Supplementary table 5. The differentially expressed genes between one cluster and others.

| Gene      | P_value | Average logFoldChange | pct.1 | pct.2 | P_value adjusted | Cluster |
|-----------|---------|-----------------------|-------|-------|-----------------|---------|
| CD4       | 0.0000  | 0.4256                | 1.0000| 1.0000| 0.0000          | 0       |
| CD69      | 0.0000  | 0.3559                | 0.9930| 0.9140| 0.0000          | 0       |
| CD27      | 0.0000  | 0.3490                | 1.0000| 1.0000| 0.0000          | 0       |
| CD52      | 0.0000  | 0.2941                | 1.0000| 0.9780| 0.0000          | 0       |
| CD48      | 0.0000  | 0.2741                | 0.9990| 0.9580| 0.0000          | 0       |
| CD3D      | 0.0000  | 0.2516                | 0.9990| 0.9540| 0.0000          | 0       |
| CD27      | 0.0000  | 0.3132                | 0.8420| 0.6200| 0.0000          | 0       |
| EGR1      | 0.0000  | 0.2937                | 0.8260| 0.6570| 0.0000          | 0       |
| DUSP2     | 0.0000  | 0.3041                | 0.9120| 0.7500| 0.0000          | 1       |
| CD25      | 0.0000  | 0.3054                | 0.9180| 0.6800| 0.0000          | 1       |
| CD8A      | 0.0000  | 1.3010                | 0.9830| 1.0000| 0.0000          | 1       |
| CD69      | 0.0000  | 0.2911                | 0.9180| 0.6800| 0.0000          | 1       |
| CD52      | 0.0000  | 0.2911                | 0.9180| 0.6800| 0.0000          | 1       |
| CD27      | 0.0000  | 0.2376                | 0.9850| 0.7420| 0.0000          | 1       |
| CD25      | 0.0000  | 0.2795                | 0.9120| 0.7500| 0.0000          | 1       |
| CD69      | 0.0000  | 0.2795                | 0.9120| 0.7500| 0.0000          | 1       |
| CD52      | 0.0000  | 0.2795                | 0.9120| 0.7500| 0.0000          | 1       |
| CD27      | 0.0000  | 0.2376                | 0.9850| 0.7420| 0.0000          | 1       |
| Gene       | Value1 | Value2 | Value3 | Value4 | Value5 | Count |
|------------|--------|--------|--------|--------|--------|-------|
| EGR1       | 0.0000 | 0.8785 | 0.6740 | 0.7050 | 0.0000 | 1     |
| LAIR2      | 0.0000 | 0.5931 | 0.4740 | 0.4690 | 0.0000 | 1     |
| KLRC3      | 0.0000 | 0.4863 | 0.3500 | 0.3070 | 0.0000 | 1     |
| ITGA4      | 0.0000 | 0.3733 | 0.6350 | 0.7100 | 0.0000 | 1     |
| CD244      | 0.0000 | 0.5143 | 0.4170 | 0.3990 | 0.0000 | 1     |
| HLA-DQA1   | 0.0000 | 0.3068 | 0.3180 | 0.2850 | 0.0000 | 1     |
| CD45RA     | 0.0000 | 0.3018 | 1.0000 | 1.0000 | 0.0000 | 1     |
| TSPAN32    | 0.0000 | 0.3883 | 0.5070 | 0.5610 | 0.0000 | 1     |
| LAG3       | 0.0000 | 0.3874 | 0.4030 | 0.4110 | 0.0000 | 1     |
| ANXA5      | 0.0000 | 0.3195 | 0.5810 | 0.6580 | 0.0000 | 1     |
| TNF        | 0.0000 | 0.5987 | 0.4580 | 0.5080 | 1.0000 | 1     |
| CLEC2D     | 0.0000 | 0.2646 | 0.4340 | 0.5430 | 1.0000 | 1     |
| LEF1       | 0.0000 | 0.8946 | 0.9080 | 0.6390 | 0.0000 | 3     |
| CD4        | 0.0000 | 0.7344 | 0.8500 | 0.6020 | 0.0000 | 3     |
