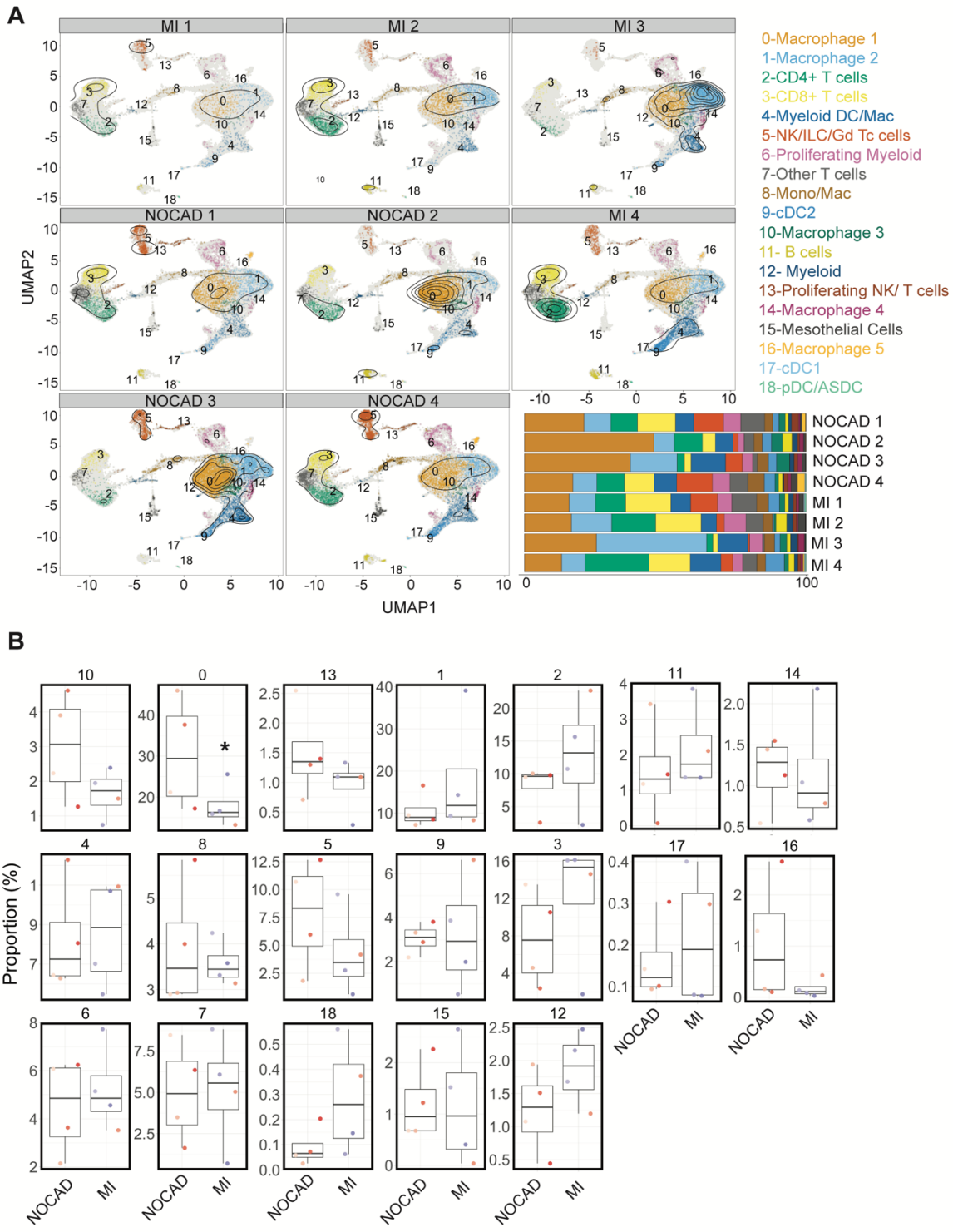
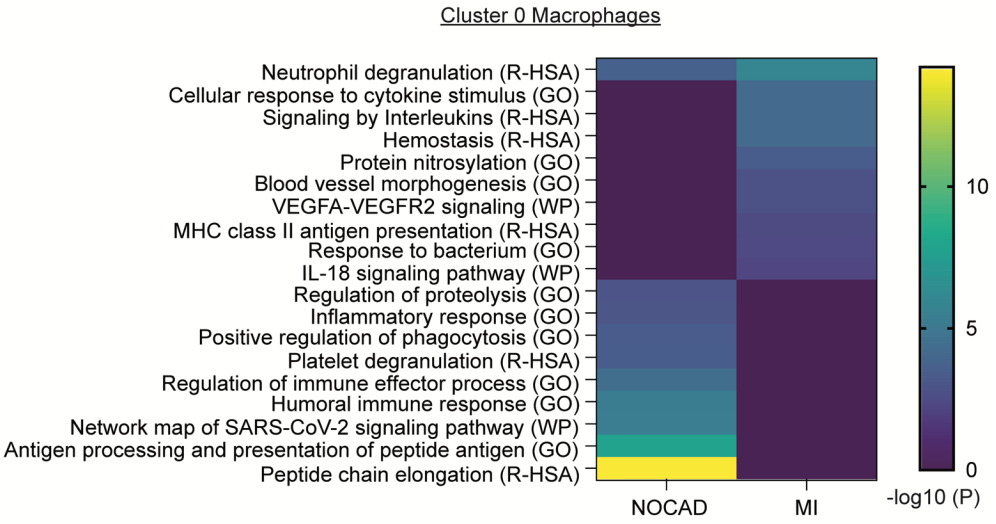
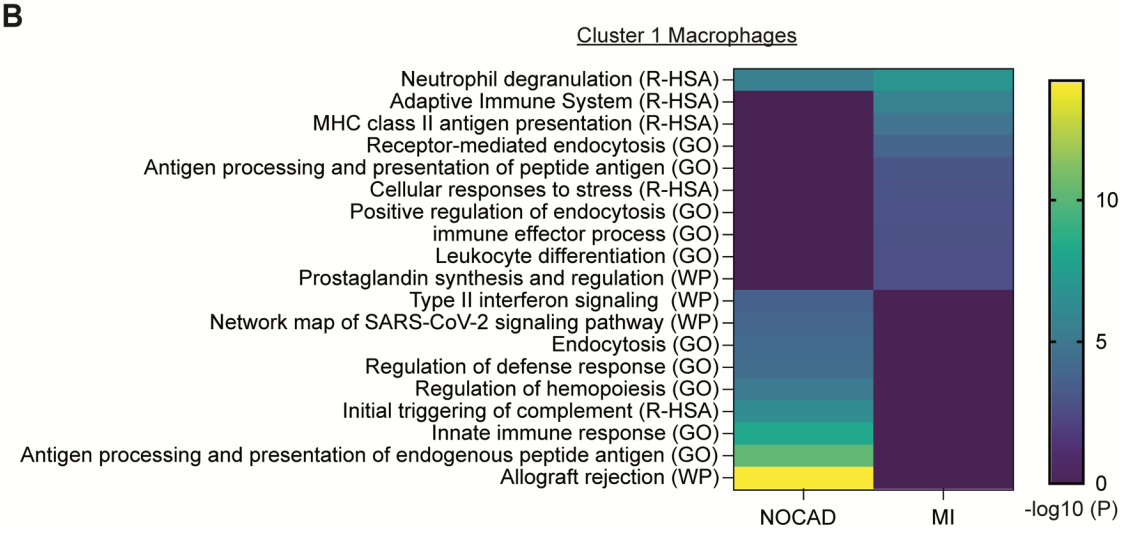



**Supplemental Figure 1: Patient-based pericardial fluid cell clusters.**
A, UMAP projections and stacked plot representation of 19 distinct pericardial fluid cell population for 8 individual patients. B**,** Boxplots showing percentage of each cell cluster grouped by clinical cohort. n=4 for NOCAD and n=4 for MI patients. *=p<0.05 using a generalized linear mixed-effects model.

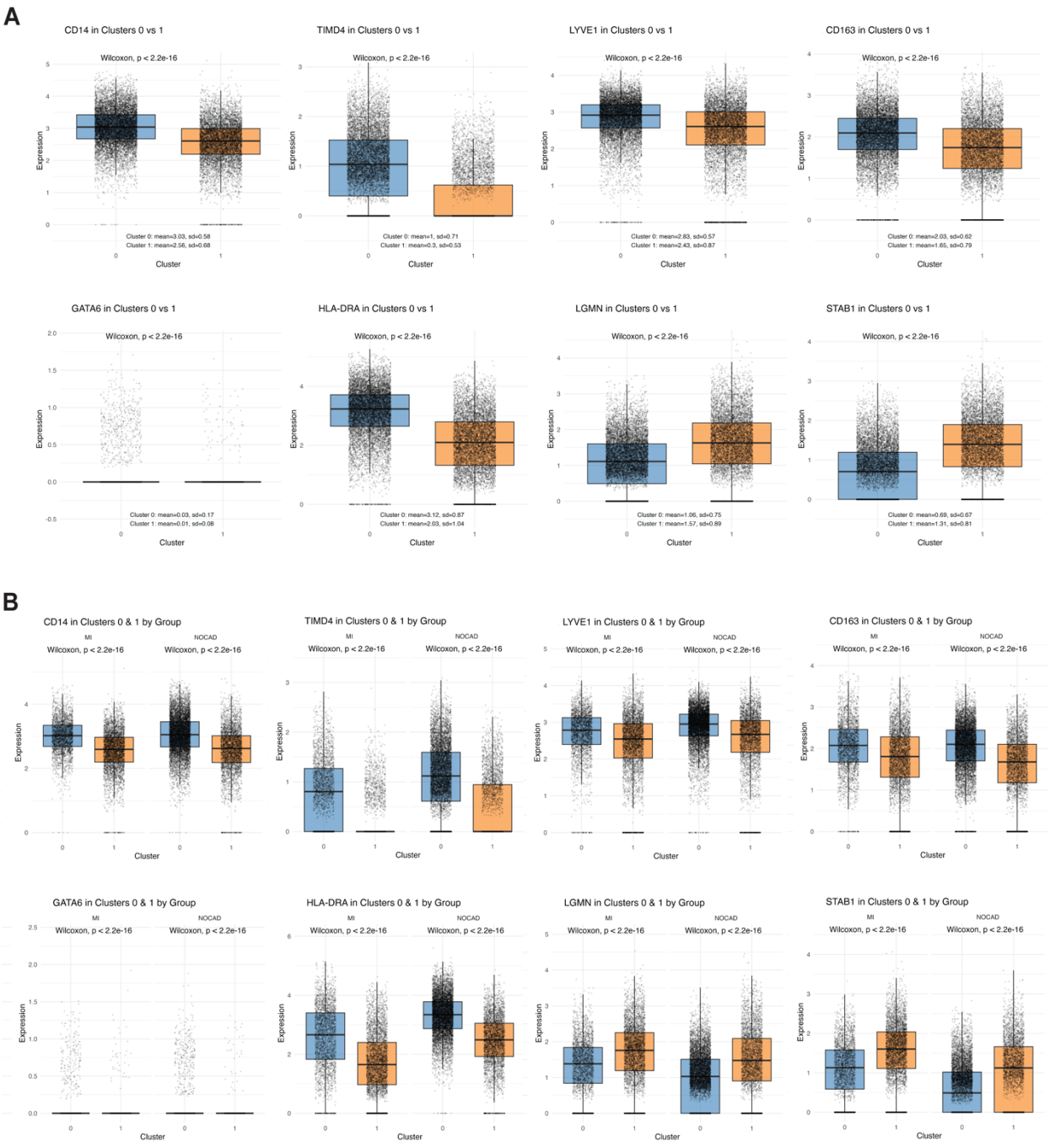
**A**




**B**

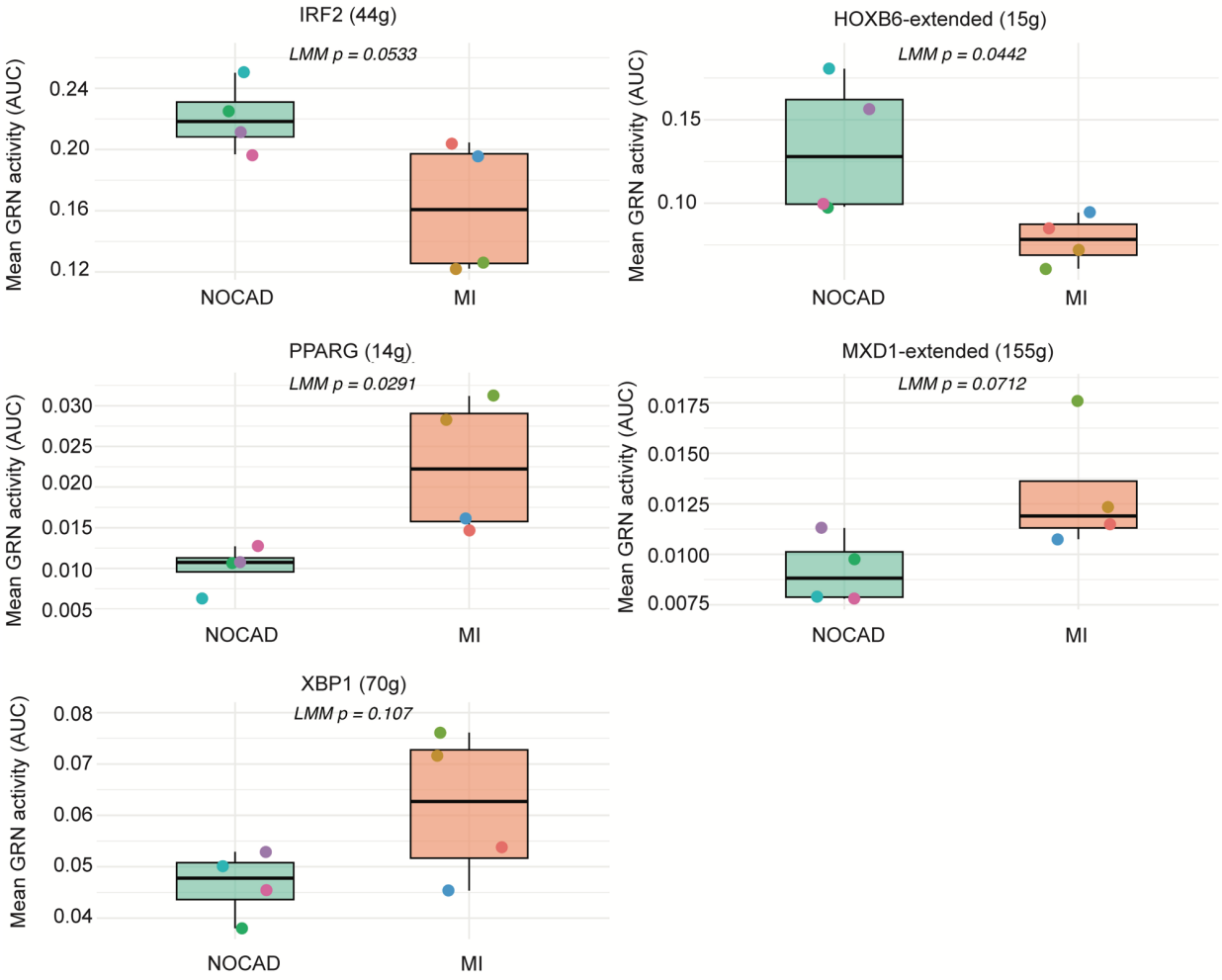



**Supplemental Figure 2: Myocardial injury shifts pericardial macrophage phenotype.**
Metascape pathway analysis of DEGs in both Cluster 0 and Cluster 1 pericardial macrophages between NOCAD and MI samples. The DEGs were calculated with Seurat (v.4) Wilcoxon rank-sum test, which had an average logFC greater than 0.25 and a p-adjusted value of less than 0.05. The cumulative logFCs were generated for each Louvain cluster to indicate the discrepant genes on a cluster-by-cluster basis.



