Title

Metabolic imbalance of T cells in COVID-19 is hallmarked by basigin and mitigated by dexamethasone

Authors

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Running Title

Immunometabolism in COVID-19

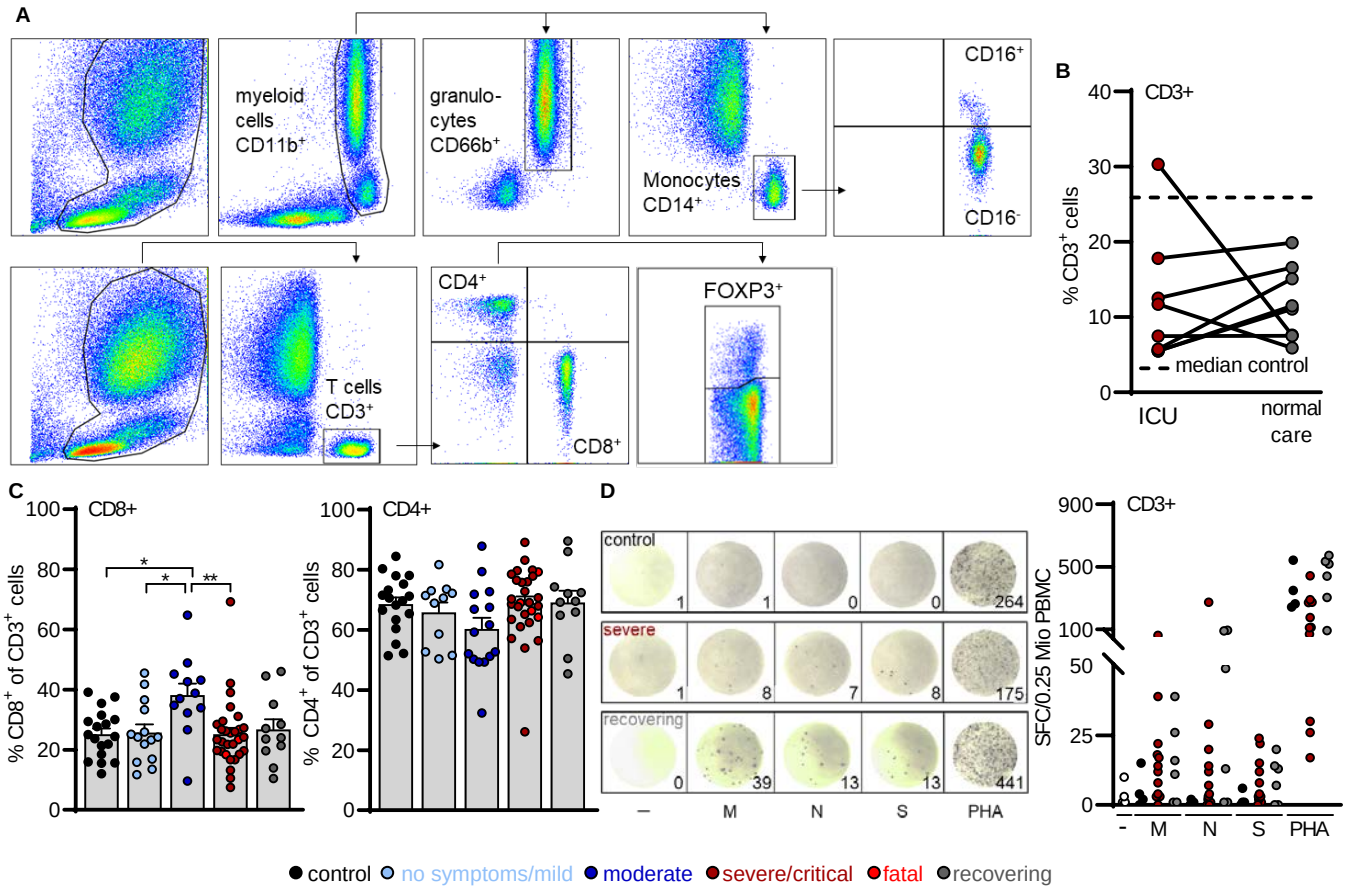

A
myeloid cells CD11b+
granulo-cytes CD66b+
Monocytes CD14+
CD16+
CD16-
T cells CD3+
CD4+
CD8+
FOXP3+
B
CD3+
% CD3+ cells
median control
ICU
normal care
C
CD8+
% CD8+ of CD3+ cells
CD4+
% CD4+ of CD3+ cells
D
control
severe
recovering
1
1
0
0
264
1
8
7
8
175
0
39
13
13
441
–
M
N
S
PHA
CD3+
SFC/0.25 Mio PBMC
control
no symptoms/mild
moderate
severe/critical
fatal
recovering
E
CD16-
% CD16- of CD14+CD11b+ cells
CD16+
% CD16+ of CD14+CD11b+ cells
F
COVID-19
COVID-19
2µm
comorbidities
G
CD3+
% of viable cells
DM/obesity
MFI ROS
MFI mitotracker
H
cardio-vascular
< 60 >
years

Figure S1. Immune cell frequencies, mitochondrial morphology and ROS accumulation in relation to comorbidities in COVID 19 patients.

Blood of donors was drawn and processed on the same day. Fresh samples were not subject to any manipulation, such as mononuclear cell enrichment or cryopreservation, only erythrocytes were removed by ACK lysis. Multi-parameter flow cytometry was performed to discriminate cells based on expression of CD14/CD11b (monocytes) and CD16+/- (monocyte subsets), CD66b/CD11b (granulocytes), CD3 (T cells), T cell subsets expressing CD4 or CD8 and FOXP3. (**A**) Representative plots displaying the gating strategy for specific immune cell populations. (**B**) CD3+ T cells among viable cells were determined in paired samples of patients taken at the intensive care unit (ICU) and after returning to normal care unit (normal care). (**C**) CD8+ and CD4+ T cell subpopulations among CD3+ cell are displayed. (**D**) The occurrence of antigen specific T cells was analyzed in severe/critically ill patients, patients recovering from a severe disease and controls by stimulating PBMCs with three different SARS-CoV-2 peptides (M, N, S) and antigen specific T cell released interferon-γ (IFNγ) was determined by ELISPOT assay. Phytohemagglutinin (PHA) was used as a positive control, medium (-) addition as negative control. (**E**) Portion of CD14+CD16- or CD14+CD16+ monocytes among the CD11b+ population is displayed. (**F**) Analysis of mitochondrial structure by electron microscopy in monocytes from critically ill COVID-19 patients. Shown are representative examples. Number of CD3+ T cells, cytosolic ROS accumulation and mitochondrial content in relation to diabetes/obesity (**G**) or cardiovascular diseases and age (**H**). (**B - E, G, H**) Each symbol represents one donor and in (**C, E, G, H**) summarized data are displayed as mean + SEM. Significances were calculated by (**C**) one-way ANOVA, Bonferroni multiple comparisons test or by (**G**) Mann Whitney U test (*$p<0.05$, **$p<0.01$).

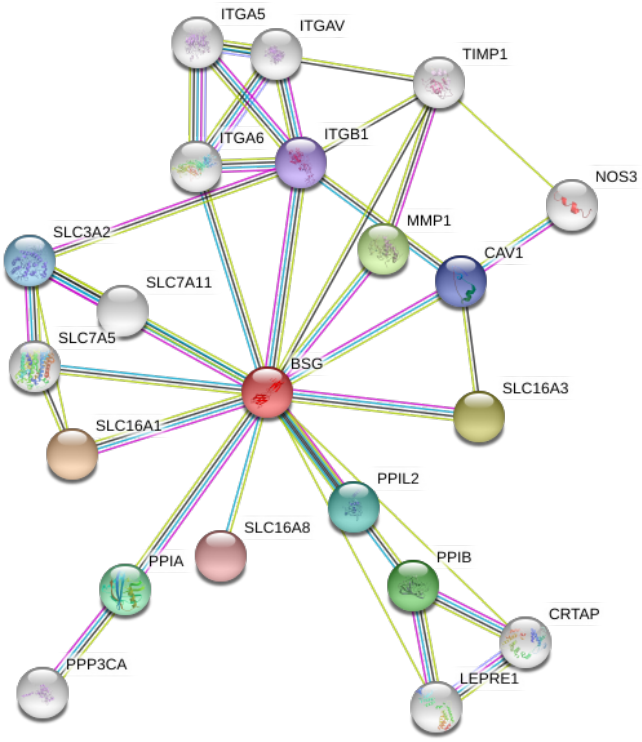


Figure S2. Interaction partners of basigin.
Basigin interaction partners were defined by STRING (1).

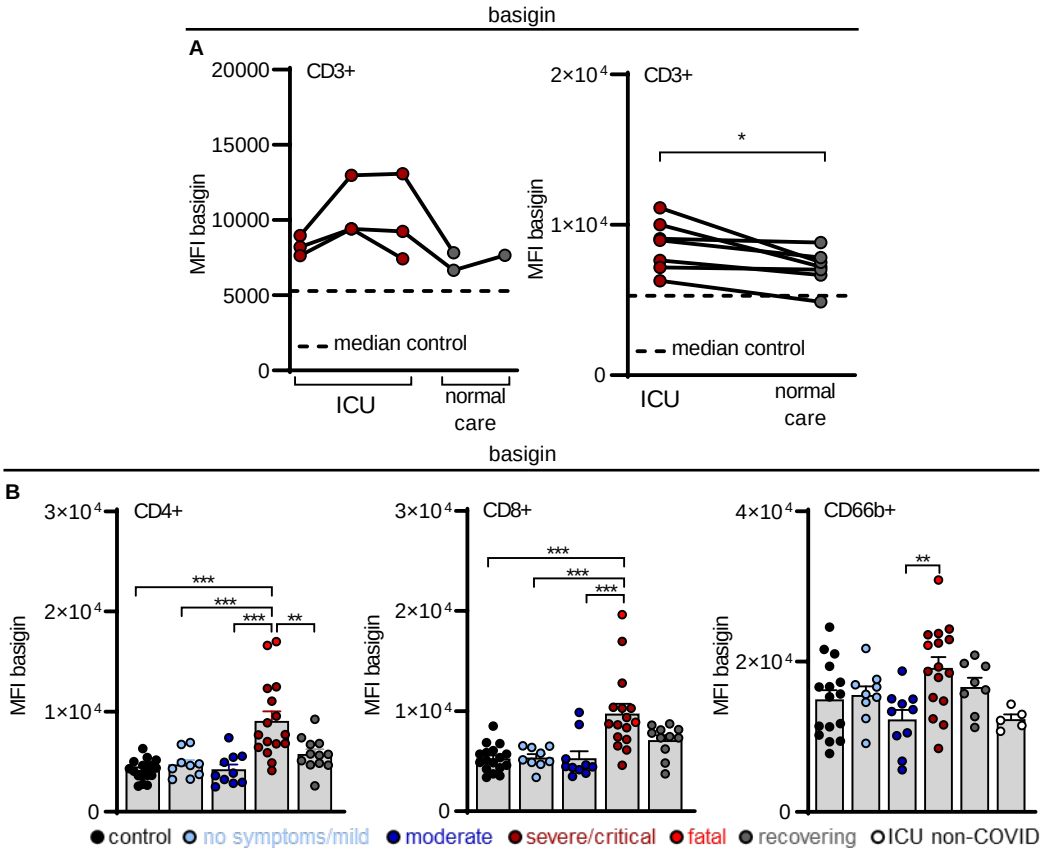


Figure S3. T cell basigin expression over time, in T cell populations and granulocytes.
(**A**) Basigin expression on CD3+ cells analyzed in a time dependent manner in paired samples of three patients taken at the intensive care unit (ICU) and after returning to normal care unit (normal care) and basigin expression in paired samples of 6 patients taken at the intensive care unit (ICU) and after returning to normal care unit (normal care, Wilcoxon matched-pairs signed rank test, *p<0.05). (**B**) Basigin expression was determined on CD4+, CD8+ T cell populations and CD66b+ granulocytes. A single symbol for each donor is displayed and summarized data are shown as mean + SEM (one-way ANOVA, Bonferroni multiple comparisons test, **p<0.01, ***p<0.001).

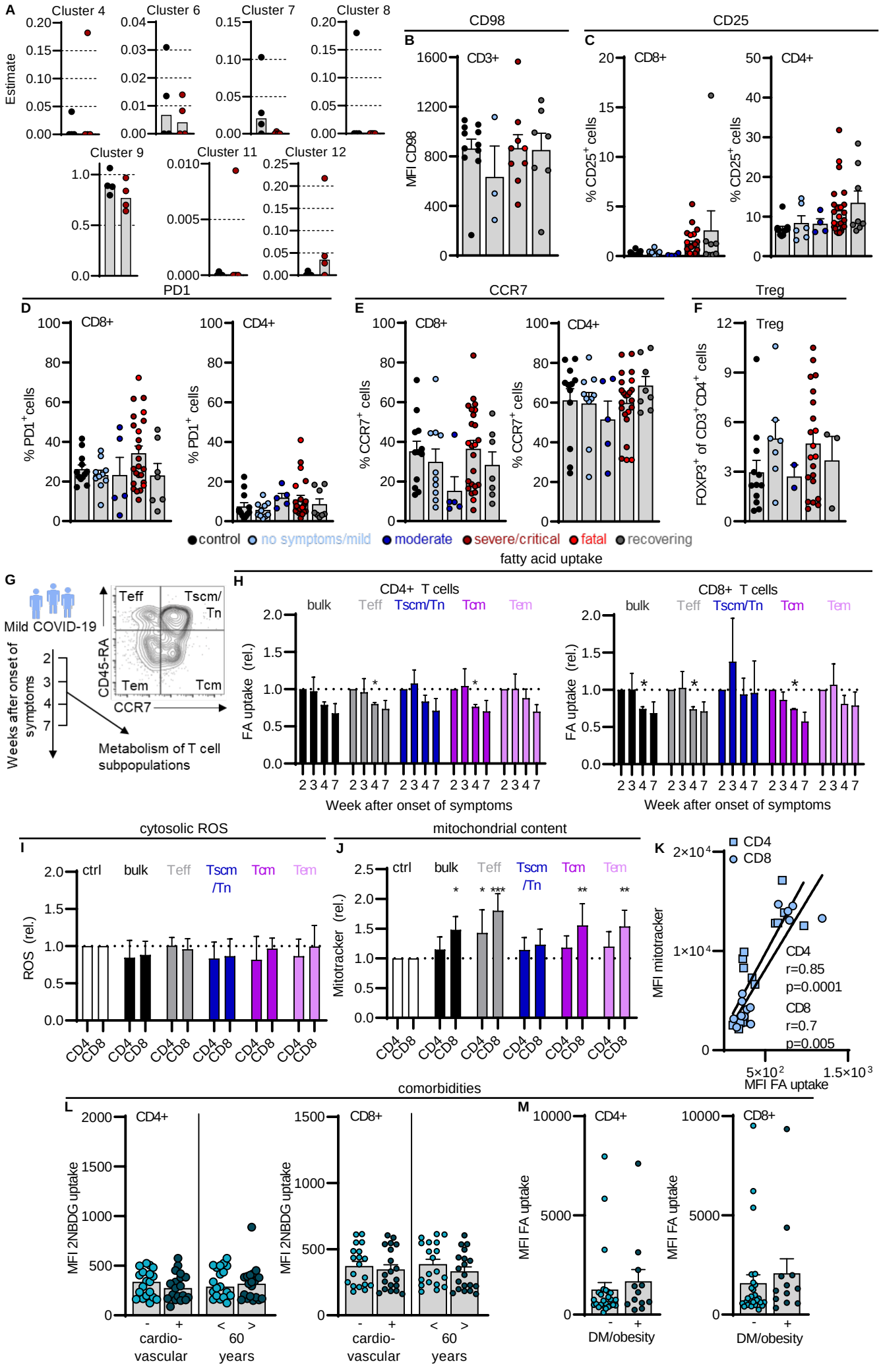
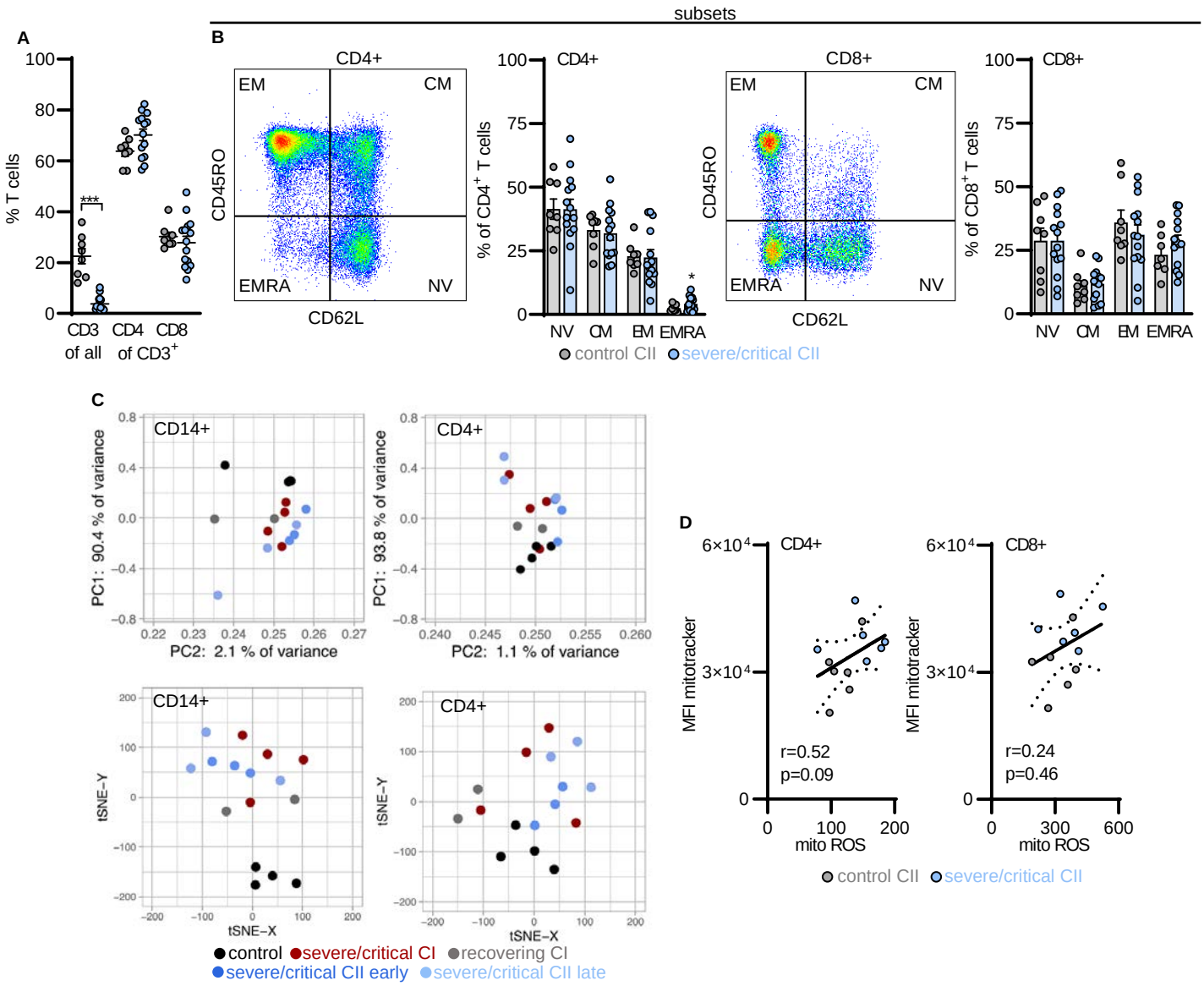

A
Cluster 4
Cluster 6
Cluster 7
Cluster 8
Cluster 9
Cluster 11
Cluster 12
Estimate
B
CD98
CD3+
MFI CD98
C
CD25
CD8+
CD4+
% CD25+ cells
D
PD1
CD8+
CD4+
% PD1+ cells
E
CCR7
CD8+
CD4+
% CCR7+ cells
F
Treg
FOXP3+ of CD3+CD4+ cells
control
no symptoms/mild
moderate
severe/critical
fatal
recovering
G
Mild COVID-19
Weeks after onset of symptoms
Teff
Tscm/ Tn
Tem
Tcm
CD45-RA
CCR7
Metabolism of T cell subpopulations
H
fatty acid uptake
CD4+ T cells
CD8+ T cells
bulk
Teff
Tscm/Tn
Tcm
Tem
FA uptake (rel.)
Week after onset of symptoms
I
cytosolic ROS
ctrl
ROS (rel.)
J
mitochondrial content
Mitotracker (rel.)
K
CD4
CD8
MFI mitotracker
CD4
r=0.85
p=0.0001
CD8
r=0.7
p=0.005
MFI FA uptake
L
comorbidities
CD4+
CD8+
MFI 2NBDG uptake
cardio-vascular
60 years
M
MFI FA uptake
DM/obesity

Figure S4. Activation marker expression and metabolic activity of T cells in COVID-19 patients with and without selected comorbidities.

