 |
| RANTES | 0.6500 | 0.8590 | 0.4770 | 0.5340 | 0.1170 | 0.3600 | 0.8590 | 0.9400 | 0.3640 |
| sCD40L | 0.6500 | 0.8590 | 0.5340 | 0.1100 | 0.8040 | **0.0346** | **0.0410** | 0.9400 | **0.0050** |
| SCF | 0.5200 | 0.3740 | 0.5940 | **0.0164** | 0.4090 | 0.1050 | **0.0455** | 0.3640 | 0.8040 |
| SDF-1α | 0.8210 | 0.3740 | 0.3740 | 0.5340 | 0.3640 | 0.5730 | 0.9290 | 0.4960 | 0.8690 |
| sICAM-1 | **0.0156** | **0.0164** | 0.8590 | 0.4240 | 0.1600 | 0.4810 | 0.9290 | 0.1990 | 0.4570 |
| TNF-α | 0.4500 | 0.0756 | 0.0756 | 0.2860 | 0.2150 | **0.0411** | 0.1550 | 0.3260 | 0.8690 |
| TNF-β | **0.0450** | 0.0753 | 0.8590 | **0.0263** | 0.0693 | 0.6220 | 0.3740 | 0.8800 | 0.3640 |

**Supplemental Table 28. Fold change (stimulated over unstimulated fluorescence intensity) of cytokine levels following PHA stimulation.**

| | Median Fold Change (IQR) | | | | | Median Fold Change (IQR) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Soluble Mediator** | **White Controls** | **White SLE INACT** | **White SLE ACT** | **KW p-value** | **FDR q-value** | **Black Controls** | **Black SLE INACT** | **Black SLE ACT** | **KW p-value** | **FDR q-value** |
| BLyS | 1.03 (0.982-1.17) | 1.06 (0.979-1.15) | 1.13 (1.09-1.18) | 0.4430 | 0.6477 | 1.01 (0.929-1.21) | 1.06 (1.01-1.28) | 1.07 (0.919-1.14) | 0.7060 | 0.7867 |
| CXCL13 | 1.49 (1.31-1.67) | 1.31 (1.04-1.46) | 1.44 (1.15-1.75) | 0.3950 | 0.6477 | 1.66 (1.25-1.93) | 1.67 (1.17-1.98) | 1.27 (1.09-1.61) | 0.6130 | 0.752 |
| Eotaxin | 0.958 (0.882-1.13) | 0.856 (0.82-1.12) | 1.1 (0.965-1.26) | 0.4790 | 0.6739 | 1.32 (1.05-1.67) | 1.66 (1.47-2.1) | 1.56 (1.25-1.66) | 0.2490 | 0.5162 |
| GM-CSF | 1.82 (1.43-3.66) | 2.14 (1.48-3.95) | 1.83 (1.48-2.38) | 0.8840 | 0.9411 | 1.79 (1.08-1.88) | 1.97 (1.51-2.91) | 1.88 (1.06-3.9) | 0.4470 | 0.6411 |
| GRO-α | 13.1 (9.97-16.4) | 6.35 (2.07-11.6) | 3.87 (2.32-6.23) | 0.0960 | 0.3825 | 12.5 (5.62-19.1) | 11.8 (4.94-19.6) | 4.62 (2.47-11.8) | 0.2700 | 0.5318 |
| IFN-α | 1.19 (1.08-1.32) | 0.936 (0.728-1.15) | 1.2 (0.968-1.37) | 0.0560 | 0.3825 | 1.08 (1.06-1.1) | 1.06 (0.945-1.5) | 1.23 (1.09-1.44) | 0.3000 | 0.5443 |
| IFN-γ | 2.65 (2.25-3.85) | 3.35 (1.98-4.6) | 1.72 (1.59-2.77) | 0.4440 | 0.6477 | 3.47 (2.43-4.23) | 3.01 (2.57-3.86) | 2.25 (1.03-2.77) | 0.1180 | 0.5162 |