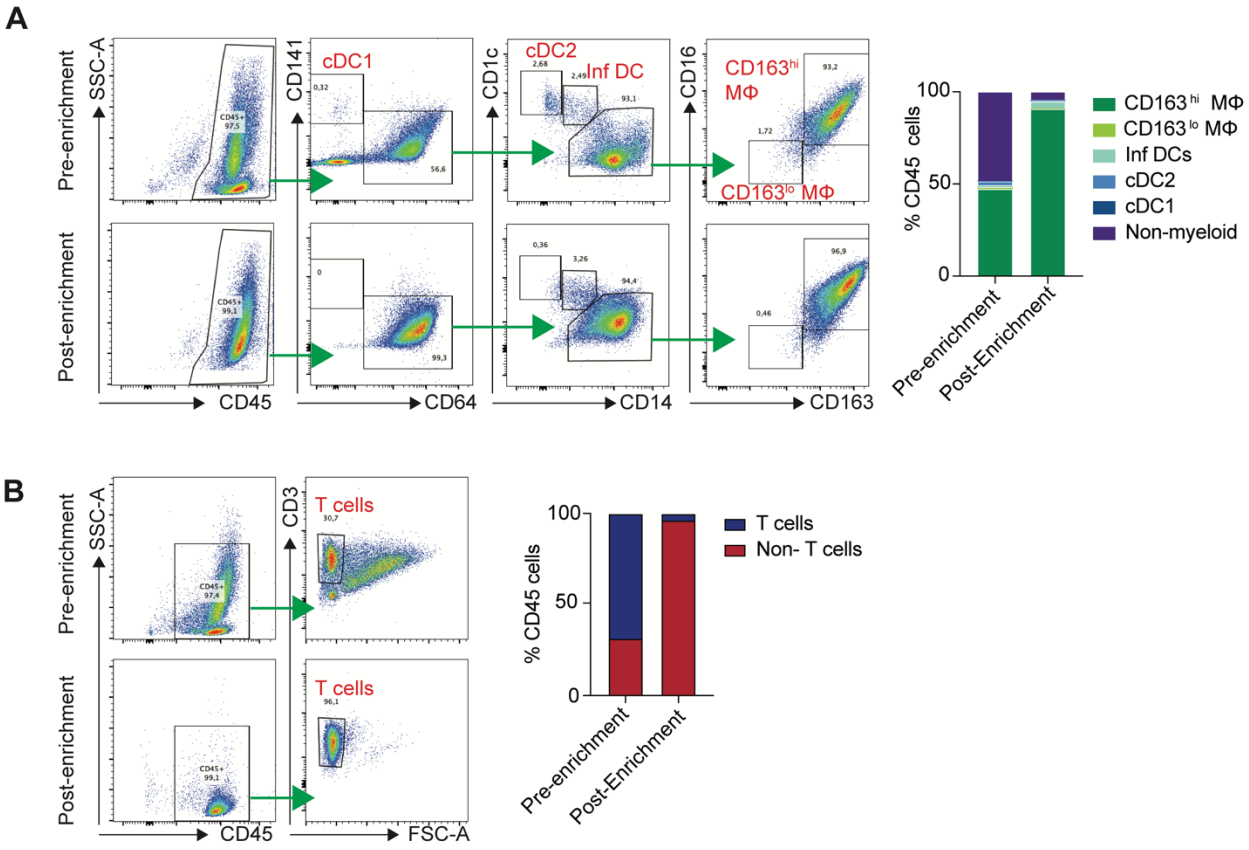

**Supplemental Figure 3: Gene marker expression for cluster 0 and 1 pericardial macrophage populations.**

A-B, Boxplots for defining genes (CD14, TIMD4, LYVE1, GATA6, HLA-DRA, CD163, LGMN, STAB1) comparing expression across clusters (0 vs. 1) overall (A) and separated by patient groups (MI vs. NOCAD) (B)**.** Each plot includes mean, standard deviation, and Wilcoxon p-values**.**

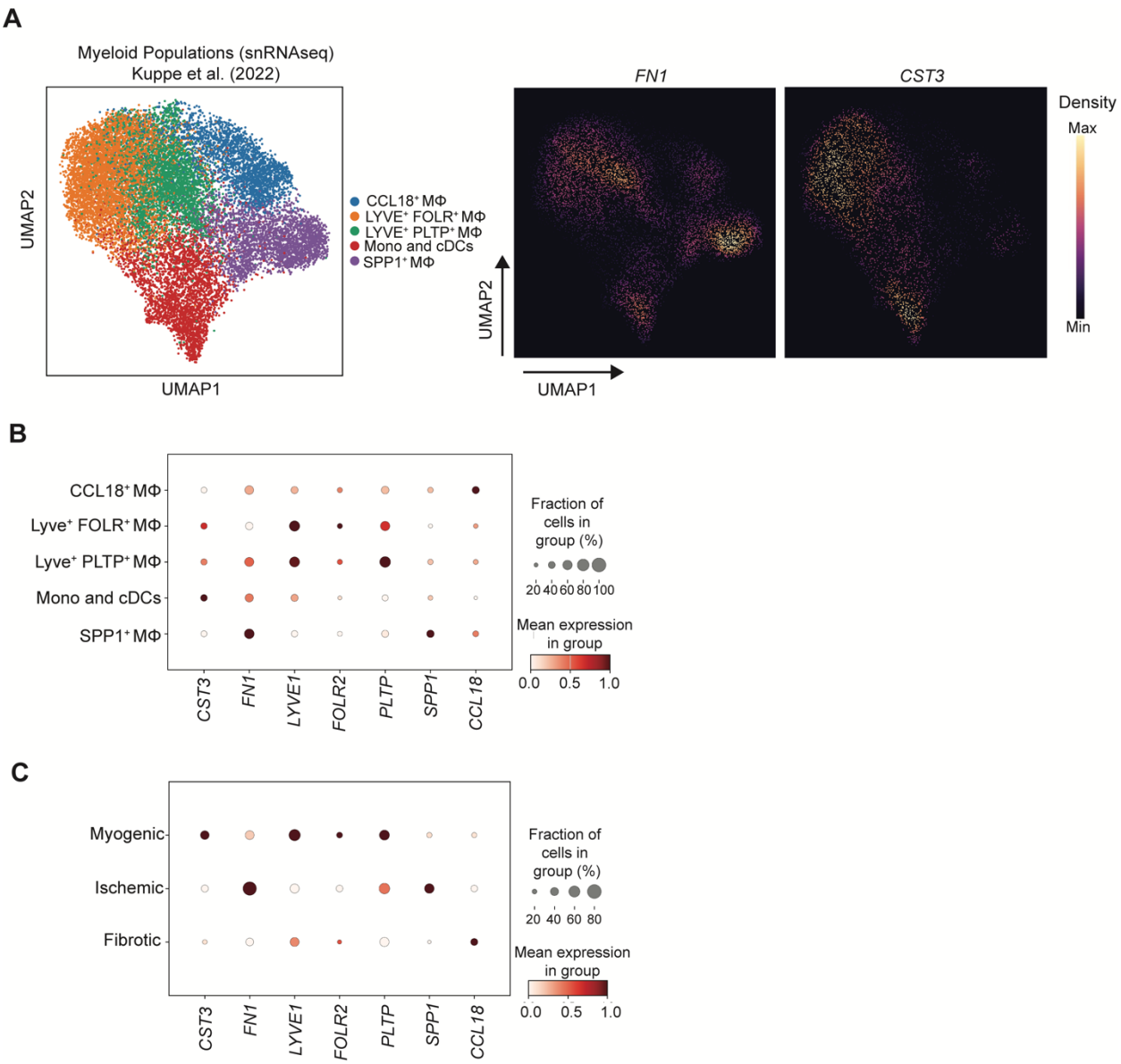



**Supplemental Figure 4: Gene regulatory network clustering analysis for pericardial macrophages for individual patients.**

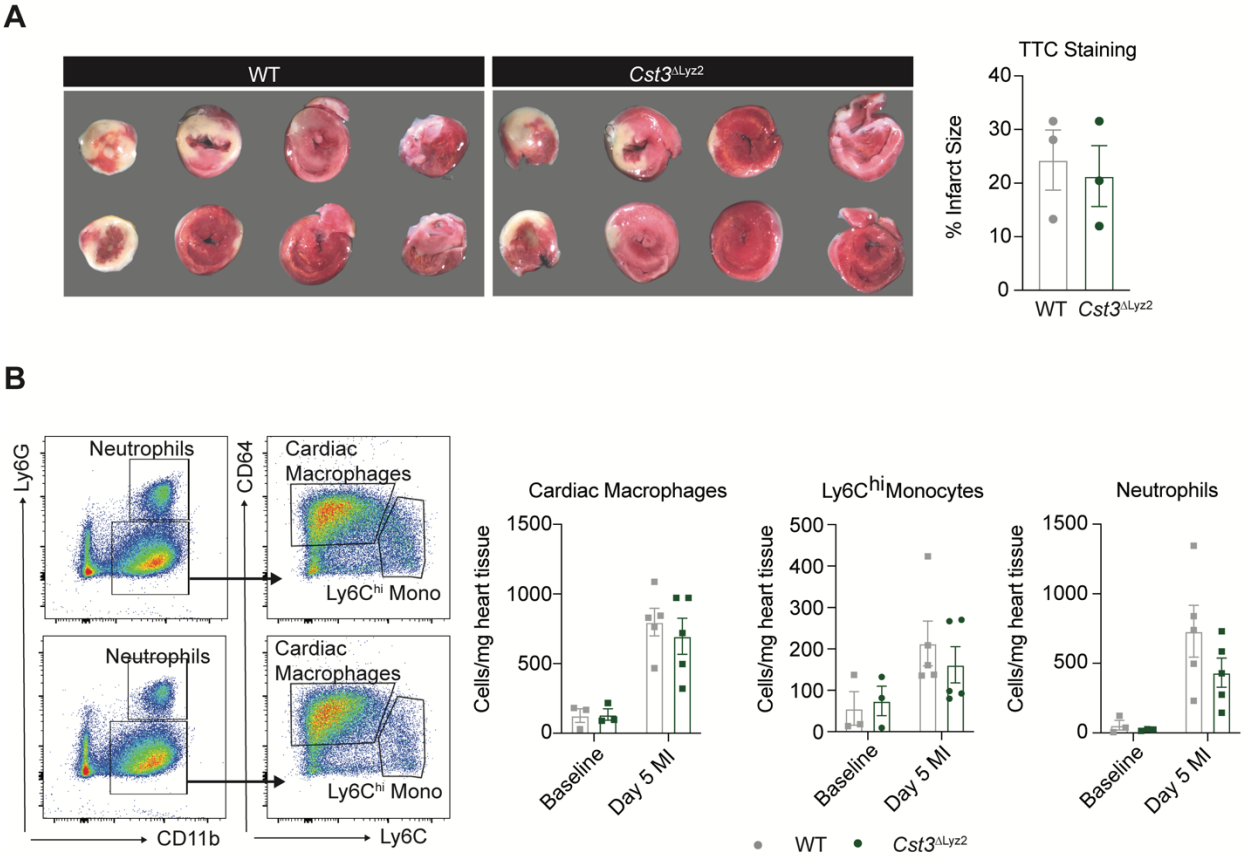
Analysis of gene regulatory networks for IRF2, HOXB6, PPARG, MXD1, XBP1 transcription factors.




**Supplemental Figure 5: Magnetic bead enrichment for pericardial macrophages and T cells.**
A, Representative flow plots and quantification of pericardial myeloid populations with or without CD14 bead enrichment. B, Representative flow plots and quantification of pericardial T cells s with or without CD3 bead enrichment. Representative of two independent experiments.