(**A**) Digital tissue deconvolution (DTD) was applied to process publicly available COVID-19 peripheral blood mononuclear cell single-cell transcriptomic data (2). Leiden clustering was used to identify 14 unique clusters, 8 of which could be found using DTD in CD4+ T cell bulk sequencing data (**Figure 2A,C,E**). UMAP embedding is shown in Figure 3A and was computed on all CD4+ cells that the analysis is based on and the clusters that were found using the Leiden resolution algorithm. Detectable clusters estimates in CD4+ T cells from controls and COVID-19 patients from the severe/critical group are shown (Mann-Whitney U test, n.s.). (**B-F**) Peripheral blood was drawn and processed on the same day. Erythrocytes were removed by ACK lysis and immune cell populations were stained for indicated surface markers. Summarized data are displayed as mean + SEM and a single symbol for each donor. (**B**) CD98 expression on CD3+ T cells was analyzed. CD25 (**C**), PD-1 (**D**) and CCR7 (**E**) expression on CD4+ and CD8+ T cell subpopulations was analyzed and portion of FOXP3+ cells among CD3+CD4+ cells (**F**). (**G-K**) Peripheral blood mononuclear cells were isolated by Ficoll separation at indicated time points and cryopreserved until analysis. (**G**) Sampling scheme of blood from 3 patients of one family with mild COVID-19. (**H**) Fatty uptake in CD4+ and CD8+ T cell subsets. Shown is the mean + SEM of values normalized to the first blood sample drawn (Mixed-effects model with the Geisser-Greenhouse correction, with Bonferroni's multiple comparisons test, *p<0.05). Cytosolic ROS (**I**) and mitochondrial content (**J**) as in (**H**), normalized to healthy control samples at time point 2 weeks after the onset of symptoms. (**K**) Data from (**H,J**) in correlation. Shown are pooled values for CD4+ and CD8+ T cells from 3 patients and 4 time points. (**L,M**) Peripheral blood was drawn and processed on the same day. Erythrocytes were removed by ACK lysis and immune cell populations were stained for population specific surface markers. Comparison of 2NBDG and FA uptake in CD4+ and CD8+ T cells from COVID-19 patients in relation to age and with or without depicted pre-existing comorbidities (diabetes mellitus, DM). Shown is the mean + SEM, each symbol represents one donor (Mann-Whitney U test, *p<0.05).



	d/after Dexa.	damage*
Pt. #1	2	50%
Pt. #1	8	11%
Pt. #2	3	33%
Pt. #2	8	10%

* % lymphocytes with mitochondrial inclusions

Figure S5. Dexamethasone treated severe/critical patients show increased mitochondrial ROS levels and disturbed mitochondrial morphology.

A second cohort of critically ill COVID-19 patients receiving dexamethasone as standard of care was analyzed. (**A, B, D, F**) Blood of donors was drawn and processed the same day. Erythrocytes were removed by ACK lysis and immune cell populations were stained for population and subpopulation-specific surface markers. (**A**) Portion of CD3+ T cells among all leukocytes and CD4+ and CD8+ T cells among CD3+ lymphocytes in COVID-19 patients and healthy controls. (**B**) Subset distribution in CD4+ and CD8+ T cells. Subset distribution is determined according to the surface expression of CD45RO and CD62L. Naïve T cells (NV) are CD45RO-CD62L+, central memory T cells (CM) are CD45RO+CD62L+, effector memory T cells (EM) CD45RO+CD62L-, effector memory cells re-expressing CD45RA are CD45RO-CD62L-. Shown is the gating strategy for CD4+ and CD8+ T cell subsets and summarized data are displayed as mean + SEM and a single symbol for each donor. (**C**) Clustering was performed by PCA and t-SNE analysis of CD4+ T cells and CD14+ monocytes of healthy controls and COVID-19 patients of both cohorts and recovering patients. (**D**) Correlation of mitochondrial ROS, determined by MitoSOX, and mitochondrial content, determined by mitotracker staining, in corresponding sample. Correlation was calculated by Spearman r. (**E**) Analysis of mitochondrial structure by electron microscopy in lymphocytes from two representative critically ill COVID-19 patients at indicated days after end of dexamethasone treatment. Shown are representative examples. (**F**) Basigin expression in CD8+ T cell subsets in controls and critically ill COVID-19 patients. Summarized data are displayed as mean + SEM and a single symbol for each donor (one-way ANOVA, Bonferroni multiple comparisons test, *$p<0.05$, **$p<0.01$).

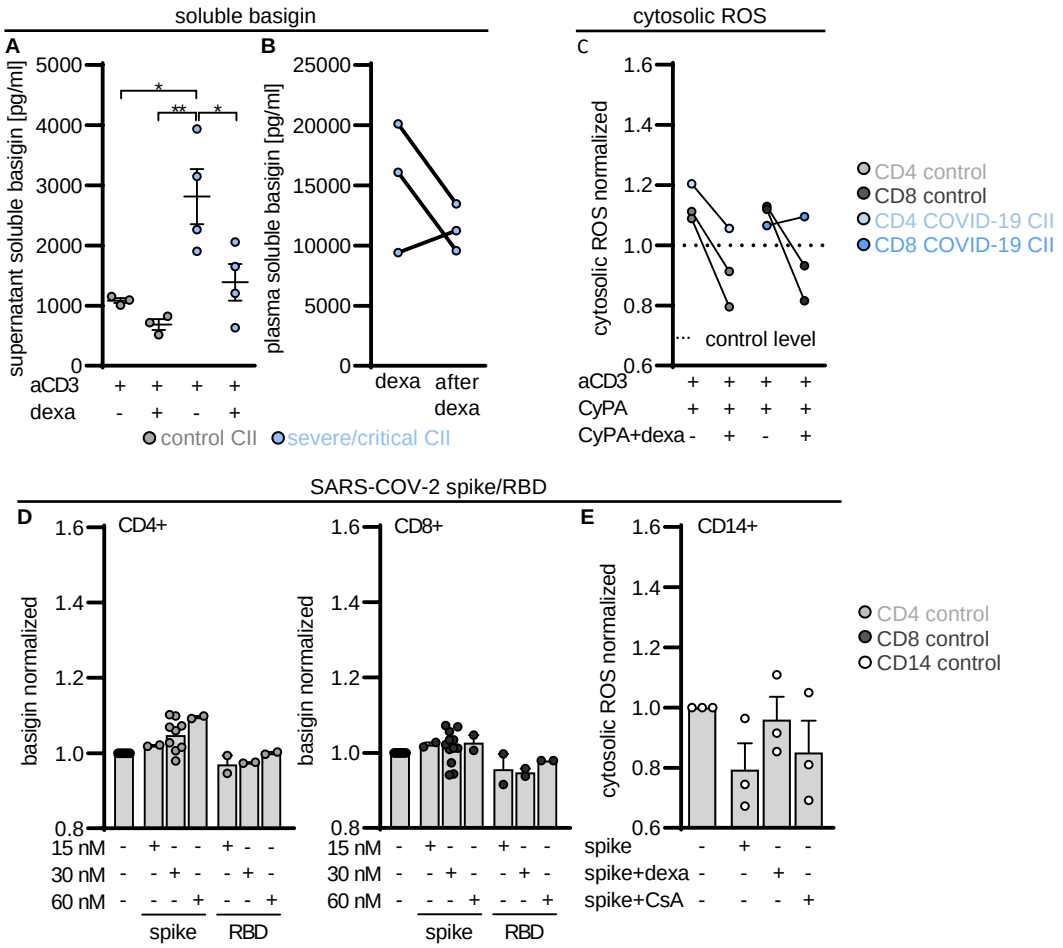


Figure S6. Impact of cyclophilin A, spike and RBD on basigin and ROS and interference with dexamethasone and cyclosporine A.

(**A, C, D, E**) Blood of donors was drawn and processed the same day. Mononuclear cells (MNCs) were isolated by Ficoll separation and $0.3*10^6$ MNCs were incubated and treated as indicated. (**A**) Soluble basigin was measured in culture supernatants of 3 days anti-CD3 (aCD3) stimulated MNCs in the presence or absence of 500 nM dexamethasone (dexa). (**B**) Soluble basigin was measured in the plasma of paired patient samples under dexamethasone treatment and beyond treatment cessation. (**C**) Cytosolic ROS was determined in 24 h anti-CD3 (aCD3) stimulated MNCs stained for CD4+ and CD8+ in the presence or absence of CyPA and dexamethasone. Data normalized to anti-CD3 (aCD3) stimulated T cells of the respective donor are shown. (**D**) Basigin expression on CD4+ and CD8+ T cells in the absence or presence of increasing concentrations of the SARS-CoV-2 spike protein or Receptor Binding Domain (RBD). Data normalized to unstimulated T cells of the respective donor are shown. (**E**) Cytosolic ROS in CD14+ monocytes treated as indicated. Data normalized to unstimulated cells of the respective donor are shown. (**A-E**) A single symbol for each donor is displayed, summarized data are displayed as (**A**) mean ± SEM, (**D, E**) mean + SEM.

Table S1. Clinical characteristics of COVID-19 patients (cohort I).

	None/mild (n=15)	Moderate (n=5)	Severe/critical (n=27)	p-value[b]
Clinical characteristics				
Age (y)	57.9 (43.9-67.2)	60.2 (49.8-74.8)	58.2 (46.7-68.1)	0.726
Male gender	7/15 (47%)	3/5 (60%)	17/27 (63%)	0.588
Prior malignancy	5/13 (38%)	1/5 (20%)	5/27 (19%)	0.377
Prior transplantation and/or immunosuppression	1/13 (8%)	2/5 (40%)	2/27 (7%)	0.093
Prior type 2 diabetes and/or adipositas	5/14 (36%)	1/5 (20%)	10/27 (37%)	0.761
Prior hypertension	5/14 (36%)	2/4 (50%)	11/24 (46%)	0.749
Prior arrhythmia	2/14 (14%)	1/4 (25%)	7/27 (26%)	0.690
Prior cardiovascular comorbidity	7/14 (50%)	4/5 (80%)	13/27 (48%)	0.416
Mechanical ventilation	0/14 (0%)	0/4 (0%)	24/27 (89%)	<0.001
Extracorporeal membrane oxygenation	0/14 (0%)	0/4 (0%)	11/27 (41%)	<0.01
Antibody response	3/6 (50%)	2/3 (67%)	22/22 (100%)	<0.01
Death	0/14 (0%)	0/5 (0%)	4/27 (15%)	0.214
Laboratory values[a]				
Ferritin (ng/ml)	402.5 (247-3279)	na	1461 (863-3705)	0.4072
Leukocytes (/nl)	6.1 (3.8-9.4)	4.89 (4.2-6.6)	8.05 (5.1-16.5)	0.1642
Lactate dehydrogenase (U/l)	204.5 (152.5-215.3)	379 (251-387)	284 (247-381.5)	0.1147
C-reactive protein (mg/l)	13.7 (5.5-30.3)	100 (33.9-130)	59.8 (19.8-97.8)	0.0487
Neutrophils (%)	62.7 (51.6-68.1)	65.9 (34.2-85.4)	70.55 (59.6-81.6)	0.5520
Basophils (%)	0.4 (0.2-0.4)	0.2 (0.2-1.4)	0.55 (0.2-0.9)	0.5999
Eosinophils (%)	2.5 (1.5-3.4)	1.8 (0.5-2)	3 (0.6-5.0)	0.6176
Monocytes (%)	8.3 (8-9.3)	8.8 (7.6-18.3)	8.1 (5.8-10.5)	0.2499
Lymphocytes (%)	26.8 (20.2-3)	21.9 (6.3-45.5)	17.3 (11.3-24.1)	0.6218
Immature granulocytes (%)	0.3 (0.2-0.5)	2.2 (0.8-3.4)	1.2 (0.5-3.4)	0.2006

[a] Laboratory values from the day of subsequent single-cell analyses

[b] Statistical tests used: Kruskal-Wallis (age), chi-squared test after Pearson (all categorical variables), students t-test (ferritin), one-way ANOVA (leukocytes and all other laboratory values). For continuous variables, data are medians and interquartile range. For categorical variables, data counts and percentages of patients if data were available.

Table S2. Clinical characteristics of COVID-19 patients (cohort II).

	Mild/moderate (n=14)	**Severe/critical** (n=26)
Clinical characteristics		
Age (y)	60 (50-77)	55 (48-65)
Male gender	10/14 (71%)	20/26 (77%)
Prior transplantation and/or immunosuppression and/or malignancy	5/7 (71%)	3/23 (13%)
Prior type 2 diabetes and/or adipositas	4/9 (44%)	11/23 (48%)
Prior cardiovascular comorbidity	8/10 (80%)	8/23 (35%)
Mechanical ventilation	0/14 (0%)	20/22 (91%)
Antibody response	n.t.	20/20 (100%)
Death	0/14 (0%)	2/19 (11%)
Laboratory values		
Ferritin (ng/ml)	668.5 (299.75-884)	1034 (426-1619)
Leukocytes (/nl)	4.94 (4.62-7.36)	9.34 (7.18-15.38)
Lactate dehydrogenase (U/l)	258 (226-284)	395 (269-511.5)
C-reactive protein (mg/l)	53.5 (7.4-81.8)	50.6 (16.5-129.5)
Neutrophils (%)	72.2 (67.73-73.08)	75.45 (69.25-82.65)
Basophils (%)	0.2 (0.2-0.65)	0.4 (0.2-0.6)
Eosinophils (%)	0.9 (0.03-2.3)	0.05 (0-1.225)
Monocytes (%)	9.8 (8.1-12.55)	8 (5.8-10.7)
Lymphocytes (%)	16.25 (13.73-22.3)	9.45 (6.4-15.05)
Immature granulocytes (%)	0.3 (0.2-0.7)	2.8 (0.8-7.225)

Table S3. Clinical characteristics of critically ill non-COVID patients.

Clinical characteristics	
Diagnosis	Severe stroke or brain injury requiring mechanical ventilation (n=6)
Age (y)	68 (51-75.8)
Male gender	3/6 (50%)
Prior malignancy	1/6 (16.67%)
Prior transplantation and/or immunosuppression	1/6 (16.67%)
Prior type 2 diabetes	2/6 (33.33%)
Prior type 2 adipositas	0/6 (0.00%)
Prior cardiovascular comorbidity	2/6 (33.33%)
Mechanical ventilation	6/6 (100.00%)
Death	1/6 (16.67%)
Laboratory values	
Leukocytes (/nl)	8.7 (6.25-17.525)
C-reactive protein (mg/l)	35.8 (9.25-74.725)
Neutrophils (%)	67 (60.5-75)
Basophils (%)	1 (0-1)
Eosinophils (%)	2 (0.5-6)
Monocytes (%)	9 (7-12.5)
Lymphocytes (%)	20 (11.5-27.5)

Methods

Study participants

This study involved 140 subjects consisting of 87 patients with confirmed SARS-CoV-2 infection, detected in a nasopharyngeal swab or a respiratory sample using routinely established RT-PCR and 47 uninfected controls. The study was approved by the appropriate Institutional Review Board (University Hospital Regensburg, No. 20-1785-101) and conformed to the principles outlined in the Declaration of Helsinki. Included were all patients with positive SARS-CoV-2 testing, excluded was one patient with first-diagnosis of leukemia.

Cohort I COVID-19 patients are described in Table S1 and did not receive dexamethasone treatment. Cohort I controls were asymptomatic healthy individuals with age median of 50 years (IQR 37.25-54.5) and male sex in 42%.

Cohort II COVID-19 patients are described in Table S2 and severely ill patients were all treated with dexamethasone. Cohort II controls were asymptomatic healthy individuals with age median of 51 years (IQR 39-55) and male sex in 54%.

Critically ill non-COVID patients were treated at an intensive care unit for severe stroke or brain injury requiring mechanical ventilation (**Table S3**) and did not receive dexamethasone.