| CD45RA     | 0.0000 | 0.7875 | 0.7900 | 0.5000 | 0.0000 | 3     |
| CD38       | 0.0000 | 0.8126 | 0.9930 | 0.9890 | 0.0000 | 3     |
| CD27       | 0.0000 | 0.6312 | 0.8610 | 0.6570 | 0.0000 | 3     |
| Fyb        | 0.0000 | 0.5486 | 0.9240 | 0.7990 | 0.0000 | 3     |
| CD127      | 0.0000 | 0.2984 | 1.0000 | 0.9990 | 0.0000 | 3     |
| TRIB2      | 0.0000 | 0.6113 | 0.7530 | 0.5710 | 0.0000 | 3     |
| CD25       | 0.0000 | 0.6512 | 0.9890 | 0.9660 | 0.0000 | 3     |
| IL7R       | 0.0000 | 0.3723 | 0.9380 | 0.8440 | 0.0000 | 3     |
| LAT        | 0.0000 | 0.3514 | 0.9210 | 0.8380 | 0.0000 | 3     |
| PASK       | 0.0000 | 0.3233 | 0.6040 | 0.4330 | 0.0000 | 3     |
| TCF7       | 0.0000 | 0.4393 | 0.6200 | 0.4400 | 0.0000 | 3     |
| CD69       | 0.0000 | 0.3658 | 0.9720 | 0.9300 | 0.0000 | 3     |
| TRAT1      | 0.0000 | 0.4326 | 0.6650 | 0.5300 | 0.0000 | 3     |
| TRBC2      | 0.0000 | 0.3186 | 0.9890 | 0.9750 | 0.0000 | 3     |
| ICOS       | 0.0000 | 0.3827 | 0.5120 | 0.3770 | 0.0000 | 3     |
| GIMAP5     | 0.0000 | 0.3393 | 0.7140 | 0.6160 | 0.0000 | 3     |
| GIMAP2     | 0.0000 | 0.2910 | 0.8230 | 0.7360 | 0.0000 | 3     |
| ITK        | 0.0000 | 0.3292 | 0.4830 | 0.3530 | 0.0000 | 3     |
| BCL11B     | 0.0000 | 0.3465 | 0.6750 | 0.5790 | 0.0000 | 3     |
| STAT6      | 0.0000 | 0.2556 | 0.7920 | 0.7210 | 0.0000 | 3     |
| LTB        | 0.0000 | 0.3267 | 0.4430 | 0.3170 | 0.0000 | 3     |
| MYC        | 0.0000 | 0.3216 | 0.4700 | 0.3620 | 0.0000 | 3     |
| IL4R       | 0.0000 | 0.2691 | 0.5580 | 0.4730 | 0.0000 | 3     |
| FOXP3      | 0.0000 | 0.2676 | 0.3180 | 0.2290 | 0.0000 | 3     |
| TNFRSF25   | 0.0000 | 0.3075 | 0.4680 | 0.3910 | 0.0000 | 3     |
| CD44       | 0.0000 | 0.5239 | 1.0000 | 1.0000 | 0.0000 | 4     |
| CD25       | 0.0000 | 0.5078 | 0.9880 | 0.9650 | 0.0000 | 4     |
| CD127      | 0.0000 | 0.3624 | 1.0000 | 1.0000 | 0.0000 | 4     |
| CD4        | 0.0000 | 0.4083 | 0.8210 | 0.6080 | 0.0000 | 4     |
| IL7R       | 0.0000 | 0.3749 | 0.9610 | 0.8440 | 0.0000 | 4     |
| CD196      | 0.0000 | 0.3268 | 0.9980 | 0.9930 | 0.0000 | 4     |
| CCL20      | 0.0000 | 0.2621 | 0.2990 | 0.1350 | 0.0000 | 4     |
| LTB        | 0.0000 | 0.2682 | 0.4830 | 0.3160 | 0.0000 | 4     |
| GZMK       | 0.0000 | 1.0332 | 0.8190 | 0.5260 | 0.0000 | 5     |
| CD8        | 0.0000 | 0.4893 | 1.0000 | 1.0000 | 0.0000 | 5     |
| CCR5       | 0.0000 | 0.2844 | 0.4580 | 0.2520 | 0.0000 | 5     |
| CCL5       | 0.0000 | 0.2508 | 0.9930 | 0.9150 | 0.0000 | 5     |
| CD103      | 0.0000 | 1.0841 | 0.9790 | 0.9690 | 0.0000 | 5     |
| DUSP2      | 0.0000 | 0.3140 | 0.8680 | 0.8380 | 0.0000 | 5     |
| IL18RAP    | 0.0000 | 0.2546 | 0.5030 | 0.3620 | 0.0000 | 5     |
| Gene    | RPKM1 | RPKM2 | RPKM3 | RPKM4 | RPKM5 |
|---------|-------|-------|-------|-------|-------|
| CXCR4   | 0.0000| 0.2713| 0.9410| 0.9200| 0.0000|
| CD196   | 0.0000| 0.5403| 0.9950| 0.9930| 0.0011|
| KLRB1   | 0.0000| 0.4731| 0.7300| 0.6820| 0.0021|
| TRDC    | 0.0000| 1.8904| 0.8540| 0.3830| 0.0000|