**Supplemental Figure 6: FN1 and CST3 cardiac macrophage expression following ischemic injury.**
A, Left: Annotated myeloid population UMAP of cardiac macrophage clusters from snRNAseq dataset (21). Center & Right: KDE density maps for FN1 (concentrated in Monocytes/cDCs cluster, lower right) and CST3 (broad monocyte/macrophage expression). B, Dot plot of marker gene expression across named myeloid populations. LYVE1 and PLTP highly expressed in LYVE+ macrophages; CST3 marks Monocytes/cDCs; SPP1 marks SPP1+ MQs; CCL18 marks CCL18+ MQs. Dot size = % cells expressing; color = scaled mean expression. C, Dot plot of marker gene expression across 3 patient disease groups; myogenic, ischaemic, and fibrotic.




**Supplemental Figure 7: Infarct size and myeloid cell recruitment in myeloid Cst3 deficient mice.** A, Representative TTC staining and quantification of infarct size (necrotic area/total LV area) at 48 hrs post-MI in WT and Cst3$^{\Delta Lyz2}$ mice. n =3/group. B, Representative flow plots and quantification of neutrophil, Ly6C$^{hi}$ monocytes, and cardiac macrophages at baseline and 5 post-MI in WT and Cst3$^{\Delta Lyz2}$ mice. n=3/group for baseline samples and n=5/group for day 5 post-MI samples.

| Variable | MI (n=4) | NOCAD (n=4) |
|---|---|---|
| Mean Age ± SD (years) | 63.5 ± 5.4 | 60.0 ± 7.0 |
| Gender | | |
| Male | 4 (100) | 4 (100) |
| Hypertension | 4 (100) | 0 (0) |
| Dyslipidemia | 3 (75) | 0 (0) |
| Diabetes | | |
| Type I | 0 (0) | 0 (0) |
| Type II | 1 (25) | 0 (0) |
| Insulin-dependent | 0 (0) | 0 (0) |
| Smoking | | |
| Active | 0 (0) | 0 (0) |
| Remote | 0 (0) | 0 (0) |
| Atrial Fibrillation | | |
| Paroxysmal | 1 (25) | 1 (25) |
| Permanent | 0 (0) | 0 (0) |
| Severe LV dysfunction | 0 (0) | 0 (0) |
| Chronic kidney disease | | |
| eGFR <45 mL/min | 0 (0) | 0 (0) |
| Dialysis dependent | 0 (0) | 0 (0) |
| Chronic obstructive lung disease | 0 (0) | 0 (0) |
| Peripheral arterial disease | 0 (0) | 0 (0) |
| Cerebrovascular disease | 0 (0) | 0 (0) |
| Rheumatoid disease | 0 (0) | 0 (0) |
| Autoimmune disease | 0 (0) | 0 (0) |
| Immunosuppressed | 0 (0) | 0 (0) |
| Active infective endocarditis | 0 (0) | 0 (0) |
| Preoperative medication use | | |
| Steroids | 0 (0) | 0 (0) |
| Aspirin | 0 (0) | 0 (0) |
| NSAIDs | 0 (0) | 0 (0) |
| Anti-inflammatory | 0 (0) | 0 (0) |
| Antibiotics | 0 (0) | 0 (0) |

**Supplementary Table 2. Baseline patient demographics for single cell RNA sequencing of pericardial fluid.** MI- myocardial infarction**,** CAD- coronary artery disease, LV- left ventricular, eGFR- estimated glomerular filtration rate, NSAIDs- nonsteroidal anti-inflammatory drugs. Represented as patient number with the % in parentheses.

| Cluster 0 | Cluster 1 | Cluster 2 | Cluster 3 | Cluster 4 | Cluster 5 | Cluster 6 | Cluster 7 | Cluster 8 | Cluster 9 | Cluster 10 | Cluster 11 | Cluster 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FN1 | DAB2 | LTB | GZMK | VCAN | GNLY | TOP2A | IL7R | FTL | HLA-DPB1 | MT1G | IGKC | NEAT1 |
| IFI27 | CCL2 | MAL | CCL5 | LYZ | NKG7 | MKI67 | IL32 | BLVRB | FCER1A | MT2A | IGHM | MALAT1 |
| C1QB | FTL | LDHB | IL32 | FCN1 | KLRD1 | STMN1 | KLRB1 | IFI27 | HLA-DPA1 | MT1X | IGLC2 | MT-ND3 |
| CFD | RNASE1 | CD3D | CD2 | HLA-DRA | TRDC | CENPF | LTB | PRDX1 | HLA-DQA1 | SOD2 | IGLC3 | KCNQ1OT1 |
| LYPD2 | GLUL | IL7R | CST7 | HLA-DRB1 | CCL5 | H2AFZ | CD52 | RNASE1 | HLA-DRA | FN1 | JCHAIN | MT-CO3 |
| HAMP | LGMN | CD3G | CD8A | HLA-DPA1 | XCL2 | TUBA1B | CD2 | C1QC | HLA-DRB1 | CCL4 | CD79A | MT-CYB |
| C1QC | CTSB | RPS3 | GZMA | MNDA | GZMA | HMGN2 | CD40LG | CSTB | HLA-DQB1 | CCL3 | MS4A1 | MT-ATP6 |
| C1QA | F13A1 | CCR7 | CD8B | HLA-DRB5 | IL2RB | HIST1H4C | CD3D | LGALS3 | CD1C | RHOB | IGHA1 | MT-ND5 |
| MARCO | NEAT1 | CD3E | GZMH | HLA-DPB1 | KLRC1 | TUBB | CD3G | SELENOP | HLA-DRB5 | NAMPT | VPREB3 | VMP1 |
| FCGR3A | BRI3 | CD52 | CD3D | MARCKS | KLRB1 | NUSAP1 | TRAC | SLC40A1 | CLEC10A | LMNA | RALGPS2 | MT-CO2 |
| PSAP | CALM3 | RPL34 | TRAC | CD74 | CTSW | HMGB2 | SOCS1 | NUPR1 | CD74 | IFI27 | IGHD | MT-CO1 |
| C2 | FABP5 | RPL10 | CD3G | CD36 | XCL1 | ASPM | CD3E | S100A9 | HLA-DQA2 | FTH1 | CD79B | MT-ND1 |
| LYVE1 | BLVRB | RPL3 | TRBC2 | FGL2 | CLIC3 | PTTG1 | TRBC2 | S100A8 | CPVL | CXCL3 | BANK1 | CD163 |
| FTH1 | TTYH3 | RPS27 | CD3E | CLEC10A | CMC1 | PCLAF | BCL2 | C1QB | CST3 | SAT1 | CD37 | N4BP2L2 |
| CYP27A1 | STAB1 | RPL32 | NKG7 | HLA-DQB1 | STK17A | CDK1 | SYNE2 | FTH1 | LGALS2 | CXCL10 | IGHG3 | MT-ND2 |
| TIMP1 | CSTB | RPS8 | GZMM | MEF2C | CD7 | TYMS | ETS1 | BRI3 | HLA-DMA | LYPD2 | TCL1A | POLR2J3.1 |
| PLTP | S100A8 | RPL18 | CD52 | AP1S2 | CCL4 | TUBA1C | CISH | PEPD | IGSF6 | NCF1 | IGHG1 | WSB1 |
| CD14 | CTSD | RPS12 | TRBC1 | S100A12 | MATK | TPX2 | RORA | ENHO | LYZ | CFD | BIRC3 | MT-ND4L |
| CYP1B1 | LGALS1 | RPL30 | CCL4 | AC020656. | CST7 | CEP55 | TRBC1 | FCGRT | CD1E | MT1E | LINC00926 | MT-ND4 |
| FOLR2 | ADAP2 | RPS18 | HCST | RNF141 | HOPX | CDKN3 | INPP4B | AIF1 | JAML | NUPR1 | MZB1 | SLC11A1 |
| CST3 | NPL | TRAC | APOBEC3G | HLA-DQA1 | GZMM | BIRC5 | SPOCK2 | S100A11 | FGL2 | C5AR1 | CD52 | RSRP1 |
| CD163 | ANXA4 | RPS15A | KLRG1 | ZEB2 | HCST | KPNA2 | DPP4 | C1QA | BASP1 | EMP1 | BCL11A | MT-ND6 |
| VSIG4 | IDH1 | TCF7 | RARRES3 | CD93 | PRF1 | CKS1B | CXCR4 | TSPO | CKLF | ACSL1 | CXCR4 | DDX17 |
| MS4A7 | SPP1 | RPSA | ETS1 | SERPINA1 | APOBEC3G | SMC4 | RCAN3 | FOLR2 | GAPT | TNFAIP2 | HVCN1 | ZEB2 |
| ALDH2 | CTSZ | TRBC2 | IKZF3 | KCTD12 | GSTP1 | TK1 | MYL12A | CLTA | LSP1 | NFKBIA | LINC02397 | DDX5 |

**Supplemental Table 2. Top cluster markers.**

| Cluster 13 | Cluster 14 | Cluster 15 | Cluster 16 | Cluster 17 | Cluster 18 |
|---|---|---|---|---|---|
| STMN1 | FCGBP | ITLN1 | FCGBP | CPVL | GZMB |
| HIST1H4C | APOE | SLPI | CD93 | HLA-DPB1 | JCHAIN |
| HMGB2 | SPP1 | C3 | MSR1 | LGALS2 | PTGDS |
| TOP2A | APOC1 | CCDC80 | SLC40A1 | HLA-DPA1 | CCDC50 |
| MKI67 | A2M | PRG4 | CCL2 | DNASE1L3 | IRF8 |
| CENPF | FSCN1 | PLA2G2A | SELENOP | HLA-DQA1 | TCF4 |
| NUSAP1 | LGALS1 | KRT19 | FCGR2A | CPNE3 | UGCG |
| TYMS | TREM2 | MGP | HPGDS | S100B | IRF7 |
| HIST1H1D | DAB2 | KRT18 | STAB1 | CLEC9A | BCL11A |
| GNLY | CTSL | HP | BCAT1 | C1orf54 | CLIC3 |
| ASPM | C1QC | RARRES2 | CTSD | IRF8 | PPP1R14B |
| HMGN2 | CYFIP1 | ADIRF | MAMDC2 | HLA-DRA | C12orf75 |
| DUT | STAB1 | TM4SF1 | DAB2 | HLA-DQB1 | PLD4 |
| HIST1H1B | EPB41L2 | CALD1 | CD28 | CD74 | IL3RA |
| H2AFZ | SCIN | TPM1 | MRC1 | HLA-DRB1 | LILRA4 |
| GZMA | IGSF6 | CFH | SYNE1 | SNX3 | ITM2C |
| SMC4 | MARCKS | KRT8 | LGMN | HLA-DRB5 | MZB1 |
| NUCB2 | C1QB | IGFBP5 | COLEC12 | CST3 | TCL1A |
| TMPO | CD63 | C1R | MAF | WDFY4 | SPIB |
| TPX2 | HSPA5 | CPE | TGFBI | FGL2 | APP |
| PCLAF | DBI | TIMP1 | IGSF21 | RGS10 | SERPINF1 |
| HMGB1 | TUBA1B | RARRES1 | HLA-DQB1 | XCR1 | PLAC8 |
| ATAD2 | CTSB | SERPING1 | CD74 | IDO1 | HERPUD1 |
| HIST1H1C | CD14 | MSLN | PTMS | BATF3 | DERL3 |
| ANP32E | GSN | C1S | ADAP2 | RGCC | TPM2 |

**Supplemental Table 2. Top cluster markers. (continued)**

Cluster 0

| Gene | A477 | A490 | A500 | A575 | Sum |
|---|---|---|---|---|---|
| CCL18 | 0 | 0.75499651 | 3.22452625 | 0.26500975 | 4.2445325 |
| LGALS1 | 0.69092791 | 1.22920947 | 1.22551181 | 0.46679555 | 3.61244475 |
| STAB1 | 0.61080335 | 1.60861008 | 0.83299535 | 0.30608163 | 3.35849041 |
| CCL2 | 0.51501321 | 1.17167261 | 0.86846111 | 0.32378168 | 2.8789286 |
| PPDPF | 0.71485979 | 0.42866017 | 0.84252226 | 0.42385638 | 2.4098986 |
| RNASE1 | 0.33059997 | 0.96660726 | 0 | 0.8561644 | 2.15337163 |
| DAB2 | 0 | 0.82035038 | 0.67700631 | 0.63381583 | 2.13117252 |
| P4HB | 0.53866327 | 1.05578037 | 0.42852222 | 0 | 2.02296586 |
| CTSB | 0.33962653 | 0.89362386 | 0.73479954 | 0 | 1.96804994 |
| TUBA1A | 0.51716644 | 0.66131812 | 0.71903554 | 0 | 1.8975201 |
| CD55 | 0.55865892 | 0 | 0.87188127 | 0.45094158 | 1.88148177 |
| LGMN | 0 | 0.96562652 | 0.31049409 | 0.55105296 | 1.82717357 |
| UCP2 | 0.66676372 | 0.75049519 | 0.34207708 | 0 | 1.75933598 |
| HSPB1 | 0.72483052 | 0 | 0.43947266 | 0.56575189 | 1.73005508 |
| TAGLN2 | 0.78925934 | 0.48329363 | 0.4221858 | 0 | 1.69473877 |
| GAPDH | 0.47651757 | 0.64020041 | 0.53452839 | 0 | 1.65124637 |
| ZYX | 0.7362331 | 0.45883769 | 0 | 0.4205836 | 1.6156544 |
| AP2A2 | 0.32288468 | 0.68765228 | 0.53736092 | 0 | 1.54789788 |
| AP2S1 | 0.4204483 | 0.40644576 | 0.44834107 | 0.27196477 | 1.5471999 |
| CD99 | 0.32021692 | 0.46496597 | 0.42199243 | 0.33345779 | 1.54063311 |
| CREG1 | 0.35659456 | 0.50424878 | 0.25266914 | 0.35599247 | 1.46950495 |
| SERF2 | 0.27454595 | 0.53692545 | 0.64689246 | 0 | 1.45836385 |
| GLIPR2 | 0.48251095 | 0.47112575 | 0.44484241 | 0 | 1.39847911 |
| CFL1 | 0.51531334 | 0.50640356 | 0.34854322 | 0 | 1.37026012 |
| SH3BGRL3 | 0.67880646 | 0.34957877 | 0.33944288 | 0 | 1.36782811 |
| ECM1 | 0.61190735 | 0.25989172 | 0.42236262 | 0 | 1.29416169 |
| ENHO | 0.86907921 | -0.3246207 | -0.2637037 | 0.96877765 | 1.24953247 |
| UQCR11 | 0.36333867 | 0.48048194 | 0.38569811 | 0 | 1.22951871 |
| LMNA | 0.3555613 | 0.37160363 | 0.4943469 | 0 | 1.22151183 |
| F13A1 | -0.61473 | 0.97042241 | 0.54698801 | 0.25287445 | 1.15555488 |
| ANXA2 | 0.34121917 | 0.40813564 | 0.34497833 | 0 | 1.09433314 |
| SPI1 | 0.4938576 | 0.34731335 | 0.25240007 | 0 | 1.09357102 |
| TGFBI | 0.33028725 | 0.48072441 | 0 | 0.26801714 | 1.0790288 |
| S100A8 | 0.29463584 | 0.45701421 | 1.14226477 | -0.8162557 | 1.07765917 |
| CSNK2B | 0.45236616 | 0.34855007 | 0.25594128 | 0 | 1.05685751 |
| ENO1 | 0.35311426 | 0.38558942 | 0.28330284 | 0 | 1.02200652 |
| POLR2J3.1 | 0.38517334 | 0 | 0.2778982 | 0.3559967 | 1.01906824 |
| STXBP2 | 0.35307171 | 0.37771496 | 0.28372307 | 0 | 1.01450973 |