COVID-19 severity was assessed as described previously (3, 4). Briefly, none/mild cases presented with no or mild symptoms and no pulmonary infiltrate; moderate cases presented with respiratory symptoms such as cough and/or shortness of breath and a pulmonary infiltrate; severe/critical cases included patients with persistent tachypnea >30/min, blood oxygen saturation <93%, rapid progress of pulmonary infiltrates within 24 hours, respiratory failure or requirement for mechanical ventilation. Clinical, laboratory, treatment and outcome data were extracted from electronic medical records using standard procedures and confidentiality measures. Routine testing included a differential blood count and biochemical tests. Antibody response was defined by presence of SARS-CoV-2 specific IgG antibodies in serum. Patients were tested for SARS-CoV-2 infection by virus-specific reverse-transcription quantitative real-time PCR (RT-PCR) of respiratory specimens as published (5).

Sample collection and processing

All whole-blood samples analyzed for immune cell frequencies and single cell metabolic assays were analyzed freshly without cryopreservation. Blood was collected using Lithium-Heparin-Tubes (Sarstedt, Nümbrecht, Germany). For ACK lysis, samples were divided in 1 ml portions and incubated for 5 min in 20 ml ACK buffer 1X (6X: 0.155M NH_4Cl, 0.01M $KHCO_3$ and 0.1 mM EDTA), afterwards 30 ml of PBS were added, centrifuged (5 min, 523G) and supernatant was discarded. Lysis was repeated using 10 ml ACK and 20 ml PBS per sample. If erythrocytes were still visible in the pellet, a third lysis step (5 ml ACK and 20 ml PBS) was performed and finally cells were washed in 20 ml PBS and resuspended in DPBS with 2% FCS (FACS washing buffer). Finally, cells were counted using the CASY Cell Counter system (cursor settings: CL 6.50 µM, NL 4.50 µM, CR 30 µM, NR 30 µM).

Determination of immune cell populations

For analysis of surface marker expression, 0.2-1*10^6 cells/tube were stained with respective surface markers (see list of antibodies below). Immune cell populations were stained according to specific surface markers (T cells: anti-CD3, anti-CD4, anti-CD8; myeloid cells: anti-CD11b, monocytes: anti-CD14, granulocytes: anti-CD66b). The gating strategy is displayed in **Figure S1A**. CD4+ and CD8+ T cell subpopulations were discriminated by staining for CD45RO and CD62L expression as following: naïve (NV): CD45RO- CD62L+, central memory (CM): CD45RO+ CD62L+; effector memory (EM): CD45RO+ CD62L- terminally differentiated effector memory cells (EMRA): CD45RO- CD62L-. The gating strategy is displayed in **Figure S5B**. For determination of regulatory T cells intracellular FOXP3 expression was measured using the Intracellular Fixation and Permeabilization Buffer Set according to manufacturer's

instructions. In brief, after surface marker staining (anti-CD3, anti-CD4), cell membrane was permeabilized and intracellular unspecific binding sites were blocked by incubation with 2% rat serum for 15 minutes and subsequently, intracellular (anti-FOXP3) staining was performed (**Figure S1A**).

ELISpot assay for T cell detection

Human venous blood was collected in lithium-heparin tubes and processed regarding the instructions of the commercial T-SPOT.TB test. The ELISpot plates and chemistry except the specific SARS-CoV-2 antigens were derived from the T-SPOT.TB test. Medium was used as negative control and phytohemagglutinin (PHA) as positive control according to the manufacturer's protocol. Peptides from SARS-CoV-2 were used for antigen stimulation. Shortly, peptides of membrane glycoprotein (Pep. M), nucleocapsid phosphoprotein (Pep. N) and surface glycoprotein (Pep. S) are mainly 15-mer sequences with 11 amino acid overlap of SARS-CoV-2. In brief, 250,000 PBMCs were stimulated with the mentioned antigens and antigen specific T cell released interferon-γ (IFNγ) was determined after contact with antigen presenting cells. The released IFNγ binds to the pre-coated anti-IFNγ antibody on the plate, and after incubation with a second anti-IFNγ antibody with a color reaction, the spots were visible on the plate. The test was in house validated with five negative SARS-CoV-2 persons and five SARS-CoV-2 positive patients.

Single cell metabolic assays

Basigin expression was determined by anti-CD147 surface staining simultaneously with the staining for immune cell populations. Cytosolic reactive oxygen species (ROS) were determined after surface marker staining by applying 10 µM 2',7'-dichlorofluorescin diacetate for 20 minutes in a cell culture incubator at 37°C in FACS washing buffer in closed tubes. Cells were washed once with 3 ml cold PBS, resuspended in FACS washing buffer and measured immediately. For determination of mitochondrial ROS cells were washed with HBSS, stained with 1 µl/ml MitoSOX-TM Red in HBSS and incubated for 20 minutes at 37°C in a cell culture incubator. Subsequently cells were washed and resuspended in FACS washing buffer and immediately measured. Mitochondrial content was assessed by staining with Mitotracker Green FM. Cells were incubated with 15 nM Mitotracker and cyclosporine A (1,3 µM) in RPMI 1640 supplemented with 2 mM L-Glutamine for 1 hour at 37°C in a cell culture incubator. Afterwards, surface staining was performed. Glucose and fatty acid uptake was measured using the fluorescent glucose analog 2-[N-(7-nitrobenz-2-oxa-1,3-diazol-4-yl)amino]-2-deoxy-D-glucose (2NBDG) and BODIPY 500/510 C1, C12 dye. Cells were stained with surface antibodies as described above and incubated in with 2NBDG (45 min) or BODIPY 500/510 C1, C12 (20 min). Fluorescence of selected immune cell subpopulations was measured by flow cytometry.

Mitochondrial respiratory activity (High-Resolution Respirometry)

For analysis of mitochondrial function T cells were isolated from mononuclear cells by untouched magnetic bead cell separation using the Pan T cell isolation kit according to the manufacturer's protocol. The amount of antibodies and beads used per cell was doubled to account for the increased portion of granulocytes and monocytes in COVID-19 patients and an additional washing step (2 ml) of the column was performed. Purity of cells was checked using the CASY cell counter system, allowing discrimination of T cells and monocytes by size, and in selected samples by staining for respective surface markers and flow cytometry analysis (CD62P, CD4, CD8, CD3). Activity of the respiratory system was analyzed in a two-channel titration injection respirometer at 37°C in MiR05 (6). After a stabilization phase of 25 min malate (5mM) was added and plasma membrane was permeabilized with digitonin (16.2 µM). Complex I oxidative phosphorylation activity (OXPHOS I) was measured after addition of pyruvate (5 mM), glutamate (10 mM) and ADP (5 mM), capacity of the oxidative phosphorylation system after addition of succinate (10 mM, OXPHOS I+II), capacity of the electron transport system (ETS) after subsequent uncoupling with p-trifluoromethoxy carbonyl cyanide phenyl hydrazone (FCCP,

1.5 µM), injected stepwise to avoid inhibitory effects. After rotenone addition (0.5 µM) maximum capacity of complex II (uncoupled, ETS II) was measured. Finally residual oxygen consumption was determined after myxothiazol addition (0.5 µM) and all respiratory parameters were corrected for.

Determination of citrate synthase activity

Citrate synthase activity was determined in CD3+ T cells taken directly from the oxygraph chamber at the end of the experiment. Samples were shock frozen and stored at -80°C until analysis. After thawing specific CS activity (IU/ml) in the samples was quantified photometrically by a Nanodrop 2000c measuring the conversion of DTNB to TNB at 412 nm coupled to the CS-catalyzed reaction of acetyl-CoA and oxalacetate to citrate. Respiration rates, calculated as the time derivative of oxygen concentration (pmol/(s/10^6 cells)), were normalized to CS activity (pmol/(s/10^6 cells IU CS activity)).

ELISA

Interferon-γ (IFNγ), soluble basigin and plasma cylophilin A were determined by ELISA. IFNγ as well as soluble basigin were measured in culture supernatants, the latter and Cyclophilin A were determined in plasma samples from COVID-19 patients and healthy controls. All ELISA measurements were carried out according to manufacturer's protocols.

Electron microscopical analyses

For transmission electron microscopic analyses, cell pellets were fixed in Karnovsky-fixative and enclosed with 4% low-melting-agarose. For the embedding process including post-fixation with osmium tetroxide, dehydration with ethanol, infiltration with EPON the LYNX microscopy tissue processor was used. Semi-thin-sections (750 nm), for the selection of relevant areas, and ultra-thin sections (80 nm) for the ultrastructural analyses were cut by use of the Reichert Ultracut S Microtome. Ultra-thin-sections were contrasted with aqueous 2%-uranyl-acetate- and 2%-lead-citrate solution for 10 minutes each. The Electron-microscopic analysis was performed using the LEO 912AB electron-microscope.

Cell sorting and RNA-seq library preparation

For RNASeq experiments, cryopreserved PBMC were thawed and stained with anti-CD3, anti-CD4, anti-CD8 and anti-CD14. Live, single cells with leukocyte FSC/SSC characteristics were sorted into CD14+CD3- monocytes and CD14-CD3+CD4+CD8- CD4 T cells by four-way sorting on a BD FACSAria IIu. Sorted cells were centrifuged and further processed for RNASeq immediately. Total cellular RNA was isolated from sorted blood cells using the RNeasy Micro Kit according with manufacturer's instructions. RNA was quantified using the NanoDrop and the quality was assessed using the RNA ScreenTape Kit. Generation of dsDNA libraries for Illumina sequencing was carried out using the SMART-Seq Stranded Kit according to manufacturer's instructions. The quality of dsDNA libraries was checked with the High Sensitivity D1000 ScreenTape Kit and concentrations were determined with the Qubit dsDNA HS Kit. Sequencing was performed using the Illumina NextSeq550 sequencer.

RNA-seq analysis

Sequencing reads were mapped to human (GRCh38) using STAR v2.5.3a (7). The human GRCh38 genome index incorporated gene annotation from GENCODE 44 (release 27) to aid in spliced alignment. Tables of raw uniquely mapped read counts per human gene were generated during mapping using the built-in --quantMode GeneCounts option in STAR. Differential expression analysis was carried out on raw gene counts using edgeR 3.20.8 (8) in R (3.4.3). Pairwise comparisons of indicated data sets were done using the quasi-likelihood test. Heatmaps of differentially expressed genes shown in Figure 2 used batch-corrected, normalized and scaled CPM (counts per million) data and were generated using the heatmap.2 function of the gplots package in R. Volcano plots were generated using the ggplot2 (v3.1.0) package in R. The rank-based gene set enrichment tests were

done using the fry function of the limma package (9) and plotted using the barcodeplot function in R. Gene-sets were defined in the hallmark gene set collection (10) and basigin interaction partners were defined by STRING (1).

Deconvolution analysis

The deconvolution of our RNASeq bulks was carried out using Digital Tissue Deconvolution (DTD) (11) using machine learning techniques and relying on single cell data for training and constructing a reference matrix that defines the cell types that the bulks are deconvolved into. We used published scRNA-seq data from Ren et al. 2021 (2), obtained from the already quality controlled cells available at the repository (12). The data contains scRNA-seq measurements of approximately 1.6 million peripheral blood mononuclear cells (PBMCs) from 196 donors, including 25 healthy controls, 79 moderate and 92 severe COVID19 cases. Data were filtered for cells annotated as CD4+ and sequenced using the 10x 5' platform. Only fresh or frozen PBMCs and samples from cities which contributed more than one disease severity were kept. This filtering lead to a for our purposes reasonably homogenous distribution of 208394 (CD4+) single cells that were used to train the DTD model. Neighborhood graphs were computed using the scanpy routine pp.neighbors (13), based on euclidean distance between the expression of all genes. Subsequently, Leiden clustering using a resolution parameter of 1 was performed, resulting in 14 clusters. Two non-negative DTD models for each of the two cell types were trained using the R-package DTD (14). We employed the full data set but restricted ourselves to the 2000 most variable genes across all single cells, and applied these models to the CD4+ sorted bulks cells to estimate their compositions in terms of our clustering. The results were cross-checked with different clusterings of varying resolutions and a resolution of 1 was found to be most stable in terms of the achievable residual for the non-negative estimation of cell subpopulations. Employing such a fine clustering led to some of the single cell populations not being found in bulk seq data, while others were estimated non-zero consistently across all available bulks (Figure 3A). Mann-Whitney test on the estimates for each cluster was performed to identify cluster 2 to be significantly different between samples from controls and severe COVID-19. KEGG (15), MetaCyc (16) and hallmark (10) databases were used to define metabolic genes sets. Gene set enrichment analysis was performed as published (17).

List of reagents

Antibody	Source	Identifier
Anti-Human CD3 (clone SK7)	Invitrogen (Thermo Fisher Scientific; Waltham, MA, US)	Cat# 45-0036-42
Anti-Human CD3 (clone SK7)	BD Biosciences (Franklin Lakes, NJ, US)	Cat# 341111/ 345763
Anti-Human CD3 (clone SK7)	BioLegend (San Diego, CA, US)	Cat# 344828
Anti-Human CD3 (clone UCHT1)	BD Biosciences	Cat# 555335
Anti-Human CD3 (clone SK7)	BD Biosciences	Cat# 345763
Anti-Human CD3 (clone OKT3)	BioLegend	Cat# 317322
Anti-Human CD3 (clone OKT3, for in vitro stimulation)	BD Biosciences	Cat# 567118
Anti-Human CD4 (clone SK3)	BD Biosciences	Cat# 345770
Anti-Human CD4 (clone SK3)	BioLegend	Cat# 344624
Anti-Human CD4 (clone RPA-T4)	BD Biosciences	Cat# 560345
Anti-Human CD4 (clone SK3)	BD Biosciences	Cat# 563033
Anti-Human CD8 (clone SK1)	BioLegend	Cat# 344712
Anti-Human CD8 (clone SK1)	BD Biosciences	Cat# 560179
Anti-Human CD8 (clone RPA-T8)	BD Biosciences	Cat# 558207
Anti-Human CD11b (clone M1/70)	BioLegend	Cat# 101230
Anti-Human CD14 (clone 63D3)	BioLegend	Cat# 367124
Anti-Human CD16 (clone 3G8)	BD Biosciences	Cat# 555406
Anti-Human CD25 (clone 2A3)	BD Biosciences	Cat# 341011
Anti-Human CD45RA (clone HI100)	BD Biosciences	Cat# 563031
Anti-Human CD45RO (clone UCHL1)	BioLegend	Cat# 304246
Anti-Human CD56 (clone HCD56)	BioLegend	Cat# 318328
Anti-Human CD62L (clone DREG-56)	BioLegend	Cat# 304860
Anti-Human CD62L (clone DREG-56)	BioLegend	Cat# 304822
Anti-Human CD62P (clone AK4)	BioLegend	Cat# 304906
Anti-Human CD66b (clone G10F5)	BioLegend	Cat# 305112
Anti-Human CD98 (clone REA387)	Miltenyi Biotec (Bergisch Gladbach, Germany)	Cat# 130-105-664
Anti-Human CD147 (clone HIM6)	BioLegend	Cat# 306214
Anti-Human CD147 (clone MEM-M6/6, for in vitro experiments)	Abcam (Cambrige, UK)	Cat# 119114
Anti-Human CD197 (clone G043H7)	BioLegend	Cat# 353207
Anti-Human CD279 (clone EH12.1)	BD Biosciences	Cat# 563076
Anti-Human FOXP3 (clone PCH101)	eBioscience (Thermo Fisher Scientific)	Cat# 12-4776-42
Reagent	**Source**	**Identifier**
2-[N-(7-nitrobenz-2-oxa-1,3-diazol-4-yl)amino]-2-deoxy-D-glucose (2NBDG)	Thermo Fisher Scientific	Cat# N13195
2,4,6-Tri(Dimethylaminomethyl)-Phenol	EMS (Science Services, Munich, Germany)	Cat# 13600

2',7'-Dichlorofluorescin diacetate (DCFDA)	Sigma-Aldrich (St. Louis, MO, US)	Cat# D6883
5,5`-dithio-bis(2-nitrobenzoic acid); 3-carboxy-4-nitrophenyl disulfide (DTNB)	Sigma-Aldrich	Cat# D8130
Acetyl coenzyme A, lithium salt	Sigma-Aldrich	Cat# A2181
Adenosine 5' diphosphate (ADP) potassium salt	Calbiochem (Merck Millipore, Darmstadt, Germany)	Cat# 117105
Ammonium Chloride	Merck (Darmstadt, Germany)	Cat# 101145
BODIPY 500/510 C1, C12	Thermo Fisher Scientific	Cat# D3823
Brilliant Stain Buffer	BD Biosciences	Cat# 563794
Bovine serum albumine, essentially acid free	Sigma-Aldrich	Cat# A6003
Carbonyl cyanide p-(trifluoro-methoxy) phenyl-hydrazone (FCCP)	Sigma-Aldrich	Cat# C2920
Citrate synthase	Sigma-Aldrich	Cat# C3260
Cyclophilin A ELISA	Sigma-Aldrich	Cat# RAB1402
Cyclosporine A (Sandimmune® 50 mg/ml)	Novartis (Basel, Schweiz)	
Dexamethasone 4 mg inject	Jenapharm, mibe GmbH (Jena, Germany)	
Digitonin	Fluka (Sigma-Aldrich)	Cat# 37008
Diphenyleneiodonium chloride	Sigma-Aldrich	Cat# D2926
Dodecenyl Succinic Anhydride	EMS	Cat# 13710
Dulbeccos Phosphate Buffered Saline (DPBS)	Gibco (Thermo Fisher Scientific)	Cat# 14190-094
Dynabeads Human T-Activator CD3/CD28	Gibco	Cat# 11132D
EMbed 812	EMS	Cat# 14900
Ethanol	Sigma-Aldrich	Cat# 32205
Ethylendiamine-tetraacetic-acid disodium salt dihydrate	Sigma-Aldrich	Cat# E5134
Ethylenglycol-tetraacetic-acid	Sigma-Aldrich	Cat# E4378
Fetal Calf Serum	Sigma-Aldrich	Cat# F7524-500 ML
Fixable Viability Dye eF780	eBioscience	Cat# 65-0865-14
Hanks Buffered Salt Solution	Sigma-Aldrich	Cat# H6648
HEPES	Sigma-Aldrich	Cat# H7523
HS D1000 Screen Tape	Agilent Technologies (Santa Clara, CA USA)	Cat# 5067-5584
HS D1000 Screen Tape buffer	Agilent Technologies	Cat# 5067-5585
Human CD147/EMMPRIN ELISA Kit	Thermo Fisher Scientific	Cat# EH78RB
Human Cyclophilin A Recombinant Protein	Invitrogen	Cat# RP020
Human IFN-γ DuoSet ELISA	R&D Systems (Minneapolis, MN, USA)	Cat# DY285B
Intracellular Fixation and Permeabilization Buffer Set	eBioscience	Cat# 88-8824-00