| TARP    | 0.0000| 1.0015| 0.9810| 0.8120| 0.0000|
| KLRB1   | 0.0000| 1.3574| 0.9430| 0.6720| 0.0000|
| CCL5    | 0.0000| 0.6670| 0.9990| 0.9160| 0.0000|
| CST7    | 0.0000| 0.6930| 0.9840| 0.8410| 0.0000|
| CD3     | 0.0000| 0.5432| 1.0000| 1.0000| 0.0000|
| CTSW    | 0.0000| 0.6812| 0.9540| 0.7310| 0.0000|
| HLA-A   | 0.0000| 0.3577| 1.0000| 0.9980| 0.0000|
| NKG7    | 0.0000| 0.5865| 0.9990| 0.8820| 0.0000|
| HLA-C   | 0.0000| 0.3600| 1.0000| 0.9960| 0.0000|
| IL18RAP | 0.0000| 0.9731| 0.6130| 0.3580| 0.0000|
| GZMA    | 0.0000| 0.6306| 0.9230| 0.7920| 0.0000|
| DUSP2   | 0.0000| 0.9914| 0.7660| 0.5800| 0.0000|
| RUNX3   | 0.0000| 0.4985| 0.9290| 0.8670| 0.0000|
| KLRG1   | 0.0000| 0.7898| 0.7490| 0.5330| 0.0000|
| GZMK    | 0.0000| 0.9338| 1.0000| 0.9850| 0.0000|
| IL32    | 0.0000| 0.3688| 0.8440| 0.7310| 0.0000|
| IL2RB   | 0.0000| 0.6190| 0.9120| 0.8600| 0.0000|
| IER5    | 0.0000| 0.6189| 0.9910| 0.9830| 0.0000|
| DUSP1   | 0.0000| 0.4561| 0.7460| 0.5920| 0.0000|
| CD300A  | 0.0000| 0.6881| 0.7460| 0.5920| 0.0000|
| ITGB2   | 0.0000| 0.3757| 0.9670| 0.9480| 0.0000|
| IL7R    | 0.0000| 0.6051| 0.9300| 0.8490| 0.0000|
| JUN     | 0.0000| 0.6378| 0.8650| 0.7940| 0.0000|
| PRF1    | 0.0000| 0.5341| 0.7760| 0.6460| 0.0000|
| KLRK1   | 0.0000| 0.4165| 0.8910| 0.7940| 0.0000|
| ITGAL   | 0.0000| 0.3310| 0.9330| 0.9120| 0.0000|
| GAPDH   | 0.0000| 0.2873| 0.9920| 0.9670| 0.0000|
| TBX21   | 0.0000| 0.5048| 0.7150| 0.5800| 0.0000|
| KLRC1   | 0.0000| 0.8124| 0.4540| 0.3010| 0.0000|
| CCL4    | 0.0000| 0.5657| 0.6640| 0.5430| 0.0000|
| BIN2    | 0.0000| 0.3321| 0.9290| 0.9060| 0.0000|
| APOBEC3G| 0.0000| 0.4306| 0.8310| 0.8370| 0.0000|
| GNLY    | 0.0000| 0.6033| 0.8090| 0.7740| 0.0000|
| ARL4C   | 0.0000| 0.3968| 0.8350| 0.7860| 0.0000|
| CD3D    | 0.0000| 0.2532| 0.9820| 0.9650| 0.0000|
| FYN     | 0.0000| 0.3629| 0.8620| 0.8360| 0.0000|
| LAG3    | 0.0000| 0.5666| 0.5330| 0.4040| 0.0000|
| HLA-DPB1| 0.0000| 0.2889| 0.8560| 0.8160| 0.0000|
| IL12RB2 | 0.0000| 0.3226| 0.2640| 0.1450| 0.0000|
| LCK     | 0.0000| 0.2784| 0.9440| 0.9260| 0.0000|
| CD247   | 0.0000| 0.4727| 0.7130| 0.6580| 0.0000|
| NCR3    | 0.0000| 0.6396| 0.5040| 0.3760| 0.0000|
| EGR1    | 0.0000| 1.0787| 0.7600| 0.6980| 0.0000|
| ZBTB16  | 0.0000| 0.6829| 0.3140| 0.1660| 0.0000|
| CXCR4   | 0.0000| 0.3402| 0.9450| 0.9200| 0.0000|
| FOSB    | 0.0000| 0.3359| 0.9160| 0.9240| 0.0000|
| SELPLG  | 0.0000| 0.2620| 0.8310| 0.8370| 0.0000|
| CD44    | 0.0000| 0.3218| 0.7860| 0.7730| 0.0000|
| CD160   | 0.0000| 0.3587| 0.2790| 0.1760| 0.0000|
| CCR5    | 0.0000| 0.3813| 0.3370| 0.2600| 0.0000|
| CD7     | 0.0000| 0.3764| 0.6090| 0.5810| 0.0000|
| CBLB    | 0.0000| 0.4134| 0.5550| 0.5290| 0.0000|
| ITGAM   | 0.0000| 0.2781| 0.4880| 0.4410| 0.0000|
| KLRF1   | 0.0000| 0.3436| 0.3710| 0.3170| 0.0000|
| IL18R1  | 0.0000| 0.4166| 0.3690| 0.3110| 0.0000|
| Gene  | X1   | X2   | X3   | X4   | X5   | X6 |
|-------|------|------|------|------|------|----|
| CD244 | 0.0000 | 0.2674 | 0.4440 | 0.4000 | 0.0000 | 6  |
| BAX   | 0.0000 | 0.2554 | 0.6850 | 0.7200 | 0.0000 | 6  |