**Supplemental Table 3. Cluster perturbation scores.**

| | | | | | |
|---|---|---|---|---|---|
| GAS7 | 0.29412096 | 0.3195294 | 0.39239621 | 0 | 1.00604658 |
| RHOG | 0.31078555 | 0.32942049 | 0.35930067 | 0 | 0.99950671 |
| PLEKHO1 | 0.2890513 | 0 | 0.29594454 | 0.37535357 | 0.9603494 |
| COX5A | 0.26450874 | 0.34150311 | 0.3100647 | 0 | 0.91607655 |
| FPR1 | 0 | 0.63517988 | 0.52682724 | -0.2834883 | 0.87851883 |
| VIM | 0.26371824 | 0.27557037 | 0.33065869 | 0 | 0.8699473 |
| RHOB | 0.74533827 | -0.3407004 | 0 | 0.27095814 | 0.67559606 |
| FCER1G | 0.43450422 | 0.51516086 | 0 | -0.3384777 | 0.61118742 |
| CD52 | 0.25051797 | 0.52546493 | -0.2886265 | 0 | 0.48735637 |
| LAIR1 | 0.25973056 | 0.40727817 | 0 | -0.2665506 | 0.40045814 |
| FOS | 1.44828907 | -0.4236038 | -0.3337795 | -0.3205912 | 0.37031449 |
| ACADVL | 0.26213301 | 0.35013016 | 0 | -0.2522494 | 0.36001377 |
| PABPC1 | 0.25331334 | 0 | -0.2721922 | 0.30873679 | 0.28985794 |
| KLF2 | 0.40527813 | -0.5396749 | 0 | 0.42168772 | 0.28729095 |
| S100A9 | 0 | 0.28878873 | 0.57258668 | -0.6710164 | 0.19035898 |
| TYMP | 0.40198779 | 0 | 0.33368528 | -0.5570133 | 0.17865982 |
| JUNB | 0.68807669 | -0.3147964 | -0.2777316 | 0 | 0.09554871 |
| RPS26 | 0 | 0.44537416 | 0.35737258 | -0.8908981 | -0.0881513 |
| HLA-DRB5 | 1.18278263 | -0.4851469 | -1.7416946 | 0.83195613 | -0.2121028 |
| NAMPT | 0 | -0.3496706 | 0.71732825 | -0.59554 | -0.2278823 |
| RPS3 | -0.2504127 | 0 | -0.2655949 | 0.26114176 | -0.2548659 |
| RPL5 | -0.308121 | 0 | -0.3615105 | 0.37492738 | -0.2947041 |
| ADORA3 | -0.2587564 | 0.31752849 | -0.3650967 | 0 | -0.3063246 |
| ZFP36 | 0.32994481 | -0.373633 | -0.2765492 | 0 | -0.3202375 |
| MDM2 | 0 | -0.2616445 | -0.3530292 | 0.26535836 | -0.3493154 |
| ANXA5 | 0 | -0.3290999 | 0.25288916 | -0.2741884 | -0.3503991 |
| MX1 | 0.28919887 | -0.4603729 | 0 | -0.2684278 | -0.4396019 |
| RPL7A | -0.3903813 | 0 | -0.3650107 | 0.31490069 | -0.4404913 |
| CD300E | 0 | -0.4053285 | 0.33648241 | -0.3762748 | -0.4451209 |
| DUSP1 | 0.51164508 | -0.5544721 | 0 | -0.4232959 | -0.4661229 |
| EPB41L3 | -0.2899147 | -0.2885276 | 0.36039696 | -0.3285187 | -0.546564 |
| RPS27L | -0.3056422 | 0 | -0.4967821 | 0.25061266 | -0.5518116 |
| ALDH1A1 | 0 | -0.2800267 | -0.5946704 | 0.31386105 | -0.5608361 |
| CFP | 0.27297107 | -0.5342425 | -0.3127628 | 0 | -0.5740342 |
| GAS6 | -0.3405074 | -0.2511855 | -0.3739729 | 0.34826982 | -0.6173959 |
| MAF | 0 | -0.3024059 | -0.7620671 | 0.40656229 | -0.6579108 |
| EEF1A1 | 0 | -0.308719 | -0.6525469 | 0.27098856 | -0.6902773 |
| SELENOP | 0 | -0.3063162 | -0.7799963 | 0.37248443 | -0.7138281 |
| FOXC1 | 0 | -0.2948866 | -0.2545618 | -0.2542582 | -0.8037066 |
| LINC02432 | -0.3138709 | -0.3017403 | -0.3018502 | 0 | -0.9174614 |
| UBE2J1 | 0 | -0.3491502 | -0.3067884 | -0.2733857 | -0.9293243 |

| | | | | | |
|---|---|---|---|---|---|
| RPS11 | -0.2802425 | -0.4127932 | -0.2869475 | 0 | -0.9799831 |
| SARAF | -0.2778694 | -0.2967466 | -0.4153568 | 0 | -0.9899727 |
| SLC1A3 | -0.3469748 | 0 | -0.265371 | -0.3810387 | -0.9933845 |
| PDK4 | 0.6037706 | -0.2581704 | -0.542195 | -0.7996568 | -0.9962516 |
| ERAP2 | -0.4518304 | -0.5646561 | -0.2894806 | 0.29622329 | -1.0097439 |
| AC020656.1 | -0.3608265 | -0.3296509 | -0.3403229 | 0 | -1.0308004 |
| RPL30 | -0.3785726 | -0.3206521 | -0.3414922 | 0 | -1.040717 |
| A2M | 0 | -0.5398949 | -1.0231425 | 0.50565414 | -1.0573832 |
| EPS8 | -0.2802989 | -0.333191 | -0.4439308 | 0 | -1.0574208 |
| PDE4DIP | -0.4794165 | -0.2957211 | 0 | -0.3237596 | -1.0988971 |
| APOE | 0 | -0.3856421 | -0.389795 | -0.3385987 | -1.1140357 |
| CLIC4 | -0.286332 | -0.4501381 | -0.3886367 | 0 | -1.1251068 |
| KCNMA1 | -0.556046 | 0 | -0.2599353 | -0.3398803 | -1.1558616 |
| APOC1 | 0 | -0.3343791 | -0.4692888 | -0.3530368 | -1.1567047 |
| RPL14 | -0.4563711 | -0.2657923 | -0.4561149 | 0 | -1.1782783 |
| RPS27 | -0.491679 | -0.3893219 | -0.2975761 | 0 | -1.1785771 |
| TCF4 | -0.340059 | -0.3425072 | -0.5254254 | 0 | -1.2079917 |
| DENND3 | -0.3802865 | -0.3121785 | -0.517271 | 0 | -1.209736 |
| HLA-F | 0 | -0.4491276 | -0.4642353 | -0.3077897 | -1.2211525 |
| RPL21 | -0.2750024 | -0.3719088 | -0.5774727 | 0 | -1.2243839 |
| MS4A7 | 0 | -0.4291558 | -0.4377607 | -0.3671659 | -1.2340824 |
| ALOX5AP | -0.6658544 | 0.69786507 | -1.2781776 | 0 | -1.246167 |
| CLEC7A | 0 | -0.2982036 | -0.6687475 | -0.2882816 | -1.2552327 |
| GPR65 | 0 | -0.3102842 | -0.4979923 | -0.4642589 | -1.2725354 |
| MSLN | -0.3072893 | -0.3302913 | -0.3271803 | -0.3253724 | -1.2901334 |
| GATM | -0.3593079 | -0.3794015 | -0.5514631 | 0 | -1.2901726 |
| TPT1 | -0.2931703 | -0.4609848 | -0.5522191 | 0 | -1.3063743 |
| LTA4H | 0.39367655 | -0.6459725 | -0.5566717 | -0.5031204 | -1.3120881 |
| HLA-C | 0.35841155 | -0.3574542 | -0.7157236 | -0.6020382 | -1.3168044 |
| MT-ND2 | -0.5113568 | -0.2921838 | -0.5423051 | 0 | -1.3458456 |
| RND3 | 0 | -0.4512664 | -0.4766929 | -0.4243655 | -1.3523248 |
| FCGR2B | -0.5890194 | -0.3330915 | -0.4319588 | 0 | -1.3540697 |
| EVI2B | -0.2799989 | -0.4936858 | -0.6224463 | 0 | -1.396131 |
| RPL23 | -0.4225452 | -0.5165537 | -0.470802 | 0 | -1.4099009 |
| TIMD4 | 0 | -0.4482691 | -0.4601465 | -0.5414347 | -1.4498503 |
| RPL27A | -0.4085112 | -0.5138382 | -0.6289201 | 0 | -1.5512695 |
| MT2A | 0 | -0.4079 | -0.5538253 | -0.599196 | -1.5609214 |
| LYPD2 | -0.6106739 | -0.6850652 | -0.2959237 | 0 | -1.5916628 |
| EPB41L2 | -0.4837583 | -0.5636658 | -0.5531435 | 0 | -1.6005676 |
| C1QB | -0.5128335 | 0 | -0.7451312 | -0.3731338 | -1.6310985 |
| LYZ | -0.4171228 | -0.5325242 | -0.7221849 | 0 | -1.6718319 |

| | | | | | |
|---|---|---|---|---|---|
| CD81 | -0.5724961 | 0 | -0.6826052 | -0.4624984 | -1.7175997 |
| CXCL16 | -0.4735833 | -0.5386059 | -0.4274186 | -0.366273 | -1.8058809 |
| HLA-DQB1 | 0 | -1.0802091 | -0.9934974 | 0.26726488 | -1.8064415 |
| FCGR3A | -0.3218059 | -0.6382585 | -0.7493938 | -0.3018427 | -2.0113009 |
| SOD2 | -0.5472885 | -0.9717433 | 0 | -0.5609159 | -2.0799478 |
| BHLHE41 | -0.5429083 | -0.9155277 | -0.643478 | 0 | -2.1019141 |
| FCN1 | 0.51232207 | -1.3353316 | -1.0656212 | -0.2735317 | -2.1621624 |
| PLAC8 | 0 | -0.5379664 | -1.3748783 | -0.3990653 | -2.3119101 |
| ALDH2 | -0.701388 | -0.8350574 | -0.8491526 | 0 | -2.385598 |
| CLEC12A | -0.8030932 | -0.8501515 | -0.4150238 | -0.4631764 | -2.531445 |
| IFI27 | 0 | -1.1146084 | -0.5459476 | -0.9116099 | -2.572166 |
| ID3 | -0.6164384 | -0.457001 | -1.0578639 | -0.5483141 | -2.6796174 |
| HLA-DPB1 | 0 | -1.7590563 | -1.4337128 | 0.38030257 | -2.8124665 |
| FN1 | 0 | -0.7140882 | -1.4293681 | -0.7187337 | -2.86219 |
| VMO1 | -1.100735 | -0.8442467 | 0 | -1.0618363 | -3.006818 |
| TSPAN13 | -0.8375365 | -0.7024168 | -0.9761597 | -0.9405053 | -3.4566182 |
| CST3 | -0.5433423 | -1.2426392 | -1.7584579 | 0 | -3.5444395 |
| NUPR1 | -1.3860161 | -0.8138788 | -0.8314039 | -0.7918529 | -3.8231516 |
| HLA-DRB1 | -0.6688357 | -1.4162379 | -1.819273 | -0.3696553 | -4.2740018 |
| CFD | -2.1220831 | -2.3250649 | -1.351949 | -0.4343986 | -6.2334956 |