| IL-1α | 2.82 (2.28-2.98) | 1.77 (1.3-2.71) | 2.44 (2.23-2.76) | 0.2220 | 0.5712 | 2.93 (2.29-3.58) | 3.05 (2.27-3.42) | 2.8 (1.66-3) | 0.6300 | 0.752 |
| IL-1β | 6.44 (5.07-19) | 5.56 (1.24-9.54) | 2.24 (1.7-2.75) | 0.0971 | 0.3825 | 4.86 (2.87-7.69) | 3.73 (2.91-12.4) | 2.62 (1.53-3.65) | 0.2120 | 0.5162 |
| IL-1RA | 40.6 (25.1-61.6) | 11.1 (7.16-23.2) | 34 (22.3-64.3) | 0.0919 | 0.3825 | 31 (21.4-41.5) | 30.9 (22.9-66.8) | 11.6 (8.03-17.1) | **0.0126** | 0.4037 |
| IL-10 | 40.9 (19.3-54.2) | 6.56 (3.14-11.6) | 6.15 (2.84-21) | **0.0078** | 0.3072 | 22.1 (16.6-33.3) | 33.4 (14.9-52.4) | 7.16 (3.32-14.2) | **0.0205** | 0.4037 |
| IL-12p70 | 1.47 (1.16-1.71) | 1.59 (1.24-1.81) | 1.25 (1.08-1.62) | 0.5830 | 0.7233 | 1.14 (0.929-1.3) | 1.55 (1.38-2.04) | 1.3 (0.971-1.49) | **0.0327** | 0.4116 |
| IL-13 | 7.38 (5.24-11.9) | 7.96 (3.63-11.7) | 3.15 (1.41-9.4) | 0.2710 | 0.5852 | 4.7 (2.9-5.97) | 8.95 (4.31-20.4) | 4.98 (1.97-10.8) | 0.3340 | 0.5695 |
| IL-15 | 1.15 (0.93-1.37) | 1.19 (0.949-1.5) | 1.56 (1.21-1.91) | 0.2980 | 0.5852 | 1.15 (1.05-1.39) | 1.23 (0.906-1.84) | 1.47 (0.846-1.86) | 0.8880 | 0.8969 |
| IL-17A | 39.8 (26-58.5) | 56.8 (12.4-202) | 13 (3.06-34) | 0.2300 | 0.5712 | 73.1 (44.9-106) | 136 (52.3-278) | 18.3 (9.18-94.9) | 0.1080 | 0.5162 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| IL-18 | 2.41 (1.7-2.77) | 2.13 (1.77-2.31) | 1.89 (1.59-2.61) | 0.5730 | 0.7233 | 2.11 (1.62-2.54) | 2.35 (2.03-2.92) | 1.48 (1.14-2.06) | 0.0532 | 0.4116 |
| IL-2 | 9.55 (4.74-17.7) | 4.17 (2.16-6.04) | 15.2 (4.56-22.1) | 0.2850 | 0.5852 | 5.44 (4.25-9.31) | 12.3 (9.63-35.1) | 11.9 (2.35-25) | 0.2420 | 0.5162 |
| IL-21 | 1.76 (1.4-2.42) | 1.62 (1.22-1.91) | 2.09 (1.56-2.58) | 0.2830 | 0.5852 | 1.84 (1.26-2.1) | 2.25 (1.86-2.41) | 1.82 (1.25-2.06) | 0.2020 | 0.5162 |
| IL-22 | 2.59 (1.68-3.55) | 3.75 (1.83-13.3) | 1.91 (1.07-2.88) | 0.3270 | 0.5855 | 4.01 (3.27-11.9) | 7.33 (5.37-13.8) | 2.89 (1.86-15.5) | 0.3470 | 0.5695 |
| IL-23 | 1.62 (1.45-2.75) | 2.04 (1.61-2.43) | 1.5 (1.12-2.17) | 0.6050 | 0.7233 | 2.03 (1.52-2.39) | 2.05 (1.35-3.83) | 2.6 (1.43-3.6) | 0.8240 | 0.8541 |
| IL-27 | 1.14 (0.908-1.2) | 1.53 (0.981-1.64) | 1.25 (0.978-1.58) | 0.6060 | 0.7233 | 0.909 (0.684-0.918) | 1.14 (0.882-1.65) | 1.22 (0.734-1.33) | 0.1900 | 0.5162 |
| IL-31 | 1.15 (1.02-1.33) | 1.11 (1.04-1.55) | 1.22 (0.935-1.42) | 0.9770 | 0.9868 | 1.16 (1.02-1.34) | 1.13 (1.02-1.91) | 1.25 (1.06-1.56) | 0.6890 | 0.7867 |