| SPOCK2| 0.0000 | 0.3224 | 0.6300 | 0.6670 | 0.0002 | 6  |
| ZAP70 | 0.0003 | 0.2579 | 0.5400 | 0.5610 | 0.0741 | 6  |
| IFNGR1| 0.0005 | 0.3061 | 0.3490 | 0.3330 | 0.1437 | 6  |
| STAT4 | 0.0006 | 0.2703 | 0.4340 | 0.4420 | 0.1478 | 6  |
| TNF   | 0.0006 | 0.6170 | 0.4820 | 0.5010 | 0.1523 | 6  |
| CD45RA| 0.0000 | 0.8393 | 1.0000 | 1.0000 | 0.0000 | 7  |
| CCR7  | 0.0000 | 0.9537 | 0.8780 | 0.5120 | 0.0000 | 7  |
| CD27  | 0.0000 | 0.5463 | 0.8920 | 0.6670 | 0.0000 | 7  |
| LEF1  | 0.0000 | 0.3702 | 0.6660 | 0.3520 | 0.0000 | 7  |
| CD8B  | 0.0000 | 0.6281 | 1.0000 | 1.0000 | 0.0000 | 7  |
| PIK3IP1| 0.0000 | 0.3752 | 0.9230 | 0.8060 | 0.0000 | 7  |
| CD8   | 0.0000 | 0.4081 | 1.0000 | 1.0000 | 0.0000 | 7  |
| CCL5  | 0.0000 | 0.6780 | 0.9590 | 0.7710 | 0.0000 | 7  |
| CX3CR1| 0.0000 | 0.3632 | 0.9880 | 0.7750 | 0.0000 | 7  |
| CKR1  | 0.0000 | 0.2515 | 0.9810 | 0.6960 | 0.0000 | 7  |
| PASK  | 0.0000 | 0.3062 | 0.9520 | 0.7940 | 0.0000 | 7  |
| TSPAN32| 0.0000 | 0.2536 | 0.9980 | 0.8850 | 0.0000 | 7  |
| CD38  | 0.0000 | 0.2663 | 0.9980 | 0.9900 | 0.0000 | 7  |
| CD44  | 0.0000 | 0.6131 | 0.9880 | 0.7750 | 0.0000 | 7  |
| LGALS1| 0.0000 | 0.3699 | 0.7700 | 0.5740 | 0.0000 | 7  |
| BCL11B| 0.0000 | 0.3632 | 0.7790 | 0.5800 | 0.0000 | 7  |
| KLRK1 | 0.0000 | 0.2515 | 0.9280 | 0.7930 | 0.0000 | 7  |
| RXN3  | 0.0000 | 0.3788 | 0.6210 | 0.3150 | 0.0000 | 7  |
| NKG7  | 0.0000 | 0.3621 | 0.9980 | 0.8850 | 0.0000 | 7  |
| CD4   | 0.0000 | 0.5500 | 0.8370 | 0.6210 | 0.0000 | 7  |
| GZMA  | 0.0000 | 0.4158 | 0.9520 | 0.7940 | 0.0000 | 7  |
| LGALS1| 0.0000 | 0.3992 | 0.9420 | 0.7960 | 0.0000 | 7  |
| B3GAT1| 0.0000 | 0.3107 | 0.5640 | 0.3420 | 0.0000 | 7  |
| CCL5  | 0.0000 | 0.2584 | 1.0000 | 0.9180 | 0.0000 | 7  |
| RUNX3 | 0.0000 | 0.2765 | 0.9420 | 0.8680 | 0.0000 | 7  |
| CD4   | 0.0000 | 0.3017 | 1.0000 | 1.0000 | 0.0000 | 7  |
| TARP  | 0.0000 | 0.2638 | 0.9230 | 0.8180 | 0.0000 | 7  |
| ARL4C | 0.0000 | 0.3157 | 0.8490 | 0.7870 | 0.0000 | 7  |
| ZNF683| 0.0000 | 0.2984 | 0.6640 | 0.4840 | 0.0000 | 7  |
| S1PR1 | 0.0000 | 0.2760 | 0.6450 | 0.4640 | 0.0000 | 7  |
| SLAMF1| 0.0000 | 0.2561 | 0.5490 | 0.3960 | 0.0000 | 7  |
| APOBEC3G| 0.0000 | 0.3062 | 0.7670 | 0.6460 | 0.0000 | 7  |
| CD6   | 0.0000 | 0.2757 | 0.9210 | 0.8810 | 0.0000 | 9  |
| TRD   | 0.0000 | 2.4141 | 0.9760 | 0.3940 | 0.0000 | 9  |
| NKG7  | 0.0000 | 1.5056 | 1.5056 | 1.0000 | 0.0000 | 9  |
| CD45RA| 0.0000 | 1.5270 | 1.5056 | 1.0000 | 0.0000 | 9  |
| CST7  | 0.0000 | 1.4222 | 1.5056 | 1.0000 | 0.0000 | 9  |
| TARP  | 0.0000 | 1.5042 | 1.5056 | 1.0000 | 0.0000 | 9  |
| CD11c | 0.0000 | 1.2838 | 1.5056 | 1.0000 | 0.0000 | 9  |
| CCL5  | 0.0000 | 1.1089 | 1.5056 | 1.0000 | 0.0000 | 9  |
| HLA-C | 0.0000 | 0.7766 | 1.5056 | 1.0000 | 0.0000 | 9  |
| CD3   | 0.0000 | 0.9927 | 1.5056 | 1.0000 | 0.0000 | 9  |
| CTSW  | 0.0000 | 1.2725 | 1.5056 | 1.0000 | 0.0000 | 9  |
| GZMH  | 0.0000 | 1.3121 | 1.5056 | 1.0000 | 0.0000 | 9  |
| HLA-A | 0.0000 | 0.6027 | 1.5056 | 1.0000 | 0.0000 | 9  |