Cluster 1

| Gene | A477 | A490 | A500 | A575 | Sum |
|---|---|---|---|---|---|
| CCL2 | 0.86056081 | 1.46181403 | 1.13786467 | 0 | 3.46023951 |
| PPDPF | 0.65673731 | 0.65323773 | 1.12984088 | 0.51301867 | 2.95283459 |
| FABP5 | 0.42228247 | 1.26831764 | 1.06879762 | 0 | 2.75939773 |
| PLTP | 0.38637576 | 1.16736687 | 1.07116879 | 0 | 2.62491143 |
| TUBA1B | 0.42751979 | 1.35866313 | 0.68649432 | 0 | 2.47267724 |
| STAB1 | 0.58007518 | 1.06725842 | 0.36642395 | 0.37818793 | 2.39194548 |
| S100A6 | 0.55147736 | 0.72048775 | 1.05359527 | 0 | 2.32556038 |
| TAGLN2 | 0.87028282 | 0.49222113 | 0.54744052 | 0.26591475 | 2.17585923 |
| CD99 | 0.34592761 | 0.53905014 | 0.60933022 | 0.51592331 | 2.01023129 |
| LGALS1 | 0 | 0.82175124 | 0.80477395 | 0.34691021 | 1.9734354 |
| GLIPR2 | 0.74284219 | 0.61837073 | 0.60228299 | 0 | 1.9634959 |
| TUBA1C | 0.47676203 | 0.81110637 | 0.62098026 | 0 | 1.90884866 |
| DAB2 | 0 | 0.60843225 | 0.63381215 | 0.64500601 | 1.88725041 |
| CD36 | 0.2528062 | 0.55173122 | 0.61885334 | 0.46223816 | 1.88562893 |
| UCP2 | 0.53837635 | 0.928363 | 0.27075877 | 0 | 1.73749812 |
| ZYX | 0.75448819 | 0.42563151 | 0 | 0.53371344 | 1.71383314 |
| FCER1G | 0.49119948 | 0.80755621 | 0.39975124 | 0 | 1.69850692 |
| GAPDH | 0.52911629 | 0.65025466 | 0.5056665 | 0 | 1.68503744 |
| TYROBP | 0.34917634 | 0.41793347 | 0.54527891 | 0.30693557 | 1.61932429 |
| ELOB | 0.33298507 | 0.55443457 | 0.67870067 | 0 | 1.56612031 |
| RAB5C | 0.35367784 | 0.54144147 | 0.38240413 | 0.27874884 | 1.55627228 |
| RNASE1 | 0.33152494 | 0.66901979 | -0.4757741 | 0.98089226 | 1.50566289 |
| ANXA6 | 0 | 0.81175773 | 0.4091996 | 0.25821174 | 1.47916908 |
| CALR | 0.42729993 | 0.75716247 | 0.28862595 | 0 | 1.47308835 |
| SH3BGRL3 | 0.47199449 | 0.53920242 | 0.44007461 | 0 | 1.45127152 |
| CTSB | 0.38311148 | 0.63115506 | 0.41101664 | 0 | 1.42528318 |
| TTYH3 | 0.46469058 | 0.49106806 | 0 | 0.45495084 | 1.41070948 |
| CSNK2B | 0.40052062 | 0.44830481 | 0.2660361 | 0.28760134 | 1.40246286 |
| G0S2 | 0.40093722 | 0.47288482 | 0.52640466 | 0 | 1.4002267 |
| LMNA | 0.61338224 | 0.28906206 | 0.49384871 | 0 | 1.396293 |
| CRIP1 | 0.2736091 | 0 | 0.84544585 | 0.27223872 | 1.39129368 |
| UQCR11 | 0.40985849 | 0.53462948 | 0.40320936 | 0 | 1.34769732 |
| ENHO | 0.91673991 | -0.5161751 | 0 | 0.91957209 | 1.32013694 |
| PFN1 | 0.46621789 | 0.50885562 | 0 | 0.33952487 | 1.31459838 |
| ATP5ME | 0 | 0.62414894 | 0.35849643 | 0.32503378 | 1.30767914 |
| AP2S1 | 0.3458965 | 0.50179343 | 0.41897703 | 0 | 1.26666696 |
| VMA21 | 0.31131398 | 0.57588554 | 0.34501631 | 0 | 1.23221583 |
| MCOLN1 | 0.27314984 | 0.29942536 | 0 | 0.65952426 | 1.23209945 |

| | | | | | |
|---|---|---|---|---|---|
| PDIA4 | 0.31380354 | 0.61089348 | 0.27879278 | 0 | 1.20348981 |
| ANXA2 | 0.36179547 | 0.47464388 | 0.33596093 | 0 | 1.17240028 |
| FOS | 1.90456019 | -0.422656 | -0.3233041 | 0 | 1.15860004 |
| AP2A2 | 0.32766594 | 0.40492558 | 0.37355838 | 0 | 1.10614989 |
| CD55 | 0.54831733 | -0.4212884 | 0.61762324 | 0.35799572 | 1.10264792 |
| FKBP8 | 0.44420165 | 0.35135901 | 0.27769396 | 0 | 1.07325462 |
| HLA-DRB5 | 1.06015252 | 0 | -1.0128811 | 1.02476913 | 1.07204052 |
| COX5A | 0.3291393 | 0.38674295 | 0.30776735 | 0 | 1.0236496 |
| HSBP1 | 0.29965969 | 0.38745592 | 0.33148487 | 0 | 1.01860048 |
| MYO1G | 0.2545803 | 0.26040601 | 0.47183116 | 0 | 0.98681746 |
| SEC11C | 0.27781039 | 0.36417918 | 0.30528566 | 0 | 0.94727523 |
| RPS26 | 0.32935096 | 0.73496984 | 0.51689497 | -0.6825563 | 0.89865944 |
| IER2 | 1.48776251 | -0.2980998 | 0 | -0.2929688 | 0.89669384 |
| GNPDA1 | 0 | 0.32949968 | 0.26680221 | 0.28870774 | 0.88500964 |
| HLA-A | 0.82404538 | 0 | -0.3291409 | 0.27199667 | 0.76690119 |
| FPR1 | 0 | 0.61070467 | 0.44119506 | -0.3075642 | 0.7443355 |
| ANXA4 | 0 | -0.3925105 | 0.40608043 | 0.40453657 | 0.4181065 |
| CTSL | 0 | 0.34786676 | 0.40490364 | -0.3988011 | 0.35396929 |
| KLF2 | 0.52339174 | -0.4767428 | 0 | 0.30253768 | 0.34918665 |
| INSIG1 | 0 | -0.3137445 | 0.3401799 | 0.29215414 | 0.31858957 |
| S100A8 | 0 | 0.51825009 | 0.92981233 | -1.1845721 | 0.26349033 |
| JUNB | 0.80533272 | -0.3545871 | -0.2992103 | 0 | 0.15153529 |
| GRN | 0.3431966 | 0 | -0.6224297 | 0.37251982 | 0.0932867 |
| MT-ATP6 | 0.30179977 | 0 | -0.5357055 | 0.30125435 | 0.06734864 |
| S100A9 | 0 | 0.28801321 | 0.44346424 | -0.8716247 | -0.1401472 |
| PSME2 | 0.68513064 | -0.2504068 | -0.2670297 | -0.3291024 | -0.1614082 |
| PDK4 | 0.96546669 | 0 | -0.4112346 | -0.8664408 | -0.3122087 |
| AC026369.3 | -0.3913766 | -0.2728846 | 0 | 0.28621002 | -0.3780512 |
| ATP1B1 | 0 | -0.3015168 | -0.3854316 | 0.25570257 | -0.4312458 |
| MAFB | 0.38883234 | -0.494986 | 0 | -0.3262061 | -0.4323598 |
| IRF1 | 0.40694196 | -0.581527 | 0 | -0.2591423 | -0.4337273 |
| MTRNR2L8 | 0 | -0.4262818 | -0.3054887 | 0.26988184 | -0.4618886 |
| TYMP | 0.36803691 | -0.4293545 | 0.26138999 | -0.6631581 | -0.4630856 |
| FCN1 | 0.41687449 | -0.4353496 | -0.4685864 | 0 | -0.4870615 |
| ZFP36L2 | 0 | -0.3923268 | -0.4947281 | 0.32742173 | -0.5596331 |
| PLAC8 | 0.54972544 | 0 | -0.8288879 | -0.2953611 | -0.5745236 |
| FTH1 | 0 | -0.6631148 | 0.50785826 | -0.4507835 | -0.6060401 |
| MT-CO1 | 0.33720344 | -0.5570987 | -0.4242859 | 0 | -0.6441812 |
| MT-CO2 | 0.25626962 | -0.345795 | -0.6291155 | 0 | -0.7186409 |
| ALDH1A1 | 0 | -0.5780021 | -0.6033181 | 0.45419804 | -0.7271221 |
| MSR1 | 0.51895631 | -0.6031161 | -0.7227659 | 0 | -0.8069257 |

| | | | | | |
|---|---|---|---|---|---|
| CXCL16 | 0 | -0.2895492 | -0.2596915 | -0.2822602 | -0.8315009 |
| HLA-F | 0 | -0.2576015 | -0.3447438 | -0.2650473 | -0.8673926 |
| SLC1A3 | -0.3618193 | 0 | -0.2525072 | -0.2902493 | -0.9045758 |
| TGM2 | 0 | -0.3265255 | -0.3304605 | -0.2854737 | -0.9424598 |
| FCHO2 | -0.3456209 | -0.3430206 | -0.2709626 | 0 | -0.959604 |
| B2M | 0.26320721 | -0.5790023 | -0.658293 | 0 | -0.974088 |
| MAF | -0.3706709 | -0.4272687 | -0.8118029 | 0.5710349 | -1.0387076 |
| STAT1 | 0 | -0.4025326 | -0.3685267 | -0.2717953 | -1.0428546 |
| KCNMA1 | -0.3936706 | 0 | -0.3564361 | -0.3400561 | -1.0901629 |
| NR1D2 | -0.3457144 | 0 | -0.4604329 | -0.3046874 | -1.1108348 |
| TPT1 | -0.3045461 | -0.2964989 | -0.5965367 | 0 | -1.1975817 |
| RPL23 | -0.3581303 | -0.3352929 | -0.5126858 | 0 | -1.2061089 |
| PKIB | -0.3580043 | -0.4128939 | -0.4452816 | 0 | -1.2161798 |
| GBP1 | 0 | -0.5041953 | -0.4388232 | -0.2768913 | -1.2199098 |
| DENND3 | 0 | -0.3958677 | -0.4871826 | -0.3542604 | -1.2373107 |
| FCGR2B | -0.5600198 | -0.3534518 | -0.3357745 | 0 | -1.2492461 |
| C2 | 0 | -0.4400375 | -0.4935553 | -0.3224066 | -1.2559994 |
| FCGR3A | 0 | -0.5334154 | -0.4222571 | -0.3011468 | -1.2568193 |
| LGALS3BP | 0 | -0.4611932 | -0.5354326 | -0.2620488 | -1.2586746 |
| RPL27A | -0.2575795 | -0.3537538 | -0.6618344 | 0 | -1.2731678 |
| TIMD4 | 0 | -0.3957564 | -0.4844236 | -0.4259895 | -1.3061696 |
| PLA2G16 | -0.4797952 | -0.2707675 | -0.5863762 | 0 | -1.3369388 |
| ERAP2 | -0.4822714 | -0.5592872 | -0.3236849 | 0 | -1.3652435 |
| SKIL | 0 | -0.5151157 | -0.574832 | -0.2801021 | -1.3700499 |
| DPYSL2 | -0.3325458 | -0.3343159 | -0.7480191 | 0 | -1.4148807 |
| CXADR | -0.4020033 | -0.3040238 | -0.4171007 | -0.3016295 | -1.4247572 |
| HLA-DQB1 | 0 | -0.8521389 | -0.8667427 | 0.28553085 | -1.4333507 |
| RND3 | 0 | -0.46144 | -0.5404278 | -0.459681 | -1.4615488 |
| IFI44L | 0 | -0.5844274 | -0.4826411 | -0.4092125 | -1.4762809 |
| CD81 | -0.5201573 | 0 | -0.5483368 | -0.44184 | -1.5103341 |
| SDC3 | 0 | -0.6990436 | -0.5963875 | -0.3839821 | -1.6794132 |
| TSPAN13 | -0.4463598 | -0.3612836 | -0.4558236 | -0.4393427 | -1.7028097 |
| HLA-B | 0 | -0.5174135 | -0.6630691 | -0.5327085 | -1.7131911 |
| MT-ND5 | -0.3308219 | -0.822689 | -0.5878125 | 0 | -1.7413235 |
| IL6ST | 0 | -0.5229847 | -0.7677826 | -0.4597148 | -1.7504822 |
| HLA-C | 0.39596298 | -0.8308064 | -0.9323633 | -0.4685302 | -1.835737 |
| CLEC12A | -0.6824759 | -0.6265965 | 0 | -0.5404407 | -1.849513 |
| ID3 | 0 | -0.4642528 | -0.8231501 | -0.6182261 | -1.905629 |
| SELENOP | -0.8431069 | -0.460826 | -0.6499209 | 0 | -1.9538538 |
| MPC2 | -0.6433976 | -0.2817666 | -0.7419616 | -0.3385431 | -2.005669 |
| MT-ND4L | -0.8400544 | -0.6216497 | -0.573183 | 0 | -2.034887 |

| | | | | | |
|---|---|---|---|---|---|
| GATM | -0.5291706 | -0.8766442 | -0.8693699 | 0 | -2.2751846 |
| HLA-DPA1 | 0 | -1.5772391 | -1.1899069 | 0.28451167 | -2.4826343 |
| ALDH2 | -0.5026279 | -0.771429 | -0.7510739 | -0.4655768 | -2.4907076 |
| HLA-DPB1 | 0 | -1.562679 | -1.3079739 | 0.32117849 | -2.5494744 |
| LTA4H | 0 | -0.9470765 | -0.9860536 | -0.703033 | -2.6361631 |
| CST3 | -0.5526625 | -1.0704421 | -1.0466748 | 0 | -2.6697794 |
| C1QC | -0.4471269 | -0.6952483 | -1.0338017 | -0.5187098 | -2.6948867 |
| C1QB | -0.6312409 | -0.6378311 | -0.8080875 | -0.6454402 | -2.7225997 |
| HLA-DRA | 0 | -1.8109757 | -1.3726357 | 0.42462688 | -2.7589846 |
| EPB41L2 | -0.6250029 | -0.9509689 | -0.8965795 | -0.3647972 | -2.8373485 |
| NUPR1 | -1.2370814 | -0.7545402 | -0.7936481 | -0.7739205 | -3.5591902 |
| HLA-DRB1 | -0.6204834 | -1.3802143 | -1.488412 | -0.5028397 | -3.9919494 |
| CFD | -1.6529873 | -1.7367546 | -0.763072 | -0.5583076 | -4.7111215 |
| IFI27 | 0 | -1.9192096 | -1.4082088 | -1.6168857 | -4.944304 |