| IL-4 | 1.91 (1.41-2.1) | 2.13 (1.64-2.46) | 1.45 (1.04-1.96) | 0.2070 | 0.5712 | 1.49 (0.963-2.19) | 2 (1.47-2.17) | 1.02 (0.959-2.06) | 0.3760 | 0.5924 |
| IL-5 | 1.67 (1.36-1.85) | 1.88 (1.69-2.05) | 1.92 (1.47-2.28) | 0.5220 | 0.709 | 1.4 (1.09-1.83) | 1.93 (1.78-2.18) | 1.29 (1.06-2.24) | 0.1070 | 0.5162 |
| IL-6 | 18.2 (12.2-24.5) | 10.1 (5.11-24.3) | 3.88 (2.85-5.56) | **0.0317** | 0.3825 | 27.9 (15.1-36.7) | 23.3 (14.6-30) | 13 (5.49-26.5) | 0.3040 | 0.5443 |
| IL-7 | 1.14 (1-1.21) | 1.24 (0.98-1.56) | 1.29 (1.11-1.54) | 0.4420 | 0.6477 | 1.19 (1-1.36) | 1.44 (1.28-1.57) | 1.26 (1-1.87) | 0.2370 | 0.5162 |
| IL-8 | 16.1 (5.09-19.1) | 1.69 (1.12-9.93) | 15.3 (4.01-53.9) | 0.0755 | 0.3825 | 7.06 (5.51-8.61) | 20.6 (6.04-24.5) | 9.49 (8.07-13.5) | 0.1600 | 0.5162 |
| IL-9 | 4.94 (2.35-6.84) | 1.72 (1.31-4.35) | 5.88 (2.82-11.7) | 0.0826 | 0.3825 | 4.34 (2.83-5.01) | 6.82 (3.17-7.31) | 4.19 (3.75-5.51) | 0.2270 | 0.5162 |
| IP-10 | 3.25 (1.91-3.76) | 2.78 (2.13-3.09) | 2.38 (1.27-3.15) | 0.6720 | 0.7785 | 2.99 (1.46-3.29) | 3.31 (2.63-3.66) | 2.51 (1.49-3.39) | 0.5710 | 0.7497 |
| MCP-1 | 6.4 (3.21-18.8) | 1.68 (1.2-14) | 4.01 (2.6-5.52) | 0.3540 | 0.6063 | 5.34 (2.69-22.3) | 5.58 (2.89-36.3) | 4.85 (1.29-6.86) | 0.4720 | 0.6411 |
| MIP-1α | 47.5 (23.2-86.4) | 9.47 (5.35-27.4) | 56.2 (36.8-74.9) | 0.0784 | 0.3825 | 31 (14.3-42.8) | 53.7 (35.8-73.7) | 18.7 (6.57-41.9) | 0.0627 | 0.4116 |
| MIP-1β | 38.8 (7.84-73.9) | 3.56 (2.06-41.4) | 50.7 (24.1-86.8) | 0.0835 | 0.3825 | 37.4 (17.2-64.1) | 49.3 (25.5-63.7) | 17.7 (6.44-43.3) | 0.1600 | 0.5162 |
| RANTES | 1.48 (1.08-1.52) | 0.974 (0.785-1.42) | 1.07 (0.974-1.35) | 0.3120 | 0.5852 | 1.18 (0.916-1.47) | 1.24 (0.955-2.02) | 1.07 (1.02-1.77) | 0.7190 | 0.7867 |
| sCD40L | 1.57 (1.32-1.64) | 1.21 (1.16-1.35) | 1.34 (1.21-1.55) | 0.1240 | 0.444 | 1.28 (1.04-1.52) | 1.32 (1.23-1.7) | 1.06 (0.963-1.21) | **0.0422** | 0.4116 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SCF | 1.15 (1-1.24) | 1.17 (1-1.35) | 1.2 (1.04-1.4) | 0.8400 | 0.9191 | 1.04 (0.905-1.17) | 1.21 (0.901-1.5) | 0.992 (0.894-1.25) | 0.4650 | 0.6411 |
| SDF-1α | 2.05 (1.73-2.74) | 1.56 (1.2-1.98) | 1.9 (1.81-2.1) | 0.2320 | 0.5712 | 2.08 (1.82-2.71) | 2.51 (1.77-2.71) | 1.84 (1.39-2.65) | 0.7670 | 0.8165 |