Karnovsky-Fixative	Institute for Pathology, University Hospital Regensburg	
L-Glutamic acid, sodium salt	Sigma-Aldrich	Cat# G1626
L-Glutamine	PAN Biotech (Aidenbach, Germany)	Cat# P04-80050
L-Malic acid	Sigma-Aldrich	Cat# M1000
low melting agarose	Invitrogen	Cat# 15510-027
Magnesium chloride hexahydrate	Scharlau (Scharlab, Barcelona, Spain)	Cat# MA0036
Methyl-5-Norbornene-2,3-Dicarboxylic Anhydride	EMS	Cat# 1900
MitoSOX Red mitochondrial superoxide indicator	Invitrogen	Cat# M36008
Mitotracker Green FM	Invitrogen	Cat# M7514
Myxothiazol	Sigma-Aldrich	Cat# T-5580
Osmium tetroxide	EMS	Cat# 19110
Pan T Cell Isolation Kit, human	Miltenyi Biotec	Cat# 130-096-535
Penicillin Streptomycin	Gibco	Cat# 15140-122
PepTivator® SARS-CoV-2 Prot_M	Miltenyi Biotec	Cat# 130-126-703
PepTivator® SARS-CoV-2 Prot_N	Miltenyi Biotec	Cat# 130-126-699
PepTivator® SARS-CoV-2 Prot_S	Miltenyi Biotec	Cat#130-126-701
Potassium dihydrogen phosphate	Merck	Cat# 104873
Potassium hydroxide	Sigma-Aldrich	Cat# P1767
Potassium lactobionate	Sigma-Aldrich	Cat# 153516
Pyruvic acid, sodium salt	Sigma-Aldrich	Cat# P2256
Recombinant SARS-CoV-2 Spike Protein	Sino Biological Inc. (Peking, China)	Cat# 40589-V08B1
RNA Screen Tape	Agilent Technologies	Cat# 5067-5579
RNA Screen Tape buffer	Agilent Technologies	Cat# 5067-5580
RNeasy Micro Kit	Qiagen (Hilden, Germany)	Cat# 74004
Rotenone	Sigma-Aldrich	Cat# R8875
RPMI 1640	Gibco (Thermo Fisher Scientific)	Cat# 31870-025
SARS-CoV-2 RBD B1.351 Protein	P. Neckermann, AG Wagner, Institute of Medical Microbiology and Hygiene, University Regensburg	
SMART-Seq Stranded Kit	Takara Bio Inc. (Kusatsu, Japan)	Cat# 634444
Stable Glutamine	PAN Biotech	Cat# P04-82050
Succinate disodium salt, hexahydrate	Sigma-Aldrich	Cat# S2378
Sucrose	Carl Roth (Karlsruhe, Germany)	Cat# 4621.1
Taurine	Sigma-Aldrich	Cat# T0625
Triethanol amine	Fluka	Cat# 90279
Tris - (hydroxymethyl) - aminomethan	Merck	Cat# 8382
Triton X-100	Serva (Heidelberg, Germany)	Cat# 37238
T-SPOT.TB test	Oxford Immunotec International (Abingdon, UK)	Cat# TB.300
Qubit dsDNA HS Kit	Thermo Fisher Scientific	Cat# Q33231

Devices	Source	
BD FACSAria IIu	Beckton Dickinson (Heidelberg, Germany)	
BD FACSCelesta Flow Cytometer	Beckton Dickinson (Heidelberg, Germany)	
BD LSRFortessa™ Flow Cytometer	Beckton Dickinson (Heidelberg, Germany)	
CASY Cell Counter System	OMNI Life Science (Bremen, Germany)	
EliSpot Robotic System ELROB05i, Software Version 7.0	AID Advanced Imaging Devices GmbH (Straßberg, Germany)	
Illumina NextSeq550 Sequncer	Illumina (San Diego, CA, USA)	
LEO 912AB electron-microscope	Zeiss (Oberkochen, Germany)	
LYNX microscopy tissue processor	Reichert-Jung (Wetzlar, Germany)	
Megafuge 3.0R	Haereus (Hanau, Germany)	
Nanodrop	peqLab (Erlangen, Germany)	
Nanodrop 2000c	ThermoFisher	
Oxygraph-2k	Oroboros Instruments (Innsbruck, Austria)	
Reichert Ultracut S Microtome	Reichert-Jung	
Tecan Spark	Tekan Group AG (Männerdorf, Switzerland)	
Whitley H35 Hyxpoxystation	Meintrup DWS (Herzlake, Germany)	
Software	**Source**	**Identifier**
edgeR 3.20.8		(8)
R-package DTD		https://www.liebertpub.com/doi/10.1089/cmb.2019.0469
DatLab5	Oroboros Instruments	
FlowJo (V 9.9.6, 10.6.2, 10.7.1)	Tree Star Inc (BD Life sciences)	https://www.flowjo.com
ggplot2 (v3.1.0)		
Prism	GraphPad	
STAR (v2.5.3a)		(7)
STRING		(1)

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RNA seq data, complementary to Figure 2A (CD4+ T cells)

GeneSymbol	ICU	ICU	ICU	ICU	Rec	Rec	Con	Con	Con	Con	EnsemblID	clusterID
FURIN	-0.193712896	0.704229634	0.938222212	1.985280448	-0.289678496	0.4776285	-0.944534286	-1.023013352	-0.940429526	-0.713992237	ENSG00000140564.11	1
PELI2	-0.092616173	0.780581422	0.996196111	1.543897753	0.018810744	0.743957856	-1.493723697	-1.00082824	-0.971713988	-0.524561787	ENSG00000139946.9	1
VDAC1	0.239490669	0.714690143	0.872335952	1.928626207	-0.055030627	0.052743515	-1.162492318	-1.32551157	-0.768786436	-0.496065536	ENSG00000213585.10	1
STAT3	-0.363870891	0.73310223	1.038670351	1.691650689	0.23118162	0.601653235	-1.124662709	-1.164771517	-0.860226971	-0.782726036	ENSG00000168610.14	1
PPP1R16B	-0.547269812	0.899671108	0.955295312	1.769645308	0.034866655	0.443803803	-1.0775118	-1.321239278	-0.388440298	-0.768820997	ENSG00000101445.9	1
SEC14L1	-0.340721557	1.077055062	0.716104906	1.708046903	-0.000610001	0.666057287	-0.778456	-1.274763563	-0.731879278	-1.040833758	ENSG00000129657.14	1
SLCO4A1	-0.668657304	0.841257973	0.245592167	2.126156256	0.290805151	0.391705463	-0.592157634	-1.246337223	-0.975731778	-0.412633071	ENSG00000101187.15	1
EZR	-0.020287628	0.907455586	0.149850859	2.025246149	0.161321291	0.428971348	-1.3143948	-0.992912275	-1.007017684	-0.338232846	ENSG00000092820.17	1
RELB	-0.71640233	1.018956391	1.485128296	1.024839172	0.304367506	0.599605136	-1.012989902	-1.130196366	-1.102317575	-0.470990328	ENSG00000104856.13	1
SBNO2	-0.602403192	1.19519346	1.329375227	1.218630853	0.026719881	0.440305672	-0.79708087	-1.333742045	-1.096809097	-0.380189889	ENSG00000064932.15	1
YES1	-0.298750942	0.202851166	1.338075083	1.574587101	0.520875901	0.509635363	-1.302255071	-1.17301683	-0.852972025	-0.519029746	ENSG00000176105.13	1
MCM6	-0.31973111	0.418154334	1.474401271	1.52779454	0.126864256	0.583092432	-0.979724851	-1.226219003	-1.034605448	-0.570026421	ENSG00000076003.4	1
BATF	-0.169648749	1.442681803	1.591199978	0.249145496	0.255156149	0.492678628	-1.343092854	-0.979052752	-0.625913888	-0.913153809	ENSG00000156127.6	1
DUSP5	0.306253281	1.131949487	1.511980621	0.317520228	0.159444593	0.802889865	-1.071042574	-0.83895868	-1.273311811	-1.046725011	ENSG00000138166.5	1
PIM3	-0.284977891	0.928670407	1.623551654	0.316458234	0.416709644	0.980223588	-0.911767992	-1.376344259	-0.964257011	-0.728266373	ENSG00000198355.4	1
LRP8	0.041353606	1.125340749	1.754297469	0.175761666	0.204301337	0.570804685	-0.693053398	-1.389824468	-1.243580032	-0.545401614	ENSG00000157193.15	1
BCL6	-0.133036443	1.060372253	1.230278498	0.601326085	0.609196906	0.854997725	-1.561146202	-1.117660752	-0.801947848	-0.742380222	ENSG00000113916.17	1
BCL3	0.04952113	1.045792629	1.274554306	0.68514056	0.474939784	0.839504883	-1.257918334	-1.128116146	-0.821940067	-1.161478745	ENSG00000069399.14	1
SPSB1	0.159967774	1.278757209	-0.095586757	2.097276645	0.009496249	-0.418838377	-1.324375886	-0.68801584	-0.579253316	-0.4394277	ENSG00000171621.13	1
CMTM6	0.040345256	1.318012894	1.015624495	1.448470332	0.029640708	-0.828178453	-1.507946266	-0.135918348	-0.37359906	-1.006451558	ENSG00000091317.7	1
LDLR	-0.10301996	1.933661506	0.807955881	0.906857883	0.146145914	0.116439267	-1.184325052	-0.981605641	-0.70747309	-0.934636707	ENSG00000130164.13	1
FRMD4B	-0.117854728	1.837542076	0.885285315	0.923450467	-0.204443369	0.195797903	-1.370203776	-0.165625311	-0.891953016	-1.091995561	ENSG00000114541.14	1
PGAP1	-0.20707141	1.268419912	1.427239959	1.106913082	0.389933372	-0.231945814	-1.02597004	-0.601217333	-1.383665035	-0.742636692	ENSG00000197121.14	1
NAMPT	-0.194041502	1.074785284	1.653071853	0.811717237	0.469730327	0.034218758	-1.408420208	-0.638725477	-1.199505048	-0.602831225	ENSG00000105835.11	1
RYBP	-0.364754337	1.051367307	1.061271649	1.540227243	0.398127071	0.194021247	-1.4416974	-0.83550303	-0.749678201	-0.853381549	ENSG00000163602.10	1
STX11	-0.304861087	1.194414062	1.351606826	1.244213414	0.25592813	0.167833963	-1.341421365	-0.882355925	-0.759974096	-0.925383921	ENSG00000135604.9	1
TCAF2	-0.321264384	0.962376265	1.520020019	1.161286913	0.379175164	0.249814356	-1.300419492	-0.676985099	-1.048835854	-0.925167887	ENSG00000170379.19	1
GREM2	-0.236684725	0.86508705	0.920622044	1.457523043	0.563736653	-0.036848599	-1.34139382	-0.328968405	-1.725718902	-0.137354337	ENSG00000180875.4	1
HMGB3	0.245136166	0.458468096	1.366817302	1.155107687	0.613478997	0.167930148	-1.256211372	-0.375534905	-1.727425971	-0.647766148	ENSG00000029993.14	1
CTPS1	-0.409649541	1.287402872	1.40236565	1.259124052	-0.107223775	0.110124885	-0.409025033	-1.021216252	-1.337805047	-0.774097809	ENSG00000171793.13	1
TAF4B	-0.333807256	1.224355207	1.481124108	1.399510519	-0.44181051	0.136439085	-0.908880795	-0.785914906	-0.96094701	-0.810068441	ENSG00000141384.12	1
EDA	-0.909493542	0.986007926	1.391802747	1.409582175	0.356006018	0.120362004	-0.420738494	-1.196400178	-0.963810146	-0.773318508	ENSG00000158813.17	1
ELMO2	-0.227555176	1.302750481	1.389726294	1.031489069	-0.602473344	0.697609528	-0.624759313	-1.190142709	-0.785559401	-0.991085429	ENSG00000062598.17	1
EEPD1	0.214463076	1.372422978	1.205283776	1.472593555	-0.396611888	-0.676361085	-0.706814347	-0.785671582	-1.219632291	-0.479672192	ENSG00000122547.10	1
NOP16	-0.035463672	0.862194677	1.373659703	1.468711581	-0.352038854	0.344847483	-0.796320915	-0.760269616	-1.572339412	-0.532980976	ENSG00000048162.20	1
GPRIN3	-0.251548932	1.313454146	1.088733904	1.464495023	0.135358446	0.127657274	-0.952186897	-0.737369994	-1.121790849	-1.066802121	ENSG00000185477.4	1
RAB11FIP1	-0.104629868	1.431172843	0.4692725	1.592839407	0.153784004	0.410456643	-1.044909422	-0.755369721	-1.153835243	-0.998781143	ENSG00000156675.15	1
IL2RA	0.06164513	1.413319043	0.122647078	1.646790601	0.442258501	0.182713224	-1.126441576	-0.821907197	-1.316335849	-0.604688955	ENSG00000134460.15	1
GNL2	-0.366043499	0.994681735	0.575562595	1.992830122	0.251864674	0.103589982	-0.430291867	-1.058654163	-1.211786435	-0.851753143	ENSG00000134697.12	1
SNX9	-0.563379866	1.029047889	0.842935172	1.814081292	0.104958048	0.325587818	-0.644932459	-0.638932165	-1.364929164	-0.904436565	ENSG00000130340.15	1
KPNA2	0.466202712	0.364446781	1.627050939	0.849177236	0.573255404	0.245333824	-0.590736756	-0.764927967	-1.632529484	-1.137272689	ENSG00000182481.8	1
TBC1D15	0.02503692	0.088006469	1.699759591	1.051552138	0.489189654	0.544648423	-1.281610964	-0.279931917	-1.238607241	-1.098043072	ENSG00000121749.15	1
DDX21	-0.087870599	0.64509722	1.705294282	1.3842677	0.069820836	0.051422545	-0.689156565	-0.886676824	-1.296578166	-0.895620429	ENSG00000165732.12	1
SLC16A1	0.045209011	0.911595804	1.532391176	1.329633124	0.221685612	-0.067289599	-0.981572493	-0.815904539	-1.110292926	-1.06545517	ENSG00000155380.11	1
RIOK1	0.009076092	0.651122979	1.919653599	0.804182677	-0.034788215	0.573265687	-0.897472404	-0.84868076	-1.189042557	-0.987317099	ENSG00000124784.8	1
B3GNT2	0.940152003	0.816883402	1.885668017	-0.638264549	0.324879234	0.237747201	-1.040854944	-0.649902404	-0.768445356	-1.107862604	ENSG00000170340.10	1
TIMM23	0.255795326	0.327049134	1.546134326	1.611471443	0.337233594	-0.331419546	-1.131330591	-0.704451706	-0.867096709	-1.043385271	ENSG00000265354.3	1
UBASH3B	-0.566534481	0.77301792	1.403994229	1.825168803	0.01793554	-0.356746688	-1.206755709	-0.675810482	-0.632106826	-0.582162306	ENSG00000154127.9	1
MTHFD1L	0.617320503	0.700320824	0.706222231	1.903370409	0.085122838	-0.128493874	-0.745207968	-0.810099768	-0.990410386	-1.33814481	ENSG00000120254.15	1
PAK1IP1	0.39432387	0.402178671	1.196028733	1.953882645	0.043284706	-0.615415612	-0.692405507	-0.570796354	-1.156642651	-0.954438501	ENSG00000111845.4	1
HDGFL3	0.749005518	0.529007097	0.40353995	1.433906972	0.557879428	0.622596179	-0.976657652	-0.845459501	-0.730547755	-1.743270235	ENSG00000166503.8	1
VAV3	0.387782472	0.89650152	-0.162882672	1.861583512	0.148503744	0.601719676	-0.685343122	-0.742248952	-0.657225489	-1.64839069	ENSG00000134215.15	1
RCC1	0.445582246	1.778822529	-0.066546215	1.476477912	-0.169271591	-0.075465645	-0.250741205	-0.977538312	-0.9012445	-1.260075221	ENSG00000180198.15	1
AL138963.3	-0.035599889	0.99552121	0.375592806	1.394120066	0.165227454	0.961505215	-0.376817648	-0.439129584	-1.435548827	-1.604870803	ENSG00000273149.1	1
CNP	0.330576999	0.7973125	1.363232958	0.796389813	-0.052781327	0.8786991	-0.276726667	-1.279671646	-1.323958217	-1.233073512	ENSG00000173786.16	1
PLXNA4	0.158132135	0.646126317	0.555355698	1.776634317	0.207273251	0.807677723	-0.837023113	-1.012581765	-1.25747851	-1.044116053	ENSG00000221866.9	1
GAB2	0.264875988	0.973366781	0.97736727	1.281605412	0.203954324	0.683249904	-0.950837232	-1.128939049	-1.297106706	-1.007536692	ENSG00000033327.12	1
GNA15	0.39361474	0.950975374	0.545933363	1.25909692	0.271134624	0.909606963	-1.026903854	-0.783286306	-1.655525033	-0.864646793	ENSG00000060558.3	1
SFXN1	0.266463667	0.301635797	0.918767751	1.460021115	0.237152231	1.073332669	-0.763659743	-1.163384159	-1.132941802	-1.197387527	ENSG00000164466.12	1
LMNB1	0.255811364	0.492510877	0.856909487	1.369851036	0.600769502	0.834448033	-0.980288227	-1.376494564	-0.853826731	-1.199690776	ENSG00000113368.11	1
CORO1B	0.987307335	0.051489685	0.389897198	1.562424866	0.024663524	0.878016235	-1.216080688	-0.215807811	-1.456714368	-1.005195976	ENSG00000172725.13	1
ERMN	0.327052963	0.709081634	0.493004368	1.245375085	0.070844113	1.124479736	-1.678257781	-0.259673696	-1.450954453	-0.580951968	ENSG00000136541.14	1
NFE2L2	-0.15733073	0.404225421	0.421368687	1.6112797	0.626642072	1.101626103	-1.555022759	-0.750332253	-0.823463467	-0.878992775	ENSG00000116044.15	1
SLC2A3	1.104672859	0.389462088	0.829021785	0.197171624	0.56141774	1.165342268	-1.626570717	-0.463439089	-1.222846016	-0.934232541	ENSG00000059804.15	1
PDCL	0.453523025	1.089807274	1.198933347	0.987165878	-0.11731458	0.572586801	-1.347934377	-0.50725907	-0.983732507	-1.345775791	ENSG00000136940.13	1
MTHFD2	0.414542242	1.008502853	1.135588456	1.146040604	0.109867996	0.465736362	-1.309743875	-0.839372293	-1.445201935	-0.685960412	ENSG00000065911.11	1
ST6GALNAC1	0.544499906	0.614665299	1.343481162	0.864680985	-0.369664785	0.919193597	-1.653301661	-0.846739864	-1.119178559	-0.29763608	ENSG00000070526.14	1
PIM1	0.668632038	1.443786579	0.610952688	0.96068177	-0.422975011	0.813257534	-1.244823527	-1.195920082	-0.911192324	-0.722399665	ENSG00000137193.13	1
USP46	1.004034456	1.405951862	0.361458168	1.018474819	-0.063566902	0.516644247	-0.989440215	-1.297151436	-1.000055785	-0.956349214	ENSG00000109189.12	1
MAPK11	0.475326556	1.042306429	1.090352182	1.378748799	-0.811698834	0.362560943	-0.682884817	-1.479894778	-1.008391106	-0.366425375	ENSG00000185386.14	1
GLUL	0.477465633	0.793799017	0.857872153	1.2840037	-0.730625333	0.909291743	-0.806742665	-1.024320814	-1.637504179	-0.123239256	ENSG00000135821.17	1
NPDC1	0.645538034	1.12014662	0.605513289	1.120225114	-0.15406004	0.485739994	-0.349253605	-1.2650653	-1.906137587	-0.302646519	ENSG00000107281.9	1
BTN3A3	0.093184313	-0.573980086	-1.702587133	-1.472658153	0.16675698	-0.227697939	0.988908334	1.020283346	0.990812301	0.716978038	ENSG00000111801.15	2
IPCEF1	0.055384489	-0.737833534	-1.497436231	-1.458732559	-0.049783503	-0.162600811	1.239437234	0.89556456	1.206447966	0.509552389	ENSG00000074706.13	2
IRF2	0.03072383	-0.519307376	-1.474828992	-0.960465048	0.007400794	-1.162252712	0.994948552	0.973838121	1.296490992	0.81345184	ENSG00000168310.10	2
EPHA1	-0.061438308	-0.470136045	-1.286355651	-1.738885093	-0.214406866	-0.175860417	1.070733006	0.876169502	1.229617808	0.770562064	ENSG00000146904.8	2
LY9	0.10599263	-0.364551293	-1.474162047	-1.651166095	-0.095337316	-0.387570942	0.851992414	0.860021614	1.148084787	1.006696248	ENSG00000122224.17	2
SH2D3C	0.068969794	-0.327267384	-1.162850967	-1.886385417	-0.036895585	-0.277346638	1.017813902	0.2347397	1.212258667	1.156963929	ENSG00000095370.19	2
LINC00402	-0.927582156	-0.116541981	-0.749188079	-1.576143623	0.192559826	-0.905875314	1.03420766	1.132309635	1.090571514	0.825682518	ENSG00000235532.1	2
LDLRAP1	-0.270738656	-0.281262189	-1.458660396	-1.375939283	-0.447591915	-0.280716426	1.358520797	1.010483281	1.152957647	0.59294714	ENSG00000157978.11	2
TNFRSF1A	0.004057032	-0.302534509	-0.840881332	-1.656464599	-1.010590918	-0.179825151	1.393455446	0.775540829	1.232273307	0.584969896	ENSG00000067182.7	2
ZNF154	-0.052557411	-0.341300676	-1.313007613	-1.172940493	-0.949889095	-0.143194614	1.035745317	0.537226894	1.755384642	0.644533049	ENSG00000179909.15	2
ZNF260	-0.119250343	-1.484098972	-0.803072915	-1.063326419	-0.487452181	-0.194333525	0.963200576	1.111921046	1.492296989	0.584115743	ENSG00000254004.6	2
JAML	-0.417242549	-0.833472581	-1.764511934	0.088167893	-0.520920268	-0.445706105	1.512818252	0.306563421	0.982490056	1.091813815	ENSG00000160593.18	2
ZMYM3	-0.96589414	-0.621125402	-1.158840029	-0.833955728	-0.218106812	-0.500918609	1.174370433	0.427121649	1.079466514	1.617882125	ENSG00000147130.14	2
TTC9	0.192396473	-0.914440363	-1.337896421	-1.243584882	-0.370466148	-0.406986528	1.321604854	0.842923332	1.269576895	0.646872787	ENSG00000133985.2	2
FAM78A	0.232518657	-1.090242808	-1.503179941	-1.041860045	-0.207196034	-0.173505616	1.411284199	0.401850784	1.335122633	0.635208171	ENSG00000126882.12	2
FCMR	0.142306611	-1.079528117	-1.789183652	-0.797825104	-0.040283425	-0.297808106	1.230688951	0.674813525	1.008516976	0.948302343	ENSG00000162894.11	2
LBH	-0.107332409	-1.214552537	-1.356888305	-0.99448878	0.173436364	-0.222248183	1.153608164	0.129807089	1.595177743	0.843480853	ENSG00000213626.11	2
UBASH3A	-0.142391114	-0.773743494	-1.168424584	-1.399156678	-0.481974685	-0.054441282	1.597271068	0.875732894	0.381172798	1.165955076	ENSG00000160185.14	2
DBP	-0.461312406	-1.262824508	-1.157382892	-1.189733912	-0.214534775	0.23457954	1.342139555	0.66989504	1.07957249	0.959601868	ENSG00000105516.10	2
ZNF862	-0.515733222	-0.253007737	-1.197402969	-1.824970242	0.113602711	0.112094949	1.60433312	0.529665971	0.689858097	0.741559322	ENSG00000106479.10	2
CAMSAP2	0.183530846	-1.239623173	-1.033661758	-1.61961007	-0.140768718	0.087095861	1.263544378	0.978230126	0.765993591	0.755268915	ENSG00000118200.14	2
GRAP2	0.15352008	-1.088567438	-1.389915032	-1.685618519	0.185154634	0.556791767	0.796569019	0.832294263	0.785835363	0.853935863	ENSG00000100351.16	2
DHX58	-1.031939444	-0.666453073	-1.288953695	-1.393930716	1.118954878	0.617742859	1.154095867	0.166462649	0.570719317	0.753301358	ENSG00000108771.12	2
ACTN1	-0.137554557	-1.625415675	-1.190466514	-1.038682274	0.272925113	0.625411785	1.502387843	0.106290768	0.687008787	0.798094725	ENSG00000072110.13	2