Cluster 2

| Gene | A477 | A490 | A500 | A575 | Sum |
|---|---|---|---|---|---|
| C1QA | -1.0905902 | 0.5966236 | 0 | -0.7959076 | -1.2898742 |
| C1QB | -1.3529228 | 0.66082043 | 0 | -0.7957255 | -1.4878279 |
| CFD | -0.7138873 | -0.4824724 | 0 | -0.4669602 | -1.6633199 |
| EIF5A | 0.58294109 | 0.4328531 | 0 | 0.25353616 | 1.26933035 |
| FTL | -1.6089687 | 0 | 0.29833701 | -0.8195067 | -2.1301384 |
| MARCO | -0.8399892 | 0.84501632 | 0 | -0.6239911 | -0.6189639 |
| MT-ATP6 | 0 | -0.3507609 | -1.1611701 | -0.303859 | -1.8157899 |
| MT-CO1 | 0 | -0.4658302 | -0.4276732 | -0.4016949 | -1.2951983 |
| MT-CYB | 0.31624718 | 0 | -0.4763012 | -0.5095286 | -0.6695826 |
| MT-ND2 | -0.4340937 | -0.3625959 | -1.3566338 | -0.4299687 | -2.5832921 |
| MT-ND5 | 0 | -0.5204107 | -0.8420484 | -0.551253 | -1.913712 |
| PSAP | -0.8792205 | 0.37700492 | 0.49037307 | -0.5115942 | -0.5234368 |
| RPL27A | -0.5430844 | -0.330175 | -0.5276118 | 0 | -1.4008712 |
| S100A8 | -1.0873526 | 0.82453153 | 1.41304974 | -0.7760954 | 0.37413324 |
| S100A9 | -1.4988666 | 0.55712923 | 0.90629275 | -0.941604 | -0.9770487 |

Cluster 3

| Gene | A477 | A490 | A500 | A575 | Sum |
|---|---|---|---|---|---|
| C1QA | -1.2131706 | 0.70929385 | 0 | -0.6853385 | -1.1892152 |
| C1QB | -1.4545016 | 0.92044889 | 0 | -0.5245749 | -1.0586276 |
| C1QC | -0.7274363 | 0.54090872 | 0 | -0.4797037 | -0.6662314 |
| CD8B | 1.04708342 | 0.38218292 | 0 | 0.56822356 | 1.9974899 |
| EIF5A | 0.55938091 | 0.32274458 | 0 | 0.26006789 | 1.14219338 |
| FTL | -1.9336857 | 0 | 0.56120984 | -0.8718575 | -2.2443333 |
| GZMK | 0.9268166 | 0.42716221 | 0 | 0.34942983 | 1.70340864 |
| HLA-B | 0.33190937 | 0.51518903 | -0.5378983 | -0.4223575 | -0.1131574 |
| HLA-DRB5 | 0.78828352 | 0.2540163 | 0 | 0.42631103 | 1.46861085 |
| ITGB2 | 0.39410116 | 0 | 0.70829096 | -0.4548319 | 0.64756025 |
| LIMD2 | 0.72247461 | 0.30331254 | 0 | 0.38857932 | 1.41436646 |
| MARCO | -0.790497 | 0.97097808 | 0 | -0.750415 | -0.5699339 |
| MT-ATP6 | 0.27986832 | -0.6683285 | -1.0977349 | -0.2538844 | -1.7400795 |
| MT-CO2 | 0.30045667 | 0 | -0.539201 | -0.346063 | -0.5848074 |
| MT-CO3 | 0.29573124 | 0 | -0.4023068 | -0.5071874 | -0.613763 |
| MT-CYB | 0.47682915 | -0.3073948 | -0.4380092 | -0.3139692 | -0.582544 |
| MT-ND4 | 0.33183797 | 0 | -0.8472615 | -0.4924933 | -1.0079168 |
| MT-ND5 | 0 | -0.5559325 | -0.7520771 | -0.5590515 | -1.8670611 |
| PSAP | -0.9208013 | 0.46988511 | 0 | -0.5441085 | -0.9950247 |
| RPL27A | -0.8211974 | -0.3409284 | -0.7221544 | -0.3608842 | -2.2451644 |
| RPS26 | 0 | 0.34013921 | 0.42588558 | -1.8830674 | -1.1170426 |
| S100A8 | -1.3350353 | 1.03595572 | 1.63462225 | -0.6124302 | 0.72311248 |
| S100A9 | -1.7742481 | 0.73908081 | 1.15073192 | -0.7709904 | -0.6554258 |
| TMSB4X | 0 | -0.2902321 | -0.9170042 | -0.2969595 | -1.5041958 |
| TRGC2 | 0.40224775 | 0.29402121 | 0 | 0.36725718 | 1.06352614 |
| VAMP2 | 0.74234878 | 0.3922278 | 0 | 0.43923184 | 1.57380842 |

Cluster 4

| Gene | A477 | A490 | A500 | A575 | Sum |
|---|---|---|---|---|---|
| TUBA1A | 0.93035577 | 0.96285887 | 0.92071227 | 0 | 2.81392691 |
| TAGLN2 | 0.91976085 | 0.69098449 | 0.44068244 | 0 | 2.05142778 |
| LILRB2 | 0.62519898 | 0.57380822 | 0.78008371 | 0 | 1.97909091 |
| S100A6 | 0.66342736 | 0.83915708 | 0.74164779 | -0.282838 | 1.96139424 |
| UCP2 | 0.43577568 | 0.95163608 | 0.53742159 | 0 | 1.92483334 |
| PPDPF | 0.51782582 | 0.56687415 | 0.78605299 | 0 | 1.87075295 |
| TIMP1 | 0 | 0.54245043 | 1.51615603 | -0.3718143 | 1.68679219 |
| KLF2 | 0.96980427 | 0 | 0.33497999 | 0.3307733 | 1.63555757 |
| SERF2 | 0.28377944 | 0.63830132 | 0.69471997 | 0 | 1.61680073 |
| EMP3 | 0.58748154 | 0.34807103 | 0.67634844 | 0 | 1.61190102 |
| SPI1 | 0.48107567 | 0.67754987 | 0.43718264 | 0 | 1.59580818 |
| FOS | 2.25677692 | 0 | -0.2946765 | -0.4469138 | 1.51518659 |
| GLUL | 0 | 0.77264547 | 1.09878449 | -0.3675504 | 1.50387954 |
| HLA-DRB5 | 1.323126 | 0 | -1.4813211 | 1.62682054 | 1.46862544 |
| MYO1G | 0.2678654 | 0.57958155 | 0.61974958 | 0 | 1.46719653 |
| CYP1B1 | 0 | 0.99893598 | 1.01670029 | -0.5561525 | 1.45948377 |
| SLC39A8 | 0 | 0.8418358 | 1.08038183 | -0.5182512 | 1.40396639 |
| RHOG | 0.46598007 | 0.36185796 | 0.52829845 | 0 | 1.35613648 |
| CD55 | 0.63916249 | 0 | 1.00937964 | -0.3060006 | 1.34254151 |
| S100A4 | 0.36512555 | 0.64011889 | 0.33441071 | 0 | 1.33965514 |
| UQCR11 | 0.36310269 | 0.49326247 | 0.46571312 | 0 | 1.32207829 |
| ZFP36L1 | 0.70164982 | 0.268899 | 0.30583684 | 0 | 1.27638566 |
| CALM3 | 0 | 0.75940126 | 0.68520259 | -0.2735634 | 1.17104042 |
| CTSB | 0 | 0.72875024 | 0.88176589 | -0.4468371 | 1.16367905 |
| TYROBP | 0 | 0.41984775 | 0.46312242 | 0.27818683 | 1.16115701 |
| S100A8 | 0 | 1.33663373 | 1.50551999 | -1.7460757 | 1.09607797 |
| LGALS1 | 0 | 0.87989266 | 0.53617604 | -0.3257016 | 1.09036714 |
| LGALS9 | 0.46824455 | 0.49142486 | 0.3830148 | -0.2808367 | 1.06184751 |
| NAMPT | 0.56691077 | 0 | 0.88603773 | -0.4180879 | 1.0348606 |
| FPR1 | 0 | 0.77195505 | 0.75771625 | -0.5049112 | 1.02476011 |
| LMNA | 0.87026822 | 0 | 0.43283024 | -0.287101 | 1.01599745 |
| FTH1 | 0.36842514 | 0 | 0.95296989 | -0.3452023 | 0.97619275 |
| SMIM25 | 0 | 0.67062218 | 0.70622003 | -0.4040213 | 0.97282089 |
| STXBP2 | 0 | 0.72179665 | 0.64514564 | -0.4146863 | 0.95225598 |
| CD163 | 0 | 0.50503918 | 0.91941369 | -0.504152 | 0.92030084 |
| P4HB | 0 | 0.65764433 | 0.48654156 | -0.2828672 | 0.86131874 |
| SH3BGRL3 | 0.36401488 | 0.56155523 | 0.29327777 | -0.4209472 | 0.79790067 |
| TUBB | 0 | 0.76085302 | 0.3362902 | -0.3027437 | 0.7943995 |

| | | | | | |
|---|---|---|---|---|---|
| NEAT1 | 0.4429573 | 0 | 0.69626021 | -0.364821 | 0.77439646 |
| MAFB | 0.50614938 | 0 | 0.70364912 | -0.4622809 | 0.74751756 |
| FLNA | 0.536526 | 0.49369025 | 0 | -0.3131033 | 0.71711295 |
| ANXA2 | 0.50943427 | 0.62330266 | 0 | -0.4231966 | 0.70954035 |
| CALR | 0 | 0.38063135 | 0.6570477 | -0.3487126 | 0.68896646 |
| EFHD2 | 0 | 0.53838119 | 0.49741605 | -0.3533498 | 0.68244747 |
| SDF2L1 | 0 | 0.38266594 | 0.60297206 | -0.3362248 | 0.64941322 |
| FKBP1A | 0.51907224 | 0.4091183 | 0 | -0.2792435 | 0.64894706 |
| DDX21 | 0 | 0.40466645 | 0.52699455 | -0.282782 | 0.64887899 |
| MS4A7 | 0.53082039 | 0 | 0.40491458 | -0.2953511 | 0.64038384 |
| ITGB2 | 0.454242 | 0 | 0.54723711 | -0.3655837 | 0.63589537 |
| BLVRA | 0 | 0.39634606 | 0.48191776 | -0.2846651 | 0.59359877 |
| BLVRB | 0 | 0.57816579 | 0.32746645 | -0.3321677 | 0.57346458 |
| GAPDH | 0 | 0.45884377 | 0.31269081 | -0.2579532 | 0.51358139 |
| VCAN | 0 | 0.66519385 | 0.95255148 | -1.1339543 | 0.48379103 |
| AGFG1 | 0 | 0.26992 | 0.62206361 | -0.4095157 | 0.48246793 |
| VIM | 0.37626449 | 0.318568 | 0 | -0.2786895 | 0.41614298 |
| LIPA | 0.42545312 | 0.33075605 | 0 | -0.42813 | 0.32807912 |
| PDK4 | 1.28018702 | 0 | -0.3457989 | -0.6377446 | 0.29664346 |
| POLR2L | 0 | 0.47906503 | 0.30813929 | -0.4935668 | 0.29363748 |
| CTSL | 0 | 0.39436251 | 0.39761522 | -0.5150861 | 0.27689165 |
| TYMP | 0.53008588 | 0 | 0.45359924 | -0.7629171 | 0.22076801 |
| FCGR3A | 0 | 0.29432523 | 0.35445572 | -0.5585239 | 0.09025708 |
| F13A1 | -0.8248991 | 0 | 0.56983461 | 0.340658 | 0.08559356 |
| RPS26 | 0.32046065 | 0.49884155 | 0.40667967 | -1.152744 | 0.07323789 |
| WARS | 0.6977914 | -0.3930495 | -0.2572964 | -0.2905519 | -0.2431064 |
| GBP4 | 0.39194568 | -0.3504107 | -0.3164482 | 0 | -0.2749133 |
| HLA-DOA | 0 | -0.3501894 | -0.2705488 | 0.33656176 | -0.2841764 |
| PSME2 | 0.61853777 | -0.4376003 | -0.25631 | -0.2962525 | -0.3716251 |
| HLA-C | 0.56414125 | -0.4052302 | -0.2850216 | -0.2696116 | -0.3957221 |
| RPL19 | 0 | -0.2851343 | -0.3875017 | 0.25058336 | -0.4220526 |
| MX1 | 0.32850796 | -0.4133077 | 0 | -0.3413313 | -0.4261311 |
| S100A9 | 0 | 0.75701478 | 0.39823831 | -1.5888371 | -0.433584 |
| RPL18 | 0 | -0.2623757 | -0.4656293 | 0.2538854 | -0.4741196 |
| RPL30 | 0 | -0.3416862 | -0.4245173 | 0.28581411 | -0.4803894 |
| RACK1 | 0 | -0.2715309 | -0.5543987 | 0.29087849 | -0.5350511 |
| RPS3 | 0 | -0.3268519 | -0.6654676 | 0.39435236 | -0.5979671 |
| RPL10 | 0 | -0.3266291 | -0.6316775 | 0.33700674 | -0.6212999 |
| A2M | 0 | -0.540132 | -0.6194579 | 0.4992365 | -0.6603534 |
| RPS23 | 0 | -0.3838343 | -0.6265157 | 0.33137729 | -0.6789727 |
| RPL5 | -0.3621615 | 0 | -0.7121026 | 0.39528811 | -0.678976 |