| sICAM-1 | 1.12 (1.04-1.18) | 1.13 (0.974-1.17) | 1.08 (0.96-1.16) | 0.7690 | 0.8655 | 1.13 (0.869-1.25) | 1 (0.838-1.11) | 1.07 (0.945-1.13) | 0.6050 | 0.752 |
| TNF-α | 17 (13.2-20.7) | 12.9 (5.54-16.1) | 4.89 (2.93-17.4) | 0.1630 | 0.535 | 10.1 (8.05-11.3) | 12.9 (8.39-19.6) | 8.17 (4.49-15.2) | 0.4100 | 0.6212 |
| TNF-β | 1.18 (1.03-1.35) | 1.26 (0.991-1.82) | 1.21 (1.13-1.4) | 0.9590 | 0.9868 | 0.996 (0.789-1.14) | 1.13 (0.964-1.85) | 1.29 (1.01-1.66) | 0.2090 | 0.5162 |

**Supplemental Table 29. Significance (p-values) of soluble mediator fold change differences following PHA stimulation across disease groups.**

| | White | | | Black | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Soluble Mediator** | **Ctrl vs SLE INACT** | **Ctrl vs SLE ACT** | **SLE INACT vs SLE ACT** | **Ctrl vs SLE INACT** | **Ctrl vs SLE ACT** | **SLE INACT vs SLE ACT** | **White Ctrl vs Black Ctrl** | **White SLE INACT vs Black SLE INACT** | **White SLE ACT vs Black SLE ACT** |
| BLyS | 0.8500 | 0.2480 | 0.2860 | 0.3280 | 0.8040 | 0.7250 | 0.5940 | 0.4960 | 0.2310 |
| CXCL13 | 0.1730 | 0.5940 | 0.4770 | 0.9650 | 0.4570 | 0.3600 | 0.6570 | 0.3440 | 0.8040 |
| Eotaxin | 0.3640 | 0.4770 | 0.3280 | 0.1310 | 0.3640 | 0.2910 | 0.0914 | **0.0012** | **0.0258** |
| GM-CSF | 0.8210 | 0.7220 | 0.6570 | 0.1680 | 0.4090 | 0.9160 | 0.2480 | 0.5970 | 0.8690 |
| GRO-α | 0.1510 | **0.0263** | 0.7900 | 0.9290 | 0.1860 | 0.1590 | 0.7900 | 0.4500 | 0.5630 |
| IFN-α | **0.0343** | 0.8590 | 0.0506 | 1.0000 | 0.0986 | 0.3240 | 0.1830 | 0.1310 | 0.6800 |
| IFN-γ | 0.9400 | 0.1830 | 0.3740 | 0.7220 | 0.1370 | **0.0486** | 0.6570 | 0.8800 | 0.5630 |
| IL-1α | 0.1310 | 0.7900 | 0.1550 | 0.7220 | 0.3640 | 0.5260 | 0.6570 | 0.1990 | 1.0000 |
| IL-1β | 0.3640 | **0.0129** | 0.5340 | 0.8240 | 0.1600 | 0.1210 | 0.2860 | 0.5450 | 0.9010 |
| IL-1RA | **0.0413** | 0.7220 | 0.1100 | 0.5340 | 0.0575 | **0.0039** | 0.3280 | **0.0156** | 0.0693 |
| IL-10 | **0.0082** | **0.0077** | 0.9290 | 0.5940 | **0.0475** | **0.0092** | 0.2860 | **0.0233** | 1.0000 |
| IL-12p70 | 0.7050 | 0.5050 | 0.3070 | **0.0112** | 0.2830 | 0.0977 | 0.0504 | 0.7340 | 0.7410 |
| IL-13 | 0.7620 | 0.1100 | 0.2480 | 0.1550 | 0.9340 | 0.2600 | 0.0914 | 0.7620 | 0.6800 |
| IL-15 | 0.9400 | 0.2130 | 0.1420 | 0.7560 | 0.6200 | 0.7780 | 0.7900 | 0.7050 | 0.4330 |
| IL-17A | 0.4960 | 0.0914 | 0.2140 | 0.4240 | 0.2830 | **0.0346** | 0.1550 | 0.2260 | 0.3220 |