RNA seq data, complementary to Figure 2B (CD14+ monocytes)

GeneSymbol	Severe	Severe	Severe	Severe	Rec	Rec	Con	Con	Con	Con	EnsemblID	clusterID
TLNRD1	-0.380623594	0.932091751	1.264917169	1.704693952	-0.538707821	0.236256588	-0.216889598	-1.222196544	-0.960905559	-0.818636343	ENSG00000140406.3	1
SWAP70	-0.298153055	1.067123622	1.309980145	1.554751904	-0.497256762	0.316979488	-0.395668263	-0.928046564	-1.011690683	-1.118019832	ENSG00000133789.14	1
SYF2	-0.11083115	1.128937812	1.374964349	1.308394068	-0.67306582	0.172847206	0.039167113	-1.336109178	-1.070454142	-0.833850258	ENSG00000117614.9	1
TUBB6	-0.334832648	0.834118637	1.296397561	1.598981723	0.137157912	0.172025082	-0.386832167	-1.276287919	-0.8695275	-1.171200681	ENSG00000176014.12	1
USF2	-0.379997384	0.871066482	1.500840314	1.542751314	0.217073564	-0.544056657	-0.171995663	-1.006388038	-0.915382146	-1.113911786	ENSG00000105698.15	1
PLEKHO2	0.408393749	0.481781186	1.083553988	1.942026822	-0.466457175	0.167407319	-0.593663405	-1.07564667	-0.927279811	-1.020116003	ENSG00000241839.9	1
EHD4	0.43713127	0.543582414	1.082891676	1.866287014	-0.204399226	0.006270137	-0.452822694	-1.225699038	-1.044613802	-1.00862775	ENSG00000103966.10	1
THBD	-0.005603479	0.633332776	1.059811137	1.912766827	-0.474524427	0.426713895	-0.506053915	-1.21536961	-0.908643253	-0.922429953	ENSG00000178726.6	1
PLAC8	0.335044827	0.907113759	1.147262982	1.816167288	-0.58214452	-0.141888064	-0.676392552	-0.850902521	-0.970855291	-0.983405907	ENSG00000145287.10	1
CD63	0.436647956	0.885207921	0.963034817	1.783766018	-0.626370702	0.17583146	-0.670963205	-1.243411152	-0.700878076	-1.002865037	ENSG00000135404.11	1
ANAPC15	0.093316341	1.286359838	1.183544071	1.472931568	0.141899656	-0.622037056	-0.673542938	-1.094039621	-0.660363621	-1.128068238	ENSG00000110200.8	1
PSMD7	0.184444576	1.313424609	0.962197552	1.549320094	-0.109167247	-0.189110019	-0.479020274	-1.334476964	-0.781110665	-1.116501663	ENSG00000103035.10	1
UBE2J1	0.053184457	1.442881254	1.588860881	0.969803253	-0.30507287	-0.247585241	-0.583448828	-1.212798025	-0.731074241	-0.974750642	ENSG00000198833.6	1
CALM3	0.240957342	1.444367532	1.458916498	0.968211089	-0.433101242	-0.302978089	-0.202721472	-1.254297278	-0.795084893	-1.124269487	ENSG00000160014.16	1
PRDM4	-0.301070779	1.581208312	1.142967824	1.399477307	-0.841098326	-0.244803119	-0.349772223	-0.849782278	-0.349636328	-1.18749039	ENSG00000110851.11	1
RPL36AL	0.101783419	1.401596987	1.045568178	1.459550112	-0.252431675	-0.449557292	-0.091211854	-1.045290969	-0.884472443	-1.285534462	ENSG00000165502.6	1
PDAP1	0.19562643	1.644336339	0.926912038	1.202521705	-0.440662748	-0.36863582	0.109789147	-1.101127586	-0.932239376	-1.236520129	ENSG00000106244.12	1
CHMP4B	0.14549202	1.782264206	0.795680632	1.08082179	0.1409163	-0.681561981	-0.020165325	-1.153786029	-1.015444088	-1.074217525	ENSG00000101421.3	1
S100A6	0.297522911	1.348799552	0.516901453	1.863223023	-0.283102296	-0.18405807	-0.921052892	-0.681623805	-0.899889652	-1.056720224	ENSG00000197956.9	1
CORO1C	0.054679216	1.344317564	0.393636925	1.97761536	-0.637364836	0.040768262	-0.557883496	-0.73391322	-0.722457344	-1.159398431	ENSG00000110880.10	1
MYL6	0.111322813	1.764791884	0.175928435	1.634530719	-0.546123889	-0.031065757	-0.22770353	-0.846399	-0.89148012	-1.143801556	ENSG00000092841.18	1
FLNB	0.057881663	1.407137356	0.071651241	1.758525564	-0.398154125	0.614272748	-0.903212461	-0.439316236	-1.19070158	-0.978084169	ENSG00000136068.14	1
COX6C	0.258274451	1.137744396	0.198568653	2.097619147	-0.488111061	-0.315073963	-0.495245872	-1.380511363	-0.192434857	-0.820829532	ENSG00000164919.10	1
RNASE2	0.382200621	1.809815629	-0.217399992	1.494841588	-0.185687222	0.186222221	-0.700856739	-0.93858936	-1.215203892	-0.615342855	ENSG00000169385.2	1
TPM4	0.210465399	1.680611874	0.335066164	1.201514564	-0.033370512	0.436486257	-0.256373839	-1.358815322	-1.20051087	-1.015073714	ENSG00000167460.14	1
TMED9	0.532404614	1.738797647	0.578788527	1.074958738	-0.160897572	0.077719237	-1.333038334	-0.412846176	-1.163839109	-0.932047572	ENSG00000184840.11	1
COX5B	0.352871255	1.715678741	0.165252695	1.377265846	-0.300877559	0.266647949	-1.119213472	-0.32297737	-0.742658186	-1.391989898	ENSG00000135940.6	1
RGL1	-0.996156069	0.976509809	1.409753249	1.751090315	-0.199420605	-0.56999593	-0.214568113	-0.590194323	-0.701125363	-0.86589297	ENSG00000143344.15	1
AVPI1	0.08997243	0.811409197	1.213908885	1.80715968	-0.242533974	-0.37892234	-0.421310006	-0.731596832	-0.642859509	-1.505227531	ENSG00000119986.6	1
PNMA1	-0.692028268	1.126320105	1.12795369	1.900709311	-0.483083125	-0.463582169	-0.446262102	-1.118149691	-0.567597302	-0.384280448	ENSG00000176903.4	1
ARF6	-0.594839204	1.030271234	1.019298935	2.009512358	-0.082932717	-0.596488192	-0.589900098	-1.068808385	-0.461761631	-0.664352299	ENSG00000165527.6	1
RAB11FIP4	0.223903033	0.352604649	1.353578884	2.030508101	-0.708466421	-0.534867515	-0.914415951	-0.739194864	-0.272837147	-0.790812768	ENSG00000131242.17	1
HMOX1	-0.354903569	0.325126705	1.033464944	2.355707998	-0.65708794	-0.497373874	-0.920064843	-0.650978752	-0.299924069	-0.333966601	ENSG00000100292.16	1
LHFPL2	-0.0314358	0.727612179	1.053243801	1.883957031	0.133339367	-0.03685991	-1.383935739	-0.635853992	-0.784023688	-0.926043248	ENSG00000145685.13	1
PPARG	-0.152996946	0.74332722	1.054382468	1.989604882	-0.097583887	0.03153341	-0.88227019	-0.653448432	-1.206362842	-0.826185683	ENSG00000132170.19	1
FLVCR2	-0.074420455	0.601597012	0.729236831	2.160200882	0.071803361	0.179097343	-0.975417033	-0.756389949	-0.965619724	-0.970088268	ENSG00000119686.9	1
RFX2	-0.335239656	0.612220168	0.716536167	2.070673849	0.167429785	0.446299384	-0.949162136	-0.914588612	-0.68182338	-1.13234557	ENSG00000087903.12	1
FAM129B	-0.339490288	0.474967787	1.025496938	2.218443082	-0.082936902	-0.085640096	-0.583597148	-0.993059803	-0.747184203	-0.886999366	ENSG00000136830.11	1
CTSL	-0.505763372	0.548692314	1.295578235	1.952460852	0.306315545	-0.265818801	-0.734778512	-0.849952562	-0.86423337	-0.882500328	ENSG00000135047.14	1
SLC3A2	-0.293433943	0.53734148	0.944117126	2.147883376	0.375401485	-0.566284632	-1.077465198	-0.738714597	-0.85050156	-0.478343537	ENSG00000168003.16	1
ZNF622	-0.404779678	0.737563038	0.977769931	1.844853445	0.696468515	-0.408847002	-0.456557889	-1.198408725	-0.757647418	-1.030414216	ENSG00000173545.4	1
LMNA	-0.402170864	0.609591905	0.85330197	1.772869281	0.859930767	-0.153400642	-0.573118688	-1.242439327	-1.348734761	-0.375829642	ENSG00000160789.19	1
CD300E	-0.269508384	1.027505933	0.947763015	1.425510258	0.747177773	0.123964936	-0.580662875	-1.394466107	-1.138089471	-0.889195079	ENSG00000186407.6	1
MAP3K8	-0.421773282	0.493650244	1.109132132	1.524093429	0.93858926	0.289428836	-0.692629012	-1.245677066	-1.138073876	-0.856740665	ENSG00000107968.9	1
EMP1	-0.280249633	0.932942579	0.606947472	1.710711515	0.820565476	0.191968093	-0.751654302	-1.093936841	-1.056728099	-1.080566259	ENSG00000134531.9	1
BIN1	-0.115480387	0.606067225	0.957571466	1.748812059	0.596443149	0.127667378	-0.766191707	-1.459832768	-0.605405186	-1.089651229	ENSG00000136717.14	1
MPP1	-0.107307701	0.555639109	1.13722282	1.716580249	0.447154422	0.264203856	-0.714467074	-1.223632645	-0.971712382	-1.103680655	ENSG00000130830.14	1
ATF4	0.223429078	0.425826777	1.261007842	1.737713495	0.427824427	-0.21295446	-0.63128011	-1.243361535	-1.063513216	-0.924692298	ENSG00000128272.14	1
DDAH2	0.401330627	0.941020132	1.216704317	1.322555902	0.699303637	-0.898495071	-0.973964497	-1.02791734	-0.768686836	-0.911850872	ENSG00000213722.8	1
TNNT1	-0.239282133	1.317356215	1.327015048	0.922354563	0.900982663	-0.903769901	-0.717834432	-1.150107227	-0.912745698	-0.543969097	ENSG00000105048.16	1
GPR183	-0.247194914	0.788261776	1.144973739	0.927271047	0.451901862	0.949298035	-0.382728357	-0.77126939	-1.753330015	-1.107183783	ENSG00000169508.6	1
ZFAND6	-0.5609919	1.267053705	1.075935134	0.996667694	0.295886525	0.838818022	-1.04876049	-0.693026407	-1.401739402	-0.769842881	ENSG00000086666.18	1
H1F0	0.226285093	0.83926012	1.035897115	1.458590289	0.576454128	-0.149249723	-0.939441441	-0.555897504	-1.689200622	-0.802697454	ENSG00000189060.5	1
PRDM8	0.103819251	0.622345519	0.925821023	1.527432879	0.742721671	0.226486355	-0.807636277	-0.726786216	-1.632105127	-0.982099077	ENSG00000152784.15	1
LITAF	-0.546203306	0.637122123	0.8837063	1.367171313	1.157977919	0.133611832	-0.614560827	-0.418419738	-1.720359547	-0.880046069	ENSG00000189067.12	1
ROCK1	-0.04961407	1.637869754	0.792561672	0.254086783	0.828164975	0.61497478	-0.508872578	-1.0561387	-1.370772794	-1.142259822	ENSG00000067900.7	1
DNTTIP2	-0.289014068	1.479846008	1.162562138	0.097913766	1.193676179	0.196735949	-0.620227418	-0.964763697	-1.269710395	-0.987018462	ENSG00000067334.13	1
MFAP1	-0.137387813	1.629687772	1.355422839	0.526169871	0.341624203	0.145148116	-0.617438281	-0.822252433	-1.003660918	-1.417313355	ENSG00000140259.6	1
ADAM9	-0.11200822	1.368806988	1.047299868	1.341718443	0.302096384	0.009189561	-0.597953125	-1.097838054	-1.076491542	-1.184820302	ENSG00000168615.11	1
NSRP1	-0.14048793	1.674839733	0.352907956	1.421831525	0.380734725	0.008668024	-0.369170801	-1.144518491	-1.252240567	-0.932564174	ENSG00000126653.17	1
EZR	-0.777901451	1.689714052	0.47166282	1.333849487	0.677530204	-0.062075552	-0.433132188	-1.06051688	-0.730204599	-1.108925891	ENSG00000092820.17	1
ARID3B	0.167392042	0.012590257	1.685972697	0.869537082	0.434386683	0.555027197	0.000688097	-1.534785235	-1.341461217	-0.849347603	ENSG00000179361.17	1
TLE3	0.101447721	0.010381687	1.696109054	1.523312339	-0.094852011	0.17177497	-0.062994369	-1.229660742	-1.064363212	-1.051155438	ENSG00000140332.15	1
GAB2	0.043552049	-0.109716017	0.93261279	1.353581311	0.729045149	0.956447468	-0.09999425	-1.271838699	-1.281903409	-1.251786391	ENSG00000033327.12	1
C5AR1	0.221451833	0.42323844	0.668918746	2.137887163	0.046073155	0.042637054	-0.315391529	-1.321270659	-1.167301224	-0.736242979	ENSG00000197405.7	1
FGFRL1	-0.079480244	0.360565929	0.665054287	2.070158305	0.01524557	0.498484564	-0.261615508	-1.395138969	-0.694077523	-1.179196411	ENSG00000127418.14	1
GFOD1	0.202372184	0.473958507	0.538620613	2.252033663	-0.709005794	0.330344489	-0.243535257	-0.992727929	-0.947734857	-0.90432562	ENSG00000145990.10	1
ADCY3	-0.18010947	0.059893528	1.023175215	2.118696293	-0.164999807	0.439927268	-0.298949689	-1.169928119	-1.112718138	-0.714987081	ENSG00000138031.14	1
JARID2	-0.155786784	-0.064053406	0.63411924	2.258852052	0.244407562	0.505296608	-0.460042243	-1.026015263	-1.046324366	-0.8904534	ENSG00000080803.13	1
CXCL16	0.511733842	-0.207071687	1.227882718	2.000464471	-0.413682493	0.289547872	-0.804549925	-0.86844042	-0.974215223	-0.761669155	ENSG00000161921.14	1
P2RX4	0.519684409	-0.12414174	1.390205786	1.573894708	-0.10948359	0.587842111	-1.120440127	-0.885404984	-1.254773091	-0.577383483	ENSG00000135124.14	1
PDLIM7	0.39557416	-0.590181905	1.438694285	1.678103844	-0.031747454	0.548378115	-0.586190723	-1.356933956	-0.702224444	-0.793471923	ENSG00000196923.13	1
GGA2	0.256428185	-0.345818427	1.547474795	1.730931424	-0.177863231	0.517963705	-0.854369313	-0.954888068	-0.900022436	-0.819836635	ENSG00000103365.15	1
UPP1	0.507238596	-0.134178935	1.278380068	1.313017915	0.138585786	0.755897551	-0.612995022	-1.843241477	-0.798187869	-0.604516613	ENSG00000183696.13	1
CXXC5	-0.233773862	-0.388051319	1.635852134	1.905662963	0.127023552	0.006501071	-0.481284561	-0.734824319	-0.995834664	-0.841270995	ENSG00000171604.11	1
CYTH4	-0.19627838	0.05098249	1.579270513	1.959549113	-0.487977976	0.116556992	-0.926732775	-0.879360347	-0.637933868	-0.578075763	ENSG00000100055.20	1
SPRED2	0.087145923	0.395955441	1.018003484	1.701292328	0.310545404	0.598714268	-1.037898144	-0.710956525	-0.986603543	-1.376198637	ENSG00000198369.9	1
MAPK6	0.226214997	0.5852846	0.972613222	1.750372752	0.203314095	0.437470747	-1.075950297	-1.083954012	-0.995546715	-1.019819388	ENSG00000069956.11	1
TMCO3	0.296744878	0.831430516	0.78503651	1.80249055	0.278452773	0.024409612	-1.037595154	-1.073120129	-0.615439909	-1.292409647	ENSG00000150403.17	1
TIMP1	0.3092597	0.02534966	0.961737208	1.925223768	0.177453237	0.506910304	-1.165757092	-1.191580068	-0.719917473	-0.828679244	ENSG00000102265.11	1
TPD52L2	0.515809862	-0.073468862	0.901198312	1.906625688	0.17814067	0.517034807	-0.784269334	-1.209084202	-0.978640079	-0.973346861	ENSG00000101150.17	1
THAP4	0.149815282	0.612419955	1.605726539	1.224705914	-0.080677076	0.369586619	-1.234712996	-0.982105687	-0.329202591	-1.335555959	ENSG00000176946.11	1
CPEB4	0.203137629	0.485556588	1.254568805	1.243838088	0.212496076	0.853879585	-1.265810005	-0.901071266	-0.699434323	-1.387161177	ENSG00000113742.12	1
SEMA6B	-0.282009087	0.052083016	1.060514011	2.019846391	0.380828189	0.43339368	-0.981171242	-0.976387155	-0.793099357	-0.913998446	ENSG00000167680.15	1
TIPARP	-0.579823178	-0.038988498	1.246006993	1.755636068	0.547921366	0.642619365	-1.191001301	-0.824007802	-0.815205701	-0.743157311	ENSG00000163659.12	1
NPC1	-0.633959955	0.418779027	1.509695636	1.362679179	0.670440166	0.469298952	-0.876785575	-0.918214936	-1.025188675	-0.976743819	ENSG00000141458.12	1
KDM3A	-0.211123239	0.281276685	1.478240131	1.598677539	0.261799418	0.470774174	-0.801537103	-1.051398627	-1.160839994	-0.865868983	ENSG00000115548.16	1
AL390719.1	-0.331753059	0.602466714	0.903577169	1.779628083	0.589146029	0.272297521	-0.997157757	-1.455458034	-0.882602122	-0.480144544	ENSG00000217801.9	1
MAFF	-0.216263615	-0.012892447	1.315487817	1.582835648	0.797442014	0.321949912	-0.994152168	-1.414115311	-0.826083406	-0.554208443	ENSG00000185022.11	1
RUNX1	-0.113200046	0.082853599	0.543463455	1.851557465	0.733626328	0.799687635	-1.40173433	-0.972884793	-0.822118786	-0.701250527	ENSG00000159216.18	1
NFE2L2	-0.331095726	0.26270335	0.509478409	1.638547314	1.010841098	0.883107066	-1.253496727	-0.986422848	-0.748080658	-0.985581279	ENSG00000116044.15	1
PELO	0.186901501	-0.322244698	0.732039334	1.25502064	0.997379844	1.132570938	-1.50065855	-1.039436089	-0.495714695	-0.945858225	ENSG00000152684.10	1
ABCA1	0.022357408	-0.060583896	0.928522006	1.212261717	0.576203307	1.406426855	-1.125874588	-0.739681722	-1.304684328	-0.914946758	ENSG00000165029.15	1
SLC7A11	0.156179757	0.041846574	1.181875536	1.441412777	0.609051102	0.753156603	-1.172468967	-0.695940015	-1.263096072	-1.052017295	ENSG00000151012.13	1