| | | | | | |
|---|---|---|---|---|---|
| LPAR6 | 0 | -0.3521972 | -0.6986878 | 0.35332546 | -0.6975596 |
| NOP53 | 0 | -0.4136499 | -0.5997467 | 0.2786783 | -0.7347183 |
| LTA4H | 0.59311961 | -0.5456278 | -0.3646782 | -0.4407484 | -0.7579348 |
| RPL6 | -0.325133 | -0.2529242 | -0.5163419 | 0.3131592 | -0.7812399 |
| RPL11 | -0.3044793 | -0.2715154 | -0.5317536 | 0.32565284 | -0.7820955 |
| GBP1 | 0.57991367 | -0.5985633 | -0.475429 | -0.3509669 | -0.8450455 |
| RPS9 | -0.2860319 | -0.2714351 | -0.3108164 | 0 | -0.8682834 |
| RPS14 | -0.2592131 | -0.2548097 | -0.3878755 | 0 | -0.9018983 |
| RPL9 | 0 | -0.3821218 | -0.7839262 | 0.25548203 | -0.9105659 |
| RPS24 | -0.3575199 | -0.2904667 | -0.5230464 | 0.25107897 | -0.919954 |
| ZFP36L2 | 0 | -0.6895163 | -0.7476236 | 0.42584004 | -1.0112999 |
| CLEC12A | 0 | -0.5030674 | -0.2516512 | -0.2860325 | -1.0407511 |
| RPL13 | -0.3498303 | -0.2931134 | -0.4832815 | 0 | -1.1262252 |
| MT-CO3 | 0 | -0.2875999 | -0.5167991 | -0.3226573 | -1.1270563 |
| RPL7A | -0.3667497 | -0.4122831 | -0.7008129 | 0.33297801 | -1.1468678 |
| EEF1A1 | 0 | -0.5456297 | -1.0473648 | 0.42865172 | -1.1643428 |
| ALOX5AP | -0.4922645 | 0.32299834 | -1.026621 | 0 | -1.1958872 |
| RPL21 | -0.3243971 | -0.2759263 | -0.5956767 | 0 | -1.1960001 |
| RPS7 | -0.3795812 | -0.358229 | -0.5053811 | 0 | -1.2431913 |
| RPS3A | -0.2849615 | -0.4341765 | -0.8318526 | 0.28327373 | -1.2677168 |
| RPS11 | -0.3424766 | -0.4744528 | -0.4872704 | 0 | -1.3041998 |
| TPT1 | -0.3475728 | -0.3913971 | -0.5692212 | 0 | -1.3081911 |
| HLA-DMA | 0 | -0.8373954 | -0.8156998 | 0.32652319 | -1.3265719 |
| RPL23 | -0.3605431 | -0.4578133 | -0.5126067 | 0 | -1.3309631 |
| STAT1 | 0 | -0.6570932 | -0.4237978 | -0.2853882 | -1.3662792 |
| RPL14 | -0.347686 | -0.3784869 | -0.6962528 | 0 | -1.4224257 |
| MSR1 | 0 | -0.397587 | -0.6036252 | -0.4445102 | -1.4457225 |
| RPS4X | -0.4126876 | -0.5457232 | -0.7915419 | 0.2884612 | -1.4614915 |
| CD74 | 0 | -1.1656533 | -0.8692165 | 0.55846693 | -1.4764029 |
| RPL7 | -0.3232584 | -0.3869333 | -0.7702211 | 0 | -1.4804128 |
| RPL13A | -0.4034883 | -0.4645587 | -0.6295818 | 0 | -1.4976287 |
| HLA-DQB1 | 0 | -1.0359287 | -0.9020399 | 0.43957317 | -1.4983955 |
| RPL15 | -0.2862652 | -0.4672162 | -0.7680454 | 0 | -1.5215268 |
| CST3 | 0 | -1.0866551 | -1.0523707 | 0.53642925 | -1.6025966 |
| RPS18 | -0.3381476 | -0.4711581 | -0.8070391 | 0 | -1.6163448 |
| TMSB4X | 0 | -0.3927469 | -1.0584721 | -0.2595567 | -1.7107757 |
| RPS6 | -0.3622702 | -0.4792786 | -0.8747076 | 0 | -1.7162564 |
| CFD | -1.3091518 | -0.7433435 | 0.33414538 | 0 | -1.7183499 |
| RPL27A | -0.492805 | -0.5315781 | -0.7372393 | 0 | -1.7616224 |
| RPL3 | -0.5437133 | -0.543452 | -0.8533016 | 0 | -1.9404669 |
| LYZ | -0.7980419 | 0 | -0.6490073 | -0.522322 | -1.9693712 |

| | | | | | |
|---|---|---|---|---|---|
| PLA2G16 | -0.6903641 | -0.4847897 | -0.8218796 | 0 | -1.9970334 |
| HLA-DRA | 0 | -1.7997566 | -1.3681889 | 0.54535321 | -2.6225922 |
| HLA-DQA1 | 0 | -1.4538895 | -1.6441495 | 0.25792875 | -2.8401102 |
| HLA-DPA1 | 0 | -2.0897991 | -1.5942884 | 0.71922168 | -2.9648658 |
| HLA-DPB1 | 0 | -2.356919 | -1.5461547 | 0.72292038 | -3.1801533 |
| HLA-DRB1 | -0.8867089 | -1.7117399 | -1.4985539 | 0 | -4.0970027 |

Cluster 5

| Gene | A477 | A490 | A500 | A575 | Sum |
|---|---|---|---|---|---|
| CCL4 | 0.9900961 | 1.10073067 | 0 | 0.40200105 | 2.49282781 |
| CD7 | 1.03096936 | 0.47334757 | 0 | 0.42846159 | 1.93277851 |
| CMC1 | -0.9428524 | -0.7357872 | 0 | -0.6425295 | -2.3211691 |
| CYBA | 0.43706218 | 0.66878798 | 0 | 0.29425511 | 1.40010527 |
| FTL | -1.7989651 | 0 | 1.6809705 | -0.8886751 | -1.0066698 |
| GSTP1 | -0.8458329 | -0.8799453 | 0 | -0.6903052 | -2.4160835 |
| HLA-B | 0.38894741 | 0.5330962 | 0 | -0.4499375 | 0.47210608 |
| MARCO | -0.9422415 | 0.99091825 | 0 | -0.7021864 | -0.6535097 |
| MT-ATP6 | 0.38036827 | -0.7086677 | -0.8471537 | 0 | -1.1754532 |
| RPL27A | -0.5180394 | 0 | -0.9921964 | -0.4451494 | -1.9553852 |
| RPL3 | -0.850409 | -0.437949 | 0 | -0.3461859 | -1.6345439 |
| RPS18 | -0.6058098 | -0.3486569 | -0.6777074 | 0 | -1.6321741 |
| RPS26 | 0.54617324 | 0.6653011 | 0 | -1.4641963 | -0.2527219 |
| S100A4 | 0.4849099 | 0.87738097 | 1.05764578 | 0.39897426 | 2.8189109 |
| S100A6 | 0.42710017 | 0.89051558 | 1.19904432 | 0.36186869 | 2.87852876 |
| S100A8 | -0.7649939 | 1.25931118 | 2.38532999 | 0 | 2.87964726 |
| S100A9 | -1.3097438 | 0.97495907 | 1.87155169 | -0.6851437 | 0.8516233 |
| TPT1 | -0.5559159 | -0.3683859 | -0.6485746 | 0 | -1.5728764 |

Cluster 6

| Gene | A477 | A490 | A500 | A575 | Sum |
|---|---|---|---|---|---|
| ANXA2 | 0.38913475 | 0.39605613 | 0.35315277 | 0 | 1.13834365 |
| CD99 | 0 | 0.31355581 | 0.39527745 | 0.26436806 | 0.97320132 |
| CLEC12A | -0.750705 | -0.6871496 | 0 | -0.4880058 | -1.9258605 |
| CRIP1 | 0.50402952 | 0.43100396 | 0.59185881 | 0 | 1.52689229 |
| ENHO | 0.87787525 | -0.5979886 | -0.5007652 | 0.58157848 | 0.36069992 |
| ENO1 | 0.33474352 | 0.46315622 | 0.27888947 | 0 | 1.07678921 |
| ERAP2 | -0.6190863 | -0.7054224 | -0.311468 | 0 | -1.6359767 |
| F13A1 | -0.7133817 | 0.7173841 | 0.7832502 | 0.27458093 | 1.06183357 |
| FCER1G | 0.60033488 | 0.5971639 | 0 | -0.2609627 | 0.93653611 |
| FCN1 | 0.63517461 | -1.0142666 | -0.8236112 | 0 | -1.2027032 |
| GAPDH | 0.44772123 | 0.57783444 | 0.36095528 | 0 | 1.38651095 |
| GATM | -0.68644 | -0.6461141 | -0.6408753 | 0 | -1.9734294 |
| GBP1 | 0.36656469 | -0.396002 | -0.3256165 | 0 | -0.3550537 |
| GLIPR2 | 0.43867923 | 0.46070816 | 0.33729728 | 0 | 1.23668467 |
| HLA-B | 0 | -0.4382645 | -0.5558925 | -0.667585 | -1.6617421 |
| HLA-C | 0 | -0.7841369 | -0.5965598 | -0.5167566 | -1.8974533 |
| HLA-DPB1 | 0 | -1.8293277 | -1.0243848 | 0.66933088 | -2.1843816 |
| HLA-DQB1 | 0 | -0.8359748 | -0.320452 | 0.56078914 | -0.5956376 |
| HLA-DRB5 | 1.48870438 | 0 | -1.2821275 | 1.32017467 | 1.5267515 |
| HSPB1 | 0 | 0.26227977 | 0.38749245 | 0.35354252 | 1.00331474 |
| IFITM3 | 0 | 0.36425144 | 0.87182841 | 0.3022138 | 1.53829364 |
| IGHM | 0 | -0.742512 | -0.6912063 | -0.6901681 | -2.1238864 |
| IL6ST | 0 | -0.3972977 | -0.3561877 | -0.3031963 | -1.0566817 |
| LGALS9 | 0.35704581 | 0.56860735 | 0.34495323 | 0 | 1.27060639 |
| LTA4H | 0 | -0.6064493 | -0.5213446 | -0.6397068 | -1.7675007 |
| MEF2C | 0 | -0.2716951 | -0.2641567 | 0.32797462 | -0.2078771 |
| MGLL | 0 | -0.3114864 | -0.3151834 | -0.3136149 | -0.9402847 |
| MSR1 | 0 | -0.302145 | -0.2971563 | -0.2967072 | -0.8960086 |
| MT-ND4L | -0.8060454 | -0.6016091 | -0.3834454 | 0 | -1.7910999 |
| NR1D2 | 0 | -0.2584892 | -0.4500218 | -0.4466012 | -1.1551123 |
| NUCB1 | 0.37014188 | 0.42853718 | 0.47351833 | 0 | 1.27219738 |
| NUPR1 | -0.8784462 | -0.2708302 | 0 | -0.520337 | -1.6696134 |
| P4HB | 0.40311362 | 0.80242333 | 0.25009744 | 0 | 1.45563439 |
| PLA2G16 | -0.5009983 | -0.2634516 | -0.3926835 | 0 | -1.1571335 |
| PPDPF | 0.43246787 | 0.45312225 | 0.70871152 | 0.40669128 | 2.00099291 |
| RHOC | 0.31636829 | 0.25615459 | 0.29311851 | 0 | 0.86564138 |
| RPL27A | -0.3028644 | -0.4810094 | -0.5304375 | 0 | -1.3143113 |
| RPL3 | -0.4491375 | -0.2640844 | -0.4983094 | 0 | -1.2115313 |

| | | | | | |
|---|---|---|---|---|---|
| RPS26 | 0 | 0.50865683 | 0.36462925 | -0.6372494 | 0.23603665 |
| RPS3A | -0.2807145 | -0.2553643 | -0.6300737 | 0 | -1.1661525 |
| RPS4X | -0.362588 | -0.3348655 | -0.4601533 | 0 | -1.1576068 |
| S100A6 | 0.84985297 | 0.35153642 | 0.80605256 | 0 | 2.00744195 |
| S100A8 | 0 | 0.9427154 | 1.39986067 | -0.7344293 | 1.60814673 |
| S100A9 | 0 | 0.7227081 | 0.84535818 | -0.5922471 | 0.97581913 |
| SERF2 | 0.27621036 | 0.56697519 | 0.59436932 | 0 | 1.43755487 |
| SH3BGRL | -0.3601481 | -0.2791001 | -0.4196038 | 0 | -1.058852 |
| SLC39A8 | 0 | 0.32798504 | 0.6676176 | -0.3703635 | 0.62523917 |
| SPI1 | 0.38099905 | 0.38299357 | 0.33377602 | 0 | 1.09776864 |
| STAB1 | 0 | 1.0181138 | 0.66653924 | 0.2859863 | 1.97063934 |
| TAGLN2 | 0.72477741 | 0.58257774 | 0.41179577 | 0 | 1.71915092 |
| TMEM258 | 0.34524958 | 0.45201485 | 0.32584675 | 0 | 1.12311118 |
| TPT1 | -0.3469302 | -0.25316 | -0.3972503 | 0 | -0.9973405 |
| TYMP | 0.45230451 | -0.3008455 | 0.52199267 | -0.6168006 | 0.05665118 |
| UCP2 | 0.53150231 | 0.77918802 | 0.43625973 | 0 | 1.74695006 |
| UQCR11 | 0.47009644 | 0.56184491 | 0.44549267 | 0 | 1.47743402 |
| ZFP36L2 | 0 | -0.4042407 | -0.5701648 | 0.32574061 | -0.6486649 |
| ZYX | 0.54186652 | 0.26303874 | 0 | 0.26561792 | 1.07052317 |