| IL-18 | 0.4060 | 0.3280 | 0.9290 | 0.3740 | 0.1860 | **0.0167** | 0.3740 | 0.3260 | 0.2480 |
| IL-2 | 0.1310 | 0.7900 | 0.2480 | 0.0621 | 0.6800 | 0.3600 | 0.4770 | **0.0082** | 0.8690 |
| IL-21 | 0.3640 | 0.5340 | 0.1100 | 0.1310 | 1.0000 | 0.1210 | 0.5340 | 0.1120 | 0.1600 |
| IL-22 | 0.4060 | 0.4240 | 0.1550 | 0.2860 | 0.5090 | 0.2050 | 0.1310 | 0.1990 | 0.1170 |
| IL-23 | 0.6230 | 0.4770 | 0.3740 | 0.6890 | 0.5090 | 0.9440 | 0.7900 | 0.8500 | 0.2830 |
| IL-27 | 0.2900 | 0.5930 | 0.8590 | 0.0828 | 0.2150 | 0.4600 | 0.0827 | 0.5970 | 0.3220 |
| IL-31 | 0.9400 | 0.9650 | 0.7900 | 0.5630 | 0.3640 | 0.9720 | 0.7220 | 0.7620 | 0.5630 |
| IL-4 | 0.4500 | 0.2480 | 0.0914 | 0.3280 | 0.8040 | 0.1810 | 0.4240 | 0.6500 | 0.7410 |
| IL-5 | 0.2260 | 0.5050 | 1.0000 | **0.0410** | 0.8690 | 0.1130 | 0.3740 | 0.5200 | 0.6790 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| IL-6 | 0.2570 | **0.0077** | 0.1550 | 0.7220 | 0.2150 | 0.1810 | 0.5340 | 0.1510 | 0.0522 |
| IL-7 | 0.7900 | 0.1780 | 0.4230 | 0.0617 | 0.4050 | 0.5490 | 0.8560 | 0.2560 | 0.8360 |
| IL-8 | 0.0963 | 0.5940 | **0.0330** | 0.0914 | 0.1600 | 0.3600 | 0.2860 | **0.0156** | 0.4570 |
| IL-9 | 0.1510 | 0.3740 | **0.0330** | 0.1310 | 0.5630 | 0.1810 | 0.4770 | **0.0284** | 0.2830 |
| IP-10 | 0.6500 | 0.3740 | 0.6570 | 0.4240 | 0.9340 | 0.3240 | 0.6570 | 0.4060 | 0.8040 |
| MCP-1 | 0.1740 | 0.4240 | 0.4770 | 0.7220 | 0.2830 | 0.3240 | 0.8590 | 0.1740 | 0.8690 |
| MIP-1α | **0.0494** | 0.8590 | 0.0621 | 0.1550 | 0.3640 | **0.0242** | 0.2140 | **0.0284** | **0.0318** |
| MIP-1β | **0.0494** | 0.5940 | 0.0756 | 0.7220 | 0.1600 | 0.0783 | 1.0000 | **0.0284** | 0.1600 |
| RANTES | 0.1510 | 0.3740 | 0.4770 | 0.4770 | 0.5090 | 0.7780 | 0.3280 | 0.2570 | 0.3220 |
| sCD40L | **0.0343** | 0.4770 | 0.3280 | 0.6570 | 0.2480 | **0.0060** | 0.2860 | 0.2260 | **0.0318** |
| SCF | 0.7620 | 0.6570 | 0.5940 | 0.2480 | 0.6200 | 0.3980 | 0.1970 | 0.8210 | 0.4090 |
| SDF-1α | 0.1310 | 0.6570 | 0.1830 | 0.9290 | 0.6200 | 0.4810 | 0.7220 | 0.1120 | 1.0000 |
| sICAM-1 | 0.8210 | 0.4240 | 0.7220 | 0.3280 | 0.5630 | 0.6220 | 1.0000 | 0.1510 | 0.7410 |
| TNF-α | 0.1990 | 0.0621 | 0.6250 | 0.2140 | 0.7410 | 0.2910 | **0.0129** | 0.8210 | 1.0000 |
| TNF-β | 0.8800 | 0.7220 | 0.8590 | 0.1830 | 0.0829 | 0.8880 | 0.1100 | 0.8500 | 0.9340 |

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