| ITGAL | 0.0000 | 1.0209 | 1.5056 | 1.0000 | 0.0000 | 9  |
| IL2RB | 0.0000 | 1.4376 | 1.5056 | 1.0000 | 0.0000 | 9  |
| GZMB  | 0.0000 | 1.4230 | 1.5056 | 1.0000 | 0.0000 | 9  |
| Gene    | FDR   | f1    | f2    | f3    | f4    |
|---------|-------|-------|-------|-------|-------|
| KLRF1   | 0.0000| 1.7233| 0.6850| 0.3130| 0.0000|
| ITGB2   | 0.0000| 0.9345| 0.9600| 0.9490| 0.0000|
| PRF1    | 0.0000| 1.5125| 0.8490| 0.6480| 0.0000|
| IL32    | 0.0000| 0.7496| 1.0000| 0.9860| 0.0000|
| RUNX3   | 0.0000| 1.0439| 0.9150| 0.8690| 0.0000|
| GZMA    | 0.0000| 1.0031| 0.8920| 0.7960| 0.0000|
| ITGA7   | 0.0000| 1.3667| 0.4390| 0.1640| 0.0000|
| TBX21   | 0.0000| 1.1610| 0.7250| 0.5840| 0.0000|
| GAPDH   | 0.0000| 0.5579| 0.9740| 0.9680| 0.0000|
| BIN2    | 0.0000| 0.7115| 0.8680| 0.9070| 0.0000|
| HLA-DR  | 0.0000| 0.8989| 0.8989| 0.8860| 0.0000|
| CD38    | 0.0000| 0.5828| 0.9840| 0.9900| 0.0000|
| HLA-DPA1| 0.0000| 0.8437| 0.7280| 0.7090| 0.0000|
| GNYL    | 0.0000| 1.1991| 0.7830| 0.7750| 0.0000|
| FYN     | 0.0000| 0.7666| 0.7750| 0.8380| 0.0000|
| CCL4    | 0.0000| 1.2710| 0.6400| 0.5470| 0.0000|
| LCK     | 0.0000| 0.5254| 0.8760| 0.9280| 0.0000|
| KLRB1   | 0.0000| 0.8714| 0.7280| 0.6840| 0.0000|
| ARL4C   | 0.0000| 0.7620| 0.7300| 0.7900| 0.0000|
| LAG3    | 0.0000| 1.0248| 0.5240| 0.4080| 0.0000|
| CD300A  | 0.0000| 0.9366| 0.6350| 0.6160| 0.0000|
| CD247   | 0.0000| 0.9344| 0.6300| 0.6610| 0.0000|
| CCL3    | 0.0000| 0.9256| 0.3760| 0.2499| 0.0000|
| CD244   | 0.0000| 0.9713| 0.4960| 0.4000| 0.0000|
| IKZF2   | 0.0000| 0.9078| 0.3600| 0.2440| 0.0000|
| LAIR2   | 0.0000| 1.1317| 0.5340| 0.4690| 0.0000|
| CX3CR1  | 0.0000| 0.9425| 0.4390| 0.3190| 0.0000|
| CD3G    | 0.0000| 0.4375| 0.1930| 0.4020| 0.0000|
| SELPLG  | 0.0000| 0.5403| 0.7170| 0.8390| 0.0000|
| CD3E    | 0.0000| 0.2824| 0.9580| 0.9730| 0.0000|
| NCR3    | 0.0000| 0.9238| 0.4290| 0.3800| 0.0000|
| STAT4   | 0.0000| 0.2585| 0.2620| 0.4450| 0.0000|
| APOBEC3C| 0.0000| 0.7196| 0.5660| 0.6500| 0.0001|
| LGALS1  | 0.0000| 0.6273| 0.6880| 0.8010| 0.0008|
| KLR4    | 0.0000| 0.5163| 0.2860| 0.2560| 0.0297|
| KLRG1   | 0.0000| 0.3162| 0.3990| 0.5930| 0.1564|
| STAT3   | 0.0013| 0.2773| 0.3150| 0.4560| 0.3329|
| IFNG    | 0.0026| 0.7729| 0.4580| 0.5010| 0.6912|
| CBLB    | 0.0048| 0.5218| 0.3570| 0.5340| 1.0000|
| ITGAM   | 0.0052| 0.5868| 0.4210| 0.4440| 1.0000|
| TNFNSF1B| 0.0055| 0.5856| 0.4970| 0.5820| 1.0000|
| TIAF1   | 0.0092| 0.2840| 0.3150| 0.4510| 1.0000|
| CD11c   | 0.0000| 1.3391| 1.0000| 1.0000| 0.0000|
| FOSB    | 0.0000| 1.8860| 0.9860| 0.9220| 0.0000|
| CD103   | 0.0000| 1.3663| 0.9750| 0.9690| 0.0000|
| CD196   | 0.0000| 1.6141| 0.9860| 0.9930| 0.0000|
| CD123   | 0.0000| 1.4469| 0.9140| 0.9560| 0.0000|
| CD45RO  | 0.0000| 0.7210| 1.0000| 1.0000| 0.0000|
| CBLB    | 0.0000| 0.2660| 0.1880| 0.5370| 0.0000|
| CD127   | 0.0000| 0.4795| 0.9970| 1.0000| 0.0000|
| IL18    | 0.0000| 0.2512| 0.1160| 0.3150| 0.0000|
| TXK     | 0.0000| 0.2850| 0.1660| 0.3690| 0.0000|
| RORA    | 0.0000| 0.5171| 0.2110| 0.4120| 0.0000|