Cluster 7

| Gene | A477 | A490 | A500 | A575 | Sum |
|---|---|---|---|---|---|
| C1QA | -0.8858723 | 0.51786746 | 0 | -0.7324463 | -1.1004512 |
| C1QB | -1.171314 | 0.49274371 | 0 | -0.6907032 | -1.3692736 |
| HLA-B | 0.33977013 | 0.35413411 | -0.7797071 | -0.4757257 | -0.5615286 |
| MT-ATP6 | 0 | -0.5796748 | -1.2656393 | -0.2571249 | -2.102439 |
| MT-CO1 | 0.3419961 | -0.607879 | -0.6213787 | -0.3117342 | -1.1989957 |
| MT-ND2 | 0 | -0.2800506 | -1.4645894 | -0.3870397 | -2.1316796 |
| MT-ND4 | 0.35009759 | 0 | -0.7768889 | -0.4702342 | -0.8970254 |
| RPS19 | -0.3839035 | -0.3092497 | 0 | -0.3105984 | -1.0037516 |
| S100A8 | -1.0865819 | 0.73425384 | 2.0356572 | -0.6790132 | 1.00431587 |
| S100A9 | -1.4685725 | 0.3663484 | 1.19687403 | -0.9266971 | -0.8320472 |
| TMSB4X | 0 | -0.5055346 | -1.1644306 | -0.2956732 | -1.9656384 |
| VAMP2 | 0.5563992 | 0.29896649 | 0 | 0.36985096 | 1.22521665 |

Cluster 8

| Gene | A477 | A490 | A500 | A575 | Sum |
|---|---|---|---|---|---|
| ALDH2 | 0 | -0.9851804 | -0.6769758 | -0.5289349 | -2.1910911 |
| C1QB | 0 | -0.5966877 | -0.5618853 | -0.9725925 | -2.1311655 |
| C1QC | 0 | -0.8391519 | -0.6738183 | -0.8596285 | -2.3725988 |
| CALM2 | 0 | -0.6015425 | -0.5996375 | -0.2638717 | -1.4650518 |
| CEBPB | 0 | -0.9124803 | -0.6739658 | -0.3128653 | -1.8993115 |
| CFD | -1.5252036 | -2.3300229 | -0.9195766 | -0.9398514 | -5.7146545 |
| CST3 | 0 | -1.5944491 | -1.0280451 | -0.7546697 | -3.3771638 |
| DDX5 | -0.3485399 | -0.600258 | -0.2600773 | 0 | -1.2088752 |
| EPB41L2 | -0.6832752 | -0.547555 | -0.5177892 | -0.589758 | -2.3383774 |
| EPS8 | -0.7463869 | -0.452303 | -0.4659421 | 0 | -1.6646319 |
| FCGR3A | 0 | -0.8134379 | -0.8316869 | -0.7416612 | -2.3867859 |
| FOLR2 | 0 | -0.5488183 | -0.2969679 | -0.4499591 | -1.2957453 |
| GATM | -0.4182018 | 0 | -0.5053549 | -0.2531171 | -1.1766737 |
| HLA-B | 0 | -0.4949122 | -0.787971 | -0.5570878 | -1.839971 |
| HLA-DRB1 | 0 | -1.5881269 | -0.4642771 | -0.9471233 | -2.9995273 |
| IFI27 | 0 | -0.9647389 | -0.4935688 | -1.1418219 | -2.6001296 |
| LTA4H | 0 | -0.7602816 | -0.7207922 | -0.8426776 | -2.3237514 |
| LYVE1 | 0 | -0.5677248 | -0.4783857 | -0.4907653 | -1.5368759 |
| LYZ | -0.6212568 | -0.7783519 | 0 | -0.3422575 | -1.7418663 |
| MGLL | 0 | -0.7944947 | -0.7552524 | -0.5345141 | -2.0842611 |
| MT-ATP6 | -1.3929912 | -0.6369022 | -1.333368 | 0.77181508 | -2.5914464 |
| MT-CO2 | -1.7868425 | -0.5356565 | -1.0767346 | 0 | -3.3992336 |
| MT-CO3 | -1.5195495 | -0.6929545 | -1.0931841 | 0 | -3.3056882 |
| MT-CYB | -2.0686548 | -0.6315808 | -0.892023 | 0 | -3.5922586 |
| MT-ND1 | -1.931918 | -0.5341609 | -0.6569345 | 0 | -3.1230134 |
| MT-ND2 | -2.8983042 | -0.9865238 | -1.3477437 | 0 | -5.2325718 |
| MT-ND3 | -1.9696558 | 0 | -0.7536173 | 0.67615069 | -2.0471225 |
| MT-ND5 | -1.9010207 | -0.9396361 | -1.0929299 | 0 | -3.9335867 |
| N4BP2L2 | -0.3262886 | -0.6037912 | -0.6461274 | 0.41009196 | -1.1661152 |
| NUPR1 | -0.8550681 | -0.781216 | -0.5743631 | -0.7627587 | -2.9734059 |
| PTPRC | -0.5156095 | 0 | -0.4714285 | 0.68410894 | -0.3029291 |
| RPL28 | 0 | 0.61145223 | 0.54851859 | 0.49288945 | 1.65286027 |
| RPL36 | 0 | 0.39749858 | 0.566298 | 0.35083578 | 1.31463235 |
| RPL41 | 0 | 0.55672315 | 0.55050642 | 0.49761763 | 1.60484719 |
| RPS15 | 0 | 0.44739229 | 0.60750037 | 0.3036463 | 1.35853896 |
| RPS26 | 0 | 0.87052982 | 0.94994656 | -0.78332 | 1.03715643 |
| RPS28 | 0 | 0.28987015 | 0.49027779 | 0.29697166 | 1.0771196 |
| RPS8 | 0 | 0.58891948 | 0.61879141 | 0.33390355 | 1.54161444 |

| | | | | | |
|---|---|---|---|---|---|
| SAT1 | 0 | -0.2861895 | -0.4115614 | -0.3264567 | -1.0242077 |
| SELENOP | 0.25939462 | -0.3463492 | -1.1275059 | 0 | -1.2144605 |
| SERF2 | 0.47106122 | 0.41779007 | 0.61945026 | 0 | 1.50830155 |
| SNHG8 | -0.3957939 | 0 | -0.512562 | 0.51943209 | -0.3889238 |
| TXNIP | 0 | -0.4223686 | -0.7261874 | 0.49057312 | -0.657983 |
| ZFP36L2 | 0 | -0.4304861 | -0.8622655 | 0.49662517 | -0.7961264 |

Cluster 9

| Gene | A477 | A490 | A500 | A575 | Sum |
|---|---|---|---|---|---|
| HLA-A | 0.65838835 | 0 | 0.37425285 | 0.293321 | 1.3259622 |
| HLA-DRB1 | -1.1784467 | 0 | 0.4066057 | -0.6220679 | -1.3939089 |
| RPL27A | -0.4716014 | -0.5462826 | -0.611536 | 0 | -1.62942 |
| RPS26 | 0.38600589 | 0 | 0.35760285 | -1.6652076 | -0.9215988 |
| S100A8 | -1.4486871 | 1.7611659 | 1.52412539 | -1.1982678 | 0.63833639 |
| S100A9 | -1.372472 | 1.69581418 | 0.93164225 | -1.7233429 | -0.4683584 |

Cluster 10

| Gene | A477 | A490 | A500 | A575 | Sum |
|---|---|---|---|---|---|
| ALDH2 | 0 | -1.0379822 | -1.0291606 | -0.389831 | -2.4569737 |
| CFD | -1.717751 | -2.2295644 | -1.7887138 | -0.8373915 | -6.5734207 |
| CST3 | 0 | -1.4182501 | -1.9716396 | -0.4498147 | -3.8397044 |
| GAPDH | 0.84650074 | 1.07479752 | 0.55846385 | 0 | 2.47976211 |
| HLA-DRB1 | 0 | -1.2638501 | -1.7351486 | -0.4134738 | -3.4124725 |
| LGALS1 | 0.95438678 | 1.44686045 | 1.24543363 | 0 | 3.64668086 |
| PPDPF | 0.6995447 | 0 | 0.91941685 | 0.47479961 | 2.09376116 |
| RPS26 | 0 | 0.61663445 | 0.4823285 | -0.8503819 | 0.248581 |
| UCP2 | 0.73686894 | 0.84547808 | 0.49783664 | 0 | 2.08018366 |

Cluster 11

| Gene | A477 | A490 | A500 | A575 | Sum |
|---|---|---|---|---|---|
| HLA-B | 0 | 0.48134876 | -0.6178308 | -0.6718282 | -0.8083103 |
| S100A8 | 0 | 0.67549981 | 1.26926806 | -0.9263083 | 1.0184596 |

Cluster 12

| Gene | A477 | A490 | A500 | A575 | Sum |
|---|---|---|---|---|---|
| S100A9 | -1.1525484 | 0 | 0.67458983 | -0.6435213 | -1.1214799 |

Cluster 13

| Gene | A477 | A490 | A500 | A575 | Sum |
|---|---|---|---|---|---|
| CD27 | 0 | 0.61904686 | 0.79939318 | 0.63906935 | 2.05750939 |
| TMSB4X | 0 | -0.6351634 | -1.2976827 | -0.353158 | -2.2860041 |

Cluster 14

| Gene | A477 | A490 | A500 | A575 | Sum |
|---|---|---|---|---|---|
| CD74 | 0 | -0.8599729 | -0.6329624 | 0.45021599 | -1.0427194 |
| RPS26 | 0 | 0.64919806 | 0.45726633 | -0.7209211 | 0.38554325 |
| TAGLN2 | 1.17510947 | 0.87672417 | 0.56508874 | 0 | 2.61692238 |

Cluster 15

| | A477 | A490 | A500 | A575 | Sum |
|---|---|---|---|---|---|

Cluster 16

| | A477 | A490 | A500 | A575 | Sum |
|---|---|---|---|---|---|

Cluster 17

| | A477 | A490 | A500 | A575 | Sum |
|---|---|---|---|---|---|

Cluster 18

| | A477 | A490 | A500 | A575 | Sum |
|---|---|---|---|---|---|

| | WT(Cst3 $^{fl/fl}$) n=7 | | Cst3 $^{\Delta Lyz2}$ n= 5 | | |
|---|---|---|---|---|---|
| Parameter | Mean | SD | Mean | SD | p value |
| HR (bpm) | 400.40 | 27.44 | 391.00 | 54.01 | 0.698 |
| SW (mmHg*µL) | 1254.41 | 274.65 | 1098.00 | 182.08 | 0.296 |
| CO (µL/min) | 7610.00 | 1284.52 | 6917.00 | 762.13 | 0.309 |
| SV (µL) | 19.03 | 3.13 | 17.82 | 1.89 | 0.462 |
| EF (%) | 33.65 | 5.80 | 37.63 | 9.29 | 0.380 |
| Ea (mmHg/µL) | 4.64 | 1.26 | 4.75 | 1.02 | 0.877 |
| PowMax (mmHg*µL/s) | 24245.71 | 7840.00 | 34040.00 | 19090.20 | 0.225 |
| dP/dt max (mmHg/s) | 5775.00 | 621.13 | 5378.00 | 825.86 | 0.362 |
| dP/dt min (mmHg/s) | -4345.71 | 663.10 | -4598.00 | 716.03 | 0.543 |
| Tau (ms) | 9.44 | 2.53 | 9.81 | 1.76 | 0.783 |
| PRSW | 33.39 | 8.98 | 33.24 | 11.63 | 0.967 |
| EDPVR | 0.32 | 0.09 | 0.24 | 0.10 | 0.260 |
| ESPVR | 2.71 | 1.73 | 2.51 | 1.06 | 0.825 |

**Supplemental Table 4. Left ventricle Pressure-Volume Loop assessment at baseline in WT(Cst3$^{fl/fl}$) or Cst3$^{\Delta Lyz2}$ mice.** HR-heart rate, SW-stroke work, CO-cardiac output, SV- stroke volume, EF- ejection fraction, Ea-Arterial elastance, PowMax- maximal power, dP-delta pressure, dV-delta volume, PRSW- preload recruitable stroke work, EDPVR- end diastolic pressure volume relationship, ESPVR-end systolic pressure volume relationship.

| | WT (Cst3 $^{fl/fl}$) (n=14) | | Cst3 $^{\triangle Lyz2}$ (n=15) | | |
|---|---|---|---|---|---|
| Parameter | Mean | SD | Mean | SD | p value |
| HR (bpm) | 445.31 | 45.25 | 503.12 | 41.75 | **0.001** |
| SW (mmHg*µL) | 1059.23 | 363.07 | 800.17 | 316.12 | **0.049** |
| CO (µL/min) | 7507.14 | 1814.53 | 7227.67 | 2649.13 | 0.745 |
| SV (µL) | 17.07 | 4.76 | 14.41 | 5.32 | 0.168 |
| EF (%) | 29.25 | 10.37 | 24.86 | 12.93 | 0.324 |
| Ea (mmHg/µL) | 5.37 | 1.45 | 6.73 | 2.33 | 0.073 |
| PowMax (mmHg*µL/s) | 35227.14 | 36756.23 | 36527.53 | 19857.69 | 0.905 |
| dP/dt max (mmHg/s) | 5829.79 | 763.15 | 5859.00 | 817.81 | 0.921 |
| dP/dt min (mmHg/s) | -4592.79 | 882.75 | -4359.60 | 651.95 | 0.423 |
| Tau (ms) | 9.33 | 1.18 | 10.25 | 1.91 | 0.137 |
| PRSW | 41.72 | 12.27 | 27.30 | 14.83 | **0.011** |
| EDPVR | 0.34 | 0.13 | 0.51 | 0.23 | **0.032** |
| ESPVR | 4.06 | 1.05 | 3.15 | 1.14 | **0.036** |

**Supplemental Table 5. Left ventricle PV Loop assessment 4 weeks post-MI in WT (Cst3$^{fl/fl}$) and Cst3$^{\triangle Lyz2}$ mice.** MI- myocardial infarction**,** HR-heart rate, SW-stroke work, CO-cardiac output, SV- stroke volume, EF- ejection fraction, Ea-Arterial elastance, PowMax- maximal power, dP-delta pressure, dV-delta volume, PRSW-preload recruitable stroke work, EDPVR- end diastolic pressure volume relationship, ESPVR- end systolic pressure volume relationship.