CD151	0.383930549	-0.1825592	0.548339317	1.853957099	0.496776515	0.808228965	-1.172802491	-0.459459791	-1.094483887	-1.181927076	ENSG00000177697.17	1
NRIP3	0.073896563	0.875676619	1.551741249	1.105059394	0.171086903	0.31568544	-0.803570734	-1.351847996	-1.212925002	-0.724802437	ENSG00000175352.10	1
NRBP1	-0.201050735	0.990897736	1.879384081	0.92679314	-0.145607405	0.035027952	-0.582519598	-1.458883966	-0.55779097	-0.886250236	ENSG00000115216.13	1
RIT1	-0.015480444	0.99943467	1.957288605	0.661658449	-0.279862918	0.368999985	-1.201594574	-0.832205095	-0.885525332	-0.772713347	ENSG00000143622.10	1
RIOK3	0.348275302	0.991313537	1.732897717	0.904636394	-0.464664299	0.228577881	-1.41445201	-0.746687325	-0.778000805	-0.801896392	ENSG00000101782.14	1
TAB2	0.060387812	0.727521865	1.645315003	1.116779547	-0.132421108	0.575795348	-1.342943536	-0.812298073	-0.993340032	-0.844796827	ENSG00000055208.18	1
MAFB	0.607092704	0.904268925	1.434317169	1.019232655	-0.498163658	0.267778001	-1.398889126	-1.420258669	-0.506572581	-0.40880542	ENSG00000204103.3	1
ADM	0.298385739	0.124930157	1.815049054	1.211642664	-0.386609031	0.421017796	-1.067699686	-1.450197832	-0.702370293	-0.264148569	ENSG00000148926.9	1
GLUL	0.604963905	1.219206154	1.691842654	0.499174532	-0.30419116	-0.008475675	-1.15100229	-0.996398737	-1.233974682	-0.321144701	ENSG00000135821.17	1
GADD45A	0.528378271	0.933458726	1.766175768	0.540529374	-0.263554375	-0.090646346	0.161944995	-1.292415454	-1.308740043	-0.975130917	ENSG00000116717.11	1
ARRDC3	0.199351397	1.165486124	1.112741402	1.033874242	0.534074932	0.032041104	-1.693367792	-1.199195833	-0.613297509	-0.571708067	ENSG00000113369.8	1
BCL7B	0.411551934	1.256909095	1.200535793	0.970032707	0.336849775	0.048925208	-1.051922136	-1.376591074	-0.635639407	-1.160651895	ENSG00000106635.7	1
TUBA1C	0.45563343	1.515987475	1.386943704	0.709190388	-0.015773721	-0.315307642	-1.262768382	-1.280369648	-0.492473634	-0.70106197	ENSG00000167553.15	1
LYAR	-0.064280263	1.705818242	0.720042808	1.060388585	0.240885344	-0.016314171	-1.626194576	-1.096035044	-0.225620353	-0.698690572	ENSG00000145220.13	1
CCDC124	0.312954503	1.712843987	0.741521968	1.10178784	0.138392154	-0.690457024	-1.631477339	-0.392483492	-0.47808137	-0.815001226	ENSG00000007080.10	1
RAB1A	0.38160627	1.272141786	1.332430427	0.612484077	-0.209386575	0.461840844	-1.868277853	-0.565329696	-0.7913941	-0.62611518	ENSG00000138069.16	1
NUBP1	0.391393265	1.34110106	1.342991135	0.896743522	-0.626145229	-0.296880404	-1.847673329	-0.468784245	-0.195821254	-0.536924521	ENSG00000103274.10	1
H1FX	-0.001158625	1.276611725	1.049004873	1.649281409	-0.333312509	-0.522136774	-0.235413432	-0.909321913	-1.396808915	-0.576745839	ENSG00000184897.5	1
B3GNT2	0.077248652	1.343662615	1.417095946	1.185128158	-0.566520932	-0.038114341	-0.413140564	-0.778976572	-1.427543921	-0.79883904	ENSG00000170340.10	1
PPP4C	0.302152907	1.331949763	1.081306482	1.554239878	-0.73533432	-0.112299694	-1.059329556	-0.876280402	-0.714445739	-0.77195932	ENSG00000149923.13	1
NPL	0.403778691	1.411105276	0.921528056	1.57696712	-0.725051644	-0.323405076	-0.787098723	-0.723210764	-1.191570047	-0.563042889	ENSG00000135838.13	1
MAF	0.095385891	0.886870701	1.272567683	1.488155287	-0.929526932	-0.38703175	-1.654245012	0.107535026	-0.772629667	-0.107081227	ENSG00000178573.6	1
NECTIN2	0.182511343	0.890107923	1.390280601	1.419828151	-0.744449503	0.037399123	-1.228786696	0.111735798	-1.14895439	-0.909672351	ENSG00000130202.9	1
METTL7B	0.628625826	1.240294465	0.437431687	1.532927009	-1.02086627	0.632808112	-1.02086627	-0.754788961	-0.654699327	-1.02086627	ENSG00000170439.6	1
CLU	0.406824883	1.155050886	1.177446102	1.343588512	-1.047642923	0.424818002	-0.957691256	-0.744472178	-0.794820568	-0.96310146	ENSG00000120885.21	1
GPAT3	0.740748395	1.357635399	0.372679045	1.425090092	-1.605396915	0.310607828	-0.800202595	-0.522389373	-0.509527526	-0.769244349	ENSG00000138678.10	1
CCDC71L	0.928477268	1.3106132	1.015125059	0.990908904	-0.678940466	0.33457111	-0.963738449	-1.114049225	-0.869991938	-0.952975463	ENSG00000253276.2	1
FRG1	0.565219386	1.32439414	1.260609118	1.035805115	-0.895971582	0.353601039	-1.00252089	-0.899737144	-0.924876312	-0.81652287	ENSG00000109536.11	1
BAG3	0.200455081	1.06317312	1.360210149	1.523842659	-1.165421383	-0.062203607	-0.635226968	-0.966641736	-0.869352834	-0.448834481	ENSG00000151929.9	1
PLIN3	0.199406484	0.516725264	1.483253432	1.722728753	-1.314593954	-0.234888539	-1.043407905	-0.637476986	-0.283690254	-0.408056294	ENSG00000105355.8	1
VAT1	0.572372581	0.435519173	1.082350088	1.765906804	-1.645985214	0.115552496	-0.521363916	-0.351812658	-0.82540759	-0.627131764	ENSG00000108828.15	1
C1QB	0.852371078	0.651365275	0.795361988	1.473240151	-1.50776426	0.226141572	-1.50776426	-0.506718125	-0.040454043	-0.435779376	ENSG00000173369.15	1
C1QC	0.714757116	0.74787398	0.717401808	1.920548862	-1.230096881	-0.266542661	-1.230096881	-0.467587668	-0.449803439	-0.456454236	ENSG00000159189.11	1
DTX4	0.722190797	0.322469968	1.497845485	1.366317464	-1.622150113	-1.125313667	-0.272094512	-0.326875672	-0.398162784	-0.164226965	ENSG00000110042.7	1
PIK3R1	-0.278676118	0.823232224	1.209231589	1.696362374	0.04809956	0.270111016	-1.397442187	-0.824078171	-0.797519117	-0.749321172	ENSG00000145675.14	1
E2F3	0.012333891	0.648571459	1.205740526	1.616531195	0.027701577	0.252899717	-1.759916511	-0.751847184	-0.602098214	-0.649916455	ENSG00000112242.14	1
BZW1	0.122157615	0.823533346	1.144600427	1.475760177	0.196981334	0.402107668	-1.42342779	-1.053261583	-1.013724166	-0.674727029	ENSG00000082153.17	1
C5AR2	0.12026051	0.760670618	0.995728264	1.587944486	-0.597003094	0.855596069	-1.425148073	-0.726492268	-0.86221399	-0.709342524	ENSG00000134830.5	1
ATP6V1F	0.105053686	0.85064695	0.926773314	1.715351893	-0.522538697	0.632541257	-1.387878771	-0.640401935	-0.691272815	-0.988274881	ENSG00000128524.4	1
CHST2	-0.206887812	1.033997971	1.009440568	1.454058959	-0.357699677	0.417567975	-1.864475034	-0.428871826	-0.186867933	-0.87026319	ENSG00000175040.5	1
NTAN1	-0.162083304	0.548722688	1.275690283	1.851693292	-0.185221893	-0.308187049	-1.645434137	-0.700711872	-0.162179597	-0.51228841	ENSG00000157045.8	1
UQCRH	0.733178889	0.95300349	0.579553941	1.708542892	-0.037351528	-0.073163749	-1.479506368	-0.504532556	-0.736997822	-1.142727189	ENSG00000173660.11	1
NAB2	0.515848949	1.196850387	0.483390728	1.669868452	-0.028012017	-0.006675528	-1.178792206	-1.359365643	-0.326403671	-0.96670945	ENSG00000166886.12	1
NDUFB9	0.492863581	1.04139867	0.304199885	1.806685642	-0.212744844	0.27695959	-1.465659725	-0.287836439	-1.136429059	-0.819437299	ENSG00000147684.7	1
CCL7	0.430181466	0.830388401	0.725375392	1.614755065	-0.05647804	0.381740298	-1.670940117	-0.503437341	-1.238673362	-0.512911762	ENSG00000108688.11	1
INSIG1	-0.342819248	0.733660171	0.611842785	1.889972497	0.470848449	0.290145193	-1.655755913	-0.775169446	-0.64333639	-0.579388098	ENSG00000186480.12	1
SLC16A6	-0.228414354	1.278438235	0.566168675	1.542833453	0.329091099	0.3472408	-1.666925854	-0.879753001	-0.663173184	-0.625505868	ENSG00000108932.11	1
SPSB1	0.203318949	0.861475961	0.364476023	1.698497555	0.519603501	0.320006132	-1.751119849	-0.702813695	-0.510991665	-1.00245291	ENSG00000171621.13	1
RNF19A	-0.230935591	0.951591674	1.026087732	1.271683768	0.793297509	0.324119947	-1.524993922	-0.766056604	-0.81598029	-1.028814223	ENSG00000034677.12	1
HMGB3	-0.311506669	0.958115216	1.290318654	1.193348418	0.56676374	0.273220761	-1.626440113	-0.690345428	-0.901677558	-0.751797022	ENSG00000029993.14	1
USP12	-0.525737959	1.017767245	1.035217724	1.261885328	0.654428691	0.611963951	-1.285949422	-1.003894936	-0.900969581	-0.864711041	ENSG00000152484.13	1
S100A10	-0.35503063	1.295210728	0.773955241	1.66203443	0.422786567	-0.016661956	-0.992951539	-1.155182728	-0.803820626	-0.830339489	ENSG00000197747.8	1
DSE	-0.354957965	1.232975339	1.126497651	1.42153967	0.427578826	-0.004087031	-1.32362859	-0.880645515	-0.831977835	-0.81329455	ENSG00000111817.16	1
LDHA	-0.259688924	1.468812749	0.562627682	1.620067917	0.170248619	0.104888227	-1.002102923	-0.516928628	-0.745497062	-1.402427656	ENSG00000134333.13	1
SERF2	0.247548703	1.277745995	0.605954108	1.54673097	0.244170572	0.20201992	-1.318283615	-0.708159753	-0.99183092	-1.10589598	ENSG00000140264.19	1
SQLE	0.461848133	1.208617326	0.640531248	1.451650627	0.20416645	0.152505491	-1.631669165	-0.916614885	-0.727097459	-0.843937766	ENSG00000104549.11	1
ITGB1	0.082296235	1.529694019	1.077205522	1.125641564	0.066274609	0.186523276	-1.209261353	-0.930841985	-0.954540872	-0.972991016	ENSG00000150093.18	1
CSF1	0.153683431	1.185291677	0.765959343	1.413445446	0.792512313	-0.167937443	-1.087016909	-1.085618824	-0.863891199	-1.106427835	ENSG00000184371.13	1
VPS37B	-0.161582598	1.072041488	0.793230599	1.44633135	0.837168007	0.028377798	-1.407786218	-0.585766561	-0.883298587	-1.13871528	ENSG00000139722.6	1
HMGB1P21	-0.046524399	1.274641549	0.741982909	1.287323184	0.89582113	-0.448218002	-1.236668179	-1.347822469	-0.253497455	-0.867038268	ENSG00000248909.1	1
PTGER2	0.765013174	0.436944737	1.029645614	0.959325783	0.08601524	0.673269078	-2.15494706	-0.770238139	-0.411858972	-0.613169456	ENSG00000125384.6	1
FAM20A	0.431242779	0.731807151	1.134741048	1.09365968	0.030859649	0.506171234	-2.072953402	-0.739180535	-0.369815197	-0.746532407	ENSG00000108950.11	1
C1QA	0.667434394	0.526983048	0.913686953	1.435628241	0.017875873	0.111255892	-2.114051074	-0.290174953	-0.563131494	-0.70550688	ENSG00000173372.16	1
TUBB2A	0.400198155	0.852350084	0.920691816	1.079530499	0.729429816	-0.084487733	-2.120206572	-0.503133013	-0.619254107	-0.655118945	ENSG00000137267.5	1
RNF11	0.288621981	0.744085353	0.911613191	0.747779873	1.013330648	0.419915841	-2.084715614	-0.599982482	-0.606526252	-0.83412254	ENSG00000123091.4	1
KCTD9	-0.189676131	0.813691844	1.13183089	0.828429692	0.672450157	0.437953951	-2.225831798	-0.388407607	-0.56967146	-0.510769538	ENSG00000104756.15	1
RBPJ	-0.203950361	0.607889606	1.04646388	1.417546929	0.165473804	0.840319351	-1.808367014	-0.88618202	-0.583636553	-0.595557622	ENSG00000168214.20	1
GAS2L3	0.122588049	0.412716573	1.351088695	1.229412362	0.228214568	0.689688501	-1.745941194	-1.051470284	-0.744390036	-0.491907235	ENSG00000139354.10	1
GPRIN3	-0.12408878	0.570602924	1.382209989	1.152274821	-0.133924094	0.692396098	-2.023111772	-0.375344184	-0.709436301	-0.431578702	ENSG00000185477.4	1
CDK20	0.276116404	0.363724274	1.050157282	1.262583729	0.428106525	0.752055747	-1.92461143	-0.641887254	-0.744763726	-0.82148155	ENSG00000156345.17	1
LANCL2	0.254721808	0.514643422	0.949179744	1.355092729	0.08232566	0.788919211	-1.995084219	-0.604644304	-0.835662795	-0.509491256	ENSG00000132434.9	1
SDC2	0.398688801	0.517446893	0.761622597	1.565534226	0.070551549	0.790689697	-1.725298027	-0.774145622	-0.647545086	-0.957545028	ENSG00000169439.11	1
PSMD11	0.02045407	0.500864329	1.343263674	1.150003872	0.707694714	0.36289031	-1.764223596	-0.614205665	-0.706551164	-1.000190543	ENSG00000108671.9	1
SMOX	0.081387201	0.53308801	1.339213529	1.428791746	0.459011718	-0.021632869	-1.814426543	-0.53523051	-0.778298792	-0.69190349	ENSG00000088826.17	1
CYP1B1	-0.165133593	0.56028217	0.897389929	1.604682032	0.399458141	0.306367076	-2.031410357	-0.562441872	-0.695475529	-0.313717997	ENSG00000138061.11	1
ZBTB43	0.163588087	0.931840011	0.796408303	1.294885568	0.631786967	0.613435444	-0.884910162	-1.25969343	-1.015993026	-1.271347763	ENSG00000169155.9	1
F3	0.303056636	0.753227897	1.030012987	1.060977932	0.60049861	0.792675709	-1.138057246	-1.211503185	-1.06110946	-1.12977988	ENSG00000117525.13	1
PPP1R3B	0.103807782	0.815348138	0.826356458	0.93253059	1.100729729	0.703197416	-1.094614264	-1.26601408	-1.146819105	-0.974522663	ENSG00000173281.4	1
PHLDA1	0.494387743	0.817181551	0.785110542	1.137534778	0.820562323	0.498577068	-1.205662625	-1.325354683	-1.025297417	-0.997039279	ENSG00000139289.13	1
STX1A	0.545903321	0.670202832	0.840628244	1.137763366	0.597486159	0.574979231	-0.369922928	-1.592504655	-1.213578873	-1.190956696	ENSG00000106089.11	1
RGCC	0.648451944	0.652170451	0.706771796	1.158395882	0.615053354	0.736059898	-0.795985436	-1.549807902	-1.072422123	-1.098687865	ENSG00000102760.12	1
EAF1	0.625172059	0.464514919	1.131790741	0.914154074	0.800668211	0.611654156	-1.089967936	-1.28892064	-1.257446315	-0.911619269	ENSG00000144597.13	1
FOXO3	0.553671463	0.18956361	1.160784119	1.064051213	0.5236538	0.911246008	-0.966028698	-0.943643203	-1.512510041	-0.980788273	ENSG00000118689.14	1
HMGCR	0.560172489	1.008882259	0.576856124	0.914104628	0.57588569	0.942277398	-1.208134562	-0.985872605	-1.250444505	-1.133726914	ENSG00000113161.15	1
TRMT6	0.460704809	0.999870544	0.613152676	1.11563564	0.673017432	0.693773952	-0.965908666	-1.156091497	-1.240034032	-1.194120859	ENSG00000089195.14	1
PTPN1	0.421942013	0.908271255	0.377740119	0.881295088	1.293015091	0.595746727	-0.981866993	-1.096105114	-1.251188359	-1.148849827	ENSG00000196396.9	1
LINC-PINT	0.108333698	0.987223336	0.822804127	1.169370373	0.13997535	1.086371075	-1.124279999	-1.052788161	-1.306886016	-0.830123783	ENSG00000231721.6	1
ZEB2	-0.021819899	0.954031068	0.513646146	1.059586703	0.855766566	1.023964184	-1.046413344	-0.96661411	-1.384930443	-0.987216871	ENSG00000169554.18	1
UBAP1	0.547303232	0.797051108	1.005332011	0.441767497	0.909990202	0.871318277	-1.149989379	-1.165794765	-0.980990348	-1.275987834	ENSG00000165006.13	1
STK17A	0.304048291	1.012345019	1.288732274	0.484480097	0.29164455	1.013175285	-1.199777206	-1.146621123	-0.914089443	-1.133937744	ENSG00000164543.5	1
NRIP1	0.592389936	0.864581074	1.132189505	0.840701068	0.229036998	0.848451191	-1.213049121	-1.032191771	-0.980823482	-1.281285399	ENSG00000180530.10	1
ARPC5L	0.676939005	0.637527276	1.119515345	0.880248787	0.204885614	0.954303582	-0.870990641	-1.0919457	-1.093604155	-1.416879114	ENSG00000136950.13	1
ADNP2	0.52593005	0.794293008	1.248008256	0.577105124	-0.080282785	1.087829425	-0.427737509	-1.283148043	-0.903982319	-1.538015207	ENSG00000101544.8	1
SLU7	0.284367969	1.409789174	1.154764596	0.555692137	-0.311886972	0.969555032	-0.936324233	-0.764013537	-1.214393631	-1.147550535	ENSG00000164609.9	1
CTNNBL1	-0.119150706	1.207136159	0.432313461	1.14200524	0.485239542	0.760575593	0.023858551	-1.096054994	-1.402358792	-1.433564055	ENSG00000132792.18	1
SNX9	-0.009982601	0.736896933	0.852520227	1.242094724	0.617169167	0.688097013	-0.199268933	-1.001073046	-1.396153687	-1.530299797	ENSG00000130340.15	1