| IL23R   | 0.0039| 0.6744| 0.2350| 0.3890| 1.0000|
| Gene       | Fold Change | P-value | q-value | Annotation |
|------------|-------------|---------|---------|------------|
| TYMS       | 1.9015      | 0.0000  | 0.0000  |            |
| TK1        | 1.5793      | 0.0000  | 0.0000  |            |
| TOP2A      | 1.4264      | 0.0000  | 0.0000  |            |
| MKI67      | 0.5130      | 0.0000  | 0.0000  |            |
| HLA-DR     | 1.8819      | 0.0000  | 0.0000  |            |
| AURKB      | 0.8742      | 0.0000  | 0.0000  |            |
| GAPDH      | 1.3031      | 0.0000  | 0.0000  |            |
| HMG2       | 1.9121      | 0.0000  | 0.0000  |            |
| CTLA4      | 1.1277      | 0.0000  | 0.0000  |            |
| IL32       | 0.7521      | 0.0000  | 0.0000  |            |
| ANXA5      | 1.1670      | 0.0000  | 0.0000  |            |
| UBE2C      | 1.2133      | 0.0000  | 0.0000  |            |
| HLA-DRA    | 0.9201      | 0.0000  | 0.0000  |            |
| PTG2       | 1.0498      | 0.0000  | 0.0000  |            |
| CD52       | 0.5417      | 0.0000  | 0.0000  |            |
| DUSP4      | 0.8279      | 0.0000  | 0.0000  |            |
| CD38       | 1.0266      | 0.0000  | 0.0000  |            |
| TRAC       | 0.4817      | 0.0000  | 0.0000  |            |
| SELPLG     | 0.5171      | 0.0000  | 0.0000  |            |
| LGALS1     | 0.9616      | 0.0000  | 0.0000  |            |
| CD4        | 0.6126      | 0.0000  | 0.0000  |            |
| CD25       | 1.2468      | 0.0000  | 0.0000  |            |
| ICOS       | 0.6485      | 0.0000  | 0.0000  |            |
| CCNB1      | 0.8613      | 0.0000  | 0.0000  |            |
| F5         | 0.3029      | 0.0000  | 0.0000  |            |
| FOXP3      | 0.8623      | 0.0000  | 0.0000  |            |
| CD45RO     | 0.3609      | 0.0000  | 0.0000  |            |
| HLA-DMA    | 0.4148      | 0.0000  | 0.0000  |            |
| TRIB2      | 0.5563      | 0.0000  | 0.0000  |            |
| FAS        | 0.4694      | 0.0000  | 0.0000  |            |
| CASP3      | 0.4085      | 0.0000  | 0.0000  |            |
| HLA-DPA1   | 0.4797      | 0.0000  | 0.0000  |            |
| ARL4C      | 0.4578      | 0.0000  | 0.0000  |            |
| CD2        | 0.3384      | 0.0000  | 0.0000  |            |
| CD44       | 0.3505      | 0.0000  | 0.0000  |            |
| CD27       | 0.6040      | 0.0000  | 0.0000  |            |
| TRBC2      | 0.3725      | 0.0000  | 0.0000  |            |
| HLA-DRB3   | 0.6635      | 0.0000  | 0.0000  |            |
| HLA-DQB1   | 0.3171      | 0.0000  | 0.0000  |            |
| SI2L       | 0.6205      | 0.0000  | 0.0000  |            |
| ITGAE      | 0.4853      | 0.0000  | 0.0000  |            |
| LCK        | 0.3638      | 0.0000  | 0.0000  |            |
| TNFRSF1B   | 0.4689      | 0.0000  | 0.0000  |            |
| CD4        | 0.2925      | 0.0000  | 0.0000  |            |
| FYB        | 0.3663      | 0.0000  | 0.0000  |            |
| S1PR1      | 0.4049      | 0.0000  | 0.0000  |            |