FBXO34	-0.080682837	0.746006579	0.472439677	1.6482753	0.476816278	0.835306222	-0.658004987	-0.845008863	-1.128077337	-1.467070033	ENSG00000178974.9	1
SPAG9	-0.150064198	0.827848226	0.609163886	1.459274989	0.649956934	0.793778983	-0.554184206	-1.141480866	-1.342555141	-1.151738607	ENSG00000008294.20	1
MS4A4A	0.230803489	1.022718483	0.717699822	1.352320186	0.531390257	0.427486495	-0.547374048	-1.006305221	-1.532469933	-1.196269529	ENSG00000110079.16	1
VAPA	0.109164522	0.782765328	1.020564971	1.596042113	0.073345665	0.488907119	-0.49059025	-1.123876439	-1.331867951	-1.124455078	ENSG00000101558.13	1
CSGALNACT2	0.258506417	0.900673914	0.754791188	1.016103466	0.4432679	1.04306583	-0.599220488	-1.178368592	-1.374227336	-1.264592298	ENSG00000169826.7	1
SLC39A8	0.315089984	1.038438552	0.691293882	1.262113548	0.002675635	0.839514292	-0.291862355	-1.251468003	-1.290378837	-1.315416698	ENSG00000138821.12	1
FOSL1	0.273338072	0.807842048	1.002992855	0.724662674	0.888660235	0.61417163	-0.317836839	-1.630760709	-1.076243755	-1.286826211	ENSG00000175592.8	1
CCDC9	0.387162999	0.641878783	0.465463432	0.729244207	1.179092457	0.801535601	-0.181630273	-1.729551378	-1.186683445	-1.106512383	ENSG00000105321.12	1
SH3BP5	0.020267142	0.778186845	0.328260084	1.430438736	0.928258133	0.479662638	-0.054963478	-1.479979797	-1.18161683	-1.248513473	ENSG00000131370.15	1
IL1RAP	-0.152001868	1.005801186	-0.120046789	1.136233254	0.961406169	1.24343623	-1.184124698	-0.984480092	-0.928713685	-0.977509706	ENSG00000196083.9	1
RNF152	-0.226893338	1.060005783	0.032902348	1.283942439	1.156520991	0.732907489	-1.080071351	-0.626992414	-1.26883953	-1.063482417	ENSG00000176641.10	1
FCAR	0.113968587	0.25782031	0.028954957	1.233748566	1.152178358	1.322360077	-0.961256105	-0.824169554	-1.258175536	-1.065429659	ENSG00000186431.18	1
BASP1	0.251066572	0.514519502	0.15088473	1.548139218	0.707425829	1.038704488	-0.700805843	-1.384931563	-1.119037784	-1.005965146	ENSG00000176788.8	1
ATP13A3	0.390340538	0.801449232	0.179599645	1.068288664	0.722160438	1.256581239	-1.044207784	-1.244832913	-1.174685253	-0.954693806	ENSG00000133657.14	1
ZBTB49	0.302980755	1.036279914	-0.04169872	1.157080293	0.882149215	0.889972829	-0.626222684	-0.991848103	-1.035129598	-1.5735639	ENSG00000168826.15	1
SLC2A3	0.644264157	1.069308715	-0.146384664	1.086357236	0.825487508	0.820537537	-0.974328994	-0.905796583	-0.902680693	-1.516764221	ENSG00000059804.15	1
GBP2	1.428748758	1.140907405	-0.062835623	0.19517195	0.614000143	0.83142233	-0.849230501	-1.198818239	-0.74580754	-1.353558683	ENSG00000162645.12	1
TPST1	1.124609147	0.411548638	-0.057060662	1.991818913	0.056853467	0.221922527	-0.803903798	-1.033181221	-0.960994709	-0.951612303	ENSG00000169902.13	1
CCR1	0.635524467	0.988565853	-0.589127642	1.765410993	0.073816574	0.760592465	-0.984719143	-1.155715011	-1.020360376	-0.47398818	ENSG00000163823.3	1
DNAJB5	-0.033534548	0.724225176	-0.214639082	1.699608337	1.25899473	0.42189604	-0.961177731	-1.145969605	-0.942730874	-0.806672442	ENSG00000137094.14	1
TRIB3	-0.015619938	0.6613678	-0.075791493	2.06653827	0.869353438	0.199063633	-1.115741106	-0.908748465	-0.9034996	-0.77692254	ENSG00000101255.10	1
ARID5B	0.093835965	1.009736073	0.374467845	1.596115218	0.586785644	0.554339157	-1.128974351	-0.681640367	-1.232204233	-1.172460951	ENSG00000150347.14	1
IL1R1	-0.201704881	0.889190939	0.351626992	2.015348221	0.26112113	0.444520058	-1.005048153	-0.602654581	-1.194258487	-0.958141237	ENSG00000115594.11	1
ZNF267	0.133540132	0.875313528	0.246621753	1.638738941	0.4193547	0.890910627	-1.280692432	-1.035973917	-0.894963351	-0.99284998	ENSG00000185947.14	1
FAM107B	-0.032885613	0.888194879	0.434018271	1.619042033	0.5232283	0.756045671	-1.205808943	-1.153990352	-1.136194801	-0.691649444	ENSG00000065809.13	1
MERTK	0.638852408	0.848441234	1.006769162	1.27251359	-0.393422543	0.803852553	-1.271409258	-1.034120011	-0.912491723	-0.958985412	ENSG00000153208.16	1
CST7	0.662584462	0.502632051	0.612043805	1.580228818	-0.201516573	1.000835711	-1.194037669	-0.912615294	-0.894348859	-1.155806452	ENSG00000077984.5	1
S100A9	1.040511929	0.802608521	0.076101276	1.511568075	-0.464238352	0.947999097	-1.145702861	-0.922725092	-0.913990889	-0.932131705	ENSG00000163220.10	1
SERPINB2	0.483967482	0.152022191	1.055536912	1.307169907	0.316618173	0.979318916	-1.475189045	-0.993062763	-1.036294955	-0.790086817	ENSG00000197632.8	1
AQP9	0.770685383	0.666697846	0.405621575	1.283744207	0.233990143	0.968265979	-1.642340467	-1.001177358	-0.978145893	-0.707341415	ENSG00000103569.9	1
S100A8	1.153382808	0.580415667	-0.140490635	1.414053076	-0.349781012	1.014914431	-1.67288315	-0.806202777	-0.580406905	-0.613001504	ENSG00000143546.9	1
ADAMTS2	1.338506078	-0.034442131	0.286565623	1.358837933	-0.174515435	0.985719985	-1.643595621	-0.871250566	-0.764387577	-0.48143829	ENSG00000087116.14	1
RGS10	1.00501762	0.545008825	0.342958821	1.804043095	-0.613726122	0.350553291	-1.639404595	-0.742484361	-0.405737558	-0.646229017	ENSG00000148908.14	1
ASPH	0.093263544	0.81808729	0.518868482	1.742089899	-0.373016474	0.993927018	-0.494888089	-1.16359201	-1.149479146	-0.985260514	ENSG00000198363.17	1
SDC4	0.191029092	1.011193081	0.794054993	1.5836019	-0.618318811	0.723736921	-0.681634605	-1.532464828	-0.760889822	-0.710307921	ENSG00000124145.6	1
B4GALT5	0.626572571	0.940236031	0.495056543	1.624382488	-0.996134184	0.748512874	-0.524187508	-1.119525414	-0.62529684	-1.169616561	ENSG00000158470.5	1
POMP	0.584480222	1.15742486	0.565049349	1.629706835	-1.013447334	0.468040799	-0.472907678	-1.084199835	-1.007097977	-0.827049243	ENSG00000132963.7	1
MAPKAPK2	0.484133346	0.829070333	1.071619299	1.430874539	-0.684031718	0.550916166	-0.191971247	-1.158399071	-1.086317198	-1.245894451	ENSG00000162889.10	1
CD82	0.926854957	0.419823258	0.931278332	1.530354752	-0.466461665	0.567796503	-0.466870344	-0.991648213	-1.154512182	-1.296615399	ENSG00000085117.11	1
SLA	1.169067443	0.70596524	0.793571874	0.526993025	-0.807137519	1.22530817	-0.138626816	-1.293119646	-1.05509417	-1.126927602	ENSG00000155926.13	1
MCTP2	0.714234873	1.305946017	0.502923164	0.945812473	-0.659982865	0.96690125	-0.403683882	-1.415280009	-1.283193542	-0.67367748	ENSG00000140563.14	1
AC091492.1	0.057819076	1.161994211	0.834303083	0.387472173	0.865279499	1.0564011	-1.340272938	-1.136061838	-1.128277213	-0.758657152	ENSG00000225026.1	1
OXSR1	0.092343798	1.310544644	0.647233618	0.680387976	0.894091684	0.707138647	-1.610891048	-1.035514752	-0.893775644	-0.791558923	ENSG00000172939.8	1
CHSY1	0.279107957	1.271891884	0.497791949	1.029194821	0.606074047	0.760447744	-1.363571203	-0.949533231	-0.967306769	-1.164097198	ENSG00000131873.5	1
SEC62	0.228353382	1.170990361	0.624230661	1.185650942	0.433072345	0.776160806	-1.358545697	-1.069203565	-1.097635298	-0.893073939	ENSG00000008952.16	1
ANKRD28	-0.0749887	1.228708928	0.42647572	0.818249089	1.275237872	0.502338763	-1.463590888	-0.58027689	-1.103509702	-1.028644192	ENSG00000206560.11	1
ATP2B1	-0.066945034	1.229490828	0.358624254	0.998983779	0.933946289	0.834362502	-1.419811766	-0.819390753	-0.994018498	-1.055241599	ENSG00000070961.15	1
ERMN	-0.141345823	0.909489128	0.732920532	0.750620095	1.059049556	0.897961917	-1.467378349	-0.522813543	-1.453427691	-0.765075822	ENSG00000136541.14	1
MAFA	0.483318888	0.663521375	0.54734231	0.93699542	1.066050829	0.7423961	-1.650538162	-0.992444093	-1.160807467	-0.635835198	ENSG00000182759.3	1
CRNKL1	0.005971903	0.45877085	0.927685725	0.666055881	1.543531663	0.458094434	-1.731048835	-0.866888314	-0.925921309	-0.536251998	ENSG00000101343.14	1
AC016831.1	-0.065106023	0.347416308	1.148186209	0.871096228	0.819199543	0.966074718	-1.870934908	-0.724200153	-0.913256673	-0.578475249	ENSG00000226380.9	1
KBTBD8	-0.625269639	0.311403358	1.253948081	0.775765957	1.063405636	1.096287945	-1.355398176	-0.677377577	-0.996719746	-0.846045838	ENSG00000163376.11	1
MFSD14A	0.473023617	0.848895371	0.93138906	0.460803558	1.294392037	0.088733446	-1.703372658	-0.307310584	-0.798630494	-1.287923352	ENSG00000156875.13	1
C19orf53	0.435333528	1.11393723	0.68907307	0.791833055	0.823017215	0.292031707	-1.923830248	-0.27161683	-0.853542007	-1.09623672	ENSG00000104979.8	1
TMA7	0.281562545	1.527694049	0.756629849	0.438039536	0.832905652	0.212395614	-1.327440988	-0.159632886	-1.198115361	-1.364038009	ENSG00000232112.3	1
RN7SKP255	0.375062494	-0.14030068	0.762494066	1.520372446	0.142129269	0.069448803	-1.533793119	-0.148232912	-0.734225526	-1.312954841	ENSG00000200312.1	1
AC245128.3	0.376795678	0.787786715	0.282571096	0.603545426	0.538004965	1.451572042	-1.786044788	-0.214650573	-1.220809668	-0.818770892	ENSG00000268734.1	1
IFNGR1	0.70876117	0.816885769	0.234668957	0.867789859	0.617989808	1.187909447	-1.35886162	-0.845686612	-1.41660313	-0.812853648	ENSG00000027697.13	1
AGFG1	0.777264795	0.533700682	0.861019953	0.68897197	0.078292625	1.385671253	-1.514762641	-0.769639241	-1.014754785	-1.025764611	ENSG00000173744.17	1
KLHL2	0.680250082	0.829475236	0.781962918	0.769284293	-0.164505236	1.366624269	-1.107002016	-0.895451426	-1.420761299	-0.839876821	ENSG00000109466.13	1
S100A12	0.713128568	1.631900976	0.359922059	0.832140572	-0.159654437	0.752786177	-1.349936968	-0.83115941	-0.94751194	-1.001615597	ENSG00000163221.8	1
MAN1A1	0.86048452	1.154811152	0.766549254	0.917334843	-0.360727352	0.815412891	-1.363382894	-0.810807475	-0.653626148	-1.326048791	ENSG00000111885.6	1
CCDC186	0.497698855	1.519566065	0.728403113	0.373147911	0.207502667	0.847431365	-1.7320194	-0.77589157	-0.726152565	-0.939686442	ENSG00000165813.18	1
SPRY2	1.21438081	0.776308421	0.232205897	0.917599095	0.331901869	0.801102837	-1.771228343	-0.867370619	-0.661306432	-0.973593535	ENSG00000136158.11	1
SOCS6	0.692976969	1.23847076	1.080629817	0.532184437	0.574989238	0.276651727	-1.506235146	-0.822068565	-0.882440985	-1.185158252	ENSG00000170677.5	1
SNIP1	0.43739718	1.754421218	1.012654795	-0.08857582	0.524410029	0.449576257	-0.916708584	-1.059543861	-0.948317867	-1.165313348	ENSG00000163877.10	1
SGMS1	0.405187063	1.295700801	0.117783	0.276375235	0.665623091	1.463237247	-1.183067471	-1.012827992	-0.994953065	-1.03305791	ENSG00000198964.13	1
NAMPT	0.887869352	1.267041421	0.605715704	-0.052677601	0.482237677	1.111430128	-1.28821808	-0.964650747	-1.224444831	-0.824303022	ENSG00000105835.11	1
STARD4	0.671729875	1.671657971	0.56114143	-0.292919207	0.737359874	0.597131773	-1.521068819	-1.15351374	-0.616182667	-0.655336492	ENSG00000164211.12	1
ANXA1	0.530287558	1.31184544	0.43653646	0.51318987	0.877515321	0.529953024	-1.852900379	-1.161592187	-0.657961561	-0.526873548	ENSG00000135046.13	1
LDLR	1.07443246	1.46441456	-0.029854819	0.82016574	0.162760566	0.224786436	0.062769923	-0.939605284	-1.544982818	-1.294886764	ENSG00000130164.13	1
AREG	0.860314456	1.436982808	0.476264301	-0.274631727	0.059671708	1.162189842	-0.244064115	-0.644817931	-1.579096508	-1.252812834	ENSG00000109321.10	1
IFITM2	1.273243853	0.82338381	1.549634345	0.173049042	-1.135109197	0.539845955	-1.03168085	-0.848451113	-0.70645799	-0.637457855	ENSG00000185201.16	1
DUSP6	1.441014692	0.889931245	0.704537514	0.558013654	-0.189713828	0.38998495	-1.763589032	-1.33577937	-0.350260717	-0.344139107	ENSG00000139318.7	1
CXCL1	1.584898443	0.493207322	0.824536977	-0.468513767	-0.012839602	1.341467546	-0.990853929	-0.939896006	-0.880958913	-0.951048072	ENSG00000163739.4	1
CXCL3	1.735435952	0.300347081	0.58929238	0.180641972	0.215983023	0.905660237	-0.916700359	-0.310932969	-1.536953037	-1.162774281	ENSG00000163734.4	1
MIR181A1HG	0.882931158	-0.33172174	0.80529568	0.535293105	1.10637432	1.137869204	-1.03846133	-0.733653426	-0.831379467	-1.532547505	ENSG00000229989.3	1
CR1	1.07164862	-0.105591349	0.989121508	0.396297163	0.301853193	1.469467858	-1.354108743	-1.132150269	-0.823405625	-0.813132354	ENSG00000203710.10	1
RGS17P1	0.445008759	0.496301445	0.578908009	-0.307093325	1.343040135	1.388377951	-1.558389678	-0.632690909	-0.996459646	-0.757002741	ENSG00000229473.2	1
MT-RNR1	0.290245755	-0.137050244	0.644121499	0.451389214	1.077990541	1.414197057	-1.961665608	-0.221040203	-0.727386596	-0.830801414	ENSG00000211459.2	1
LIMK2	0.890043845	0.388240171	0.658478568	0.141773037	0.505369151	1.667601287	-0.955547509	-1.183276108	-0.951034676	-1.161647765	ENSG00000182541.17	1
PDE4D	0.599011206	0.065568579	0.657248478	0.147151152	1.080042164	1.560674056	-0.602208646	-1.073446975	-1.444883645	-0.989156368	ENSG00000113448.18	1
ACSL1	1.277996439	0.385919784	0.116707366	-0.02866296	0.855896436	1.373753838	-0.344253747	-1.343654728	-1.267550101	-1.026152328	ENSG00000151726.13	1
SAMSN1	0.768654794	0.494046734	0.260508886	0.316926566	0.94227029	1.460098632	-0.613204526	-0.848285935	-1.305694025	-1.475321417	ENSG00000155307.17	1
EREG	0.623804891	0.962387417	0.368866025	-0.044849043	0.991512595	1.313917343	-0.837594503	-0.840528415	-0.945044357	-1.592471953	ENSG00000124882.3	1
BIN3	0.653985229	0.588840035	0.620550585	0.031149315	1.271676913	0.943734958	-0.147209648	-1.188535966	-1.229993613	-1.544197808	ENSG00000147439.12	1
TOP1	0.044263481	1.094406709	1.369132604	-0.138876569	0.904932118	0.752829355	-0.42498839	-1.278270137	-1.10213899	-1.221290181	ENSG00000198900.5	1
RSRC2	0.170715868	0.788619423	1.53158255	0.145757693	0.911466295	0.454983606	-0.177761151	-1.215789691	-1.426197385	-1.183377208	ENSG00000111011.17	1
PER2	-0.007835407	0.453300328	1.192068656	0.370699656	1.448251443	0.557436048	-0.249243773	-1.325995855	-1.089198117	-1.349482979	ENSG00000132326.11	1
MIR22HG	1.031110049	0.745432845	1.132386546	0.186960346	0.653531582	0.479141578	-0.246775291	-1.379195729	-1.131904356	-1.470687569	ENSG00000186594.14	1
PIM1	0.718256208	1.178081902	1.435335952	-0.114107287	0.413606519	0.429218835	-0.550862454	-1.337071788	-0.757044289	-1.415413598	ENSG00000137193.13	1
TSPYL2	0.305797977	0.394520337	1.336249744	0.191588135	1.11562684	0.68457393	-0.368629467	-0.866981177	-1.858999978	-0.933746342	ENSG00000184205.14	1
ACSL3	0.64148587	0.653815031	1.276993723	-0.76457902	1.02882455	0.970694591	-0.534887204	-0.928744662	-1.330060091	-1.013542788	ENSG00000123983.13	1
AC105046.1	-0.60491774	-0.325844087	-1.628183772	-1.459063364	0.615640586	0.246372069	0.033113531	0.88785051	1.014366524	1.220665743	ENSG00000261026.1	2
NR4A1	-1.10563373	-0.36980758	-1.035391107	-1.676979032	0.747846935	-0.093716766	0.738829617	0.770707434	1.008464073	1.015680157	ENSG00000123358.19	2
OSM	-1.006055298	-0.728624906	-1.727139538	-0.855984332	0.924082486	0.057798874	1.051336356	0.652107909	0.918521606	0.713956844	ENSG00000099985.3	2