| CD5        | 0.3557      | 0.0000  | 0.0000  |            |
| LGALS3     | 0.4757      | 0.0000  | 0.0000  |            |
| HLA-DPB1   | 0.2883      | 0.0000  | 0.0000  |            |
| BAX        | 0.3804      | 0.0000  | 0.0000  |            |
| TRAT1      | 0.4165      | 0.0000  | 0.0000  |            |
| IL23R      | 0.3603      | 0.0000  | 0.0000  |            |
| HLA-DQA1   | 0.2935      | 0.0000  | 0.0000  |            |
| BIN2       | 0.2545      | 0.0000  | 0.0000  |            |
| NINJ2      | 0.2840      | 0.0000  | 0.0000  |            |
| TNFSF10    | 0.3083      | 0.0000  | 0.0000  |            |
| LAP3       | 0.4045      | 0.0000  | 0.0000  |            |
| PRDM1      | 0.2587      | 0.0000  | 0.0000  |            |
| CLEC2D     | 0.3136      | 0.0000  | 0.0000  |            |
| Gene   | Mean  | SD    | SEM   | SE   | Count |
|--------|-------|-------|-------|------|-------|
| CXCR3  | 0.000 | 0.800 | 0.010 | 0.005 | 12    |
| ITK    | 0.000 | 0.280 | 0.020 | 0.005 | 12    |
| STAT1  | 0.000 | 0.340 | 0.010 | 0.005 | 12    |
| TIGIT  | 0.000 | 0.380 | 0.010 | 0.005 | 12    |
| CCND2  | 0.000 | 0.560 | 0.010 | 0.005 | 12    |
| IRF4   | 0.000 | 0.260 | 0.010 | 0.005 | 12    |
| LEF1   | 0.000 | 0.280 | 0.010 | 0.005 | 12    |
| IL2RA  | 0.000 | 0.310 | 0.010 | 0.005 | 12    |
| LILRB4 | 0.000 | 0.460 | 0.010 | 0.005 | 12    |
| CXCL8  | 0.000 | 2.920 | 0.010 | 0.005 | 12    |
| HLA-DMB| 0.000 | 1.720 | 0.010 | 0.005 | 12    |
| TLR2   | 0.000 | 0.720 | 0.010 | 0.005 | 12    |
| HLA-DRA| 0.000 | 3.230 | 0.010 | 0.005 | 12    |
| LAT2   | 0.000 | 1.220 | 0.010 | 0.005 | 12    |
| ITGAX  | 0.000 | 1.150 | 0.010 | 0.005 | 12    |
| HLA-DM | 0.000 | 1.720 | 0.010 | 0.005 | 12    |
| ENTPD1 | 0.000 | 0.460 | 0.010 | 0.005 | 12    |
| IRF8   | 0.000 | 0.710 | 0.010 | 0.005 | 12    |
| CCL3   | 0.000 | 2.110 | 0.010 | 0.005 | 12    |
| HLA-DQB1| 0.000| 1.860 | 0.010 | 0.005 | 12    |
| HLA-DR | 0.000 | 2.260 | 0.010 | 0.005 | 12    |
| CD11c  | 0.000 | 2.260 | 0.010 | 0.005 | 12    |
| LGALS3 | 0.000 | 1.290 | 0.010 | 0.005 | 12    |
| NAMPT  | 0.000 | 1.100 | 0.010 | 0.005 | 12    |
| HLA-DPA1| 0.000| 1.710 | 0.010 | 0.005 | 12    |
| HLA-DRB3| 0.000| 1.920 | 0.010 | 0.005 | 12    |
| IER3   | 0.000 | 1.350 | 0.010 | 0.005 | 12    |
| HLA-DQA1| 0.000| 1.470 | 0.010 | 0.005 | 12    |
| ANXA5  | 0.000 | 1.120 | 0.010 | 0.005 | 12    |
| HLA-DPB1| 0.000| 1.280 | 0.010 | 0.005 | 12    |
| C10orf54| 0.000| 1.150 | 0.010 | 0.005 | 12    |
| CD38   | 0.000 | 0.730 | 0.010 | 0.005 | 12    |
| GAPDH  | 0.000 | 0.840 | 0.010 | 0.005 | 12    |
| PECAM1 | 0.000 | 0.570 | 0.010 | 0.005 | 12    |
| LGALS1 | 0.000 | 0.790 | 0.010 | 0.005 | 12    |
| VNN2   | 0.000 | 0.600 | 0.010 | 0.005 | 12    |
| ITGB2  | 0.000 | 0.890 | 0.010 | 0.005 | 12    |
| HAVC2  | 0.000 | 0.290 | 0.010 | 0.005 | 12    |
| ICAM1  | 0.000 | 0.580 | 0.010 | 0.005 | 12    |
| CD123  | 0.000 | 0.730 | 0.010 | 0.005 | 12    |
| JUN    | 0.000 | 0.770 | 0.010 | 0.005 | 12    |
| FOSB   | 0.000 | 0.640 | 0.010 | 0.005 | 12    |
| IFNCCR1| 0.000 | 0.490 | 0.010 | 0.005 | 12    |
| TNFRSF1B| 0.000| 0.680 | 0.010 | 0.005 | 12    |
| EGR1   | 0.000 | 0.560 | 0.010 | 0.005 | 12    |
| CD4    | 0.000 | 0.640 | 0.010 | 0.005 | 12    |
| TNFSF10| 0.000 | 0.650 | 0.010 | 0.005 | 12    |
| ITGAM  | 0.000 | 0.610 | 0.010 | 0.005 | 12    |
| DUSP1  | 0.000 | 0.660 | 0.010 | 0.005 | 12    |
| BCL6   | 0.000 | 0.290 | 0.010 | 0.005 | 12    |
| LAP3   | 0.000 | 0.580 | 0.010 | 0.005 | 12    |
| IL18   | 0.000 | 0.400 | 0.010 | 0.005 | 12    |
| SELL   | 0.000 | 0.530 | 0.010 | 0.005 | 12    |
| STAT6  | 0.000 | 0.420 | 0.010 | 0.005 | 12    |
| BAX    | 0.000 | 0.250 | 0.010 | 0.005 | 12    |
| CD44   | 0.000 | 0.410 | 0.010 | 0.005 | 12    |
| CCR2   | 0.000 | 0.480 | 0.010 | 0.005 | 12    |
| CXCR1  | 0.000 | 2.150 | 0.010 | 0.005 | 14    |
| CXCL8  | 0.000 | 5.000 | 0.010 | 0.005 | 14    |
| Gene   | Value   | Value1 | Value2 | Value3 | Value4 | Value5 | Cluster |
|--------|---------|--------|--------|--------|--------|--------|---------|
| NAMPT  | 0.0000  | 2.9316 | 0.9440 | 0.2280 | 0.0000 | 14     |
| ITGAX  | 0.0000  | 2.2294 | 0.8330 | 0.1630 | 0.0000 | 14     |
| CD11c  | 0.0000  | 2.5482 | 1.0000 | 1.0000 | 0.0000 | 14     |
| TLR2   | 0.0000  | 1.1538 | 0.4850 | 0.0490 | 0.0000 | 14     |
| VNN2   | 0.0000  | 2.1312 | 0.8180 | 0.3260 | 0.0000 | 14     |
| DUSP1  | 0.0000  | 1.4107 | 1.0000 | 0.9840 | 0.0000 | 14     |
| LAT2   | 0.0000  | 1.3651 | 0.5710 | 0.1460 | 0.0000 | 14     |
| SELL   | 0.0000  | 1.2789 | 0.9600 | 0.7390 | 0.0000 | 14     |
| C10orf54 | 0.0000 | 1.3889 | 0.8740 | 0.6420 | 0.0000 | 14     |
| HLA-C  | 0.0000  | 0.6378 | 1.0000 | 0.9960 | 0.0000 | 14     |
| FOSB   | 0.0000  | 0.9242 | 0.9750 | 0.9230 | 0.0000 | 14     |
| CD45RO | 0.0000  | 0.6589 | 1.0000 | 1.0000 | 0.0000 | 14     |
| ICAM1  | 0.0000  | 1.2775 | 0.4800 | 0.2530 | 0.0000 | 14     |
| SELPLG | 0.0000  | 0.7537 | 0.8690 | 0.8360 | 0.0000 | 14     |
| TNFRSF1B | 0.0000 | 0.8106 | 0.7020 | 0.5790 | 0.0000 | 14     |
| IFNGR1 | 0.0000  | 0.8514 | 0.5100 | 0.3320 | 0.0000 | 14     |
| CD123  | 0.0000  | 0.6411 | 0.9490 | 0.9550 | 0.0000 | 14     |
| CD38   | 0.0000  | 0.2695 | 0.9950 | 0.9900 | 0.0000 | 14     |
| CD300A | 0.0000  | 0.6811 | 0.6970 | 0.5980 | 0.0000 | 14     |
| FYB    | 0.0000  | 0.6236 | 0.8280 | 0.8110 | 0.0000 | 14     |
| STAT6  | 0.0000  | 0.6645 | 0.7580 | 0.7270 | 0.0000 | 14     |
| HLA-A  | 0.0000  | 0.2907 | 1.0000 | 0.9980 | 0.0000 | 14     |
| ITGB2  | 0.0000  | 0.3231 | 0.9240 | 0.9500 | 0.0000 | 14     |
| PECAM1 | 0.0000  | 0.6378 | 0.2530 | 0.1290 | 0.0001 | 14     |
| TNFSF10 | 0.0001 | 0.8485 | 0.5100 | 0.4750 | 0.0207 | 14     |
| BIN2   | 0.0002  | 0.3298 | 0.8640 | 0.9070 | 0.0492 | 14     |
| JUNB   | 0.0004  | 0.4466 | 0.8280 | 0.8830 | 0.1119 | 14     |
| STAT3  | 0.0019  | 0.5626 | 0.4750 | 0.4530 | 0.5085 | 14     |
| IER3   | 0.0019  | 0.8425 | 0.2680 | 0.2230 | 0.5095 | 14     |

**Note:** there was no significant differentially expressed genes between cluster 2 and others.