SRSF8	-0.364055262	-0.966756937	-1.464192219	-1.13323654	0.616496826	-0.234061368	0.153036891	1.479727425	0.84026442	1.072776764	ENSG00000263465.4	2
DIP2A	-0.359112853	-0.708150893	-1.535672384	-1.159318126	0.193276231	-0.512449912	1.382914126	0.860308119	0.806831185	1.031374505	ENSG00000160305.17	2
TANGO6	-0.051041549	-0.838249504	-1.700030916	-1.248544196	0.199931577	-0.133912014	1.338130744	0.853051881	0.689537546	0.89112643	ENSG00000103047.7	2
SIRPB2	-0.134946435	-0.852514712	-1.923549038	-0.897828176	-0.00068533	0.272708394	1.513021631	0.638361265	0.597715084	0.787717317	ENSG00000196209.12	2
RTN1	-0.693956513	-0.953095722	-0.992602945	-1.452533226	0.539339425	-0.407788568	0.957388729	0.805962422	1.295542448	0.901743951	ENSG00000139970.16	2
ARHGEF10L	-0.707983899	-1.445352567	-0.890647378	-0.936110203	0.391616981	-0.479995806	1.379609605	0.727077363	0.972715643	0.989070262	ENSG00000074964.16	2
REPIN1	-0.131775131	-2.002936822	-0.752718374	-0.796462133	0.168154147	-0.19331993	0.498798101	0.965209261	1.079288179	1.165762701	ENSG00000214022.11	2
FAM217B	-0.405497053	-0.976051233	-0.591837563	-2.07076908	0.147522128	0.712053544	0.888789016	0.430266156	0.91555906	0.949965024	ENSG00000196227.10	2
CD4	0.075641213	-1.624746169	-0.087085198	-1.76714517	-0.068846455	-0.070198741	1.108731747	0.756954146	0.781309585	0.895385044	ENSG00000010610.9	2
TARBP1	-0.669205104	-1.439605205	-0.956060674	-1.053218182	1.596928757	0.117022241	1.175838625	0.346277778	0.418436549	0.463585214	ENSG00000059588.9	2
ASTL	0.02871217	-1.19884848	-1.435035376	-1.243572884	0.189221494	1.14375547	0.64422259	0.118790767	0.307629017	1.445125232	ENSG00000188886.3	2
TEX14	-0.670198985	-0.45860267	-0.887786975	-1.906740717	1.084275671	1.010059266	-0.104928213	0.309703975	0.428150994	1.196067654	ENSG00000121101.15	2
RNVU1-15	-0.625553991	-1.117497235	-0.787998716	-0.409946847	0.379341013	0.113277739	-1.168521174	1.726791384	1.319652549	0.570455278	ENSG00000207205.1	2
U1	-0.774113053	-0.407035917	-0.785574679	-1.503626952	0.48746144	0.498950881	-0.931468798	1.412152201	1.034456565	0.968798314	ENSG00000206828.1	2
NHSL2	-0.122103842	-0.484461339	-1.112923663	-1.598007845	0.031885053	-0.797701706	1.03915671	0.748856305	0.996024283	1.299276043	ENSG00000204131.9	2
CSE1L	-0.151646677	-0.4995276	-1.229981824	-1.633055692	-0.137548918	-0.442983367	0.848904729	1.218333086	0.823714002	1.203792261	ENSG00000124207.16	2
SUPT20H	-0.402405604	-0.32309499	-1.116732002	-1.250933415	-0.217482476	-1.042768154	0.906643206	1.179264722	1.176330535	1.091178178	ENSG00000102710.19	2
MIS18BP1	-0.251422355	0.056717186	-0.927199079	-2.08305264	-0.024468451	-0.441011931	0.56063081	1.003684353	1.06044165	1.045680457	ENSG00000129534.13	2
BTG2	-0.237436779	-0.494758199	-1.118655399	-1.665798577	-0.343945581	-0.124251808	0.448963772	0.988445283	1.033390415	1.514046872	ENSG00000159388.5	2
TMEM131L	0.177646617	-0.322493253	-0.963110262	-1.649587462	-1.026350837	-0.156654191	0.610785289	0.911001593	1.14011934	1.278643168	ENSG00000121210.15	2
IER2	-0.079812449	-0.619012747	-0.54380738	-1.505048227	-0.677136443	-0.69936456	0.396859457	0.86704389	1.204226584	1.656051874	ENSG00000160888.6	2
CIITA	0.259716334	-1.60110661	-0.913772997	-0.674039605	-0.327525403	-0.792260021	1.399179328	0.763714987	1.055089624	0.831004363	ENSG00000179583.18	2
FAAH	-0.046329387	-1.10686149	-0.892293569	-0.75164517	-0.903915125	-0.388779185	1.937641783	0.572590844	1.027987649	0.551603649	ENSG00000117480.15	2
TNF	-0.660521352	-1.586823971	-0.626691782	0.208752367	-0.845522923	-0.589815563	1.253210723	0.60135482	1.337548523	0.908509158	ENSG00000232810.3	2
WDR36	-0.581528455	-0.928717192	-1.328728646	-0.321696404	-0.612300991	-0.404535288	1.838889187	0.773065979	0.476901213	1.088650598	ENSG00000134987.11	2
C2CD2L	0.423282324	-0.354269393	-1.354426425	-0.940808804	-0.990933341	-0.793751477	1.264890212	0.673048495	1.321266834	0.751701575	ENSG00000172375.12	2
GIMAP4	0.376981277	-0.41055671	-1.008860702	-1.058700951	-0.395663406	-1.489866408	1.337641745	0.708474445	0.98329901	0.957251701	ENSG00000133574.9	2
GPBAR1	0.313998053	-0.901592483	-1.462108532	-1.086641967	-0.047844264	-0.779191868	0.858525685	0.6712065	1.140512216	1.29313666	ENSG00000179921.14	2
DDX58	0.205811466	-0.033632401	-0.255085667	-1.019829801	-1.674959404	-1.090736667	1.236716752	0.767518307	0.935621498	0.928575917	ENSG00000107201.9	2
ST6GAL1	-0.484892117	0.538168284	-0.850602611	-0.979134366	-1.280864213	-0.949449752	1.396705935	0.730785511	0.95125661	0.928026719	ENSG00000073849.14	2
OLIG1	-0.183328421	-0.665714866	-0.619171349	-1.086775735	-0.728595748	-1.137957332	1.473344207	0.85957468	0.899100319	1.189524244	ENSG00000184221.12	2
APEX1	-0.252566745	-0.975860395	-0.416720945	-0.765118453	-1.243815819	-0.75397087	1.530012312	0.892260594	1.009708166	0.976072153	ENSG00000100823.11	2
AOAH-IT1	-0.865107984	-0.194985362	-0.495562311	-0.436707539	-1.126902412	-1.126902412	1.743758152	0.768940412	1.093709714	0.639759742	ENSG00000230539.1	2
GIMAP7	-0.184679359	0.146297123	-0.810557825	-0.472906932	-1.122852842	-1.475995683	1.721821375	0.772755001	0.561803287	0.864315856	ENSG00000179144.4	2
FCER1A	-1.197218231	-0.810442495	-0.581227332	-0.483035103	0.0078828	-1.197218231	1.36917841	1.322153492	0.626477649	0.943449041	ENSG00000179639.10	2
NID1	-1.045024598	-0.359158278	-0.460627548	-1.148811245	0.396491738	-0.958464589	1.662080202	-0.082244368	1.450826766	0.544931922	ENSG00000116962.14	2
ZFP36L2	-0.355094705	0.036444742	-0.694521263	-1.922929575	-0.611312184	-0.301657143	1.53183534	1.019019679	0.637702899	0.660512208	ENSG00000152518.7	2
CDIP1	-0.766230308	-0.792831969	-0.418678424	-1.440219928	-0.563847022	-0.193994562	1.74499995	0.9533368	0.997477963	0.479987499	ENSG00000089486.16	2
MAP4K1	-1.098821153	-1.134167301	0.14459264	-0.95936484	-0.394130579	-0.274883105	2.108284895	0.42242787	0.653807066	0.532254507	ENSG00000104814.12	2