Supplemental Figure 1. WT and DNMT3a T-cell conditional KO donors are immunophenotypically indistinguishable. Representative examples of: A) CD4+ and CD8+ T-cell distribution in the spleen and thymus. B) Treg populations in the spleen as defined by CD4, CD25, intracellular FoxP3 expression. C) Bone marrow cellularity (n=8 per group) and bone marrow T-cell content (n=5 per group). D) Proliferation as a response to allogeneic dendritic cell stimulation in a mixed lymphocyte reaction (MLR) as described in Methods. E) Cytotoxicity in a JAM assay by thymidine incorporation following activation bulk MLR as described in Methods.
Supplemental Figure 2. JSD and dMML of genes presented in Figure 7C.
Supplemental Figure 3. CD4+CD8+ double positive KO T-cells have similar expression profiles to KO CD8+ T-cells. Representative examples of flow-cytometry based expression of splenic KO CD4+, KO CD8+, and KO CD4+CD8+ T-cells at day +7 post-BMT of the following markers: A) Granzyme B, B) TNFa, C) IL17, D) IFNy.
Supplemental Figure 4. Lack of DNMT3a in donor T-cells is associated with lower expression of caspase 3/7. Flow-cytometric caspase-3/7 assay as a marker of apoptotic activity in splenic T-cells, 48-hours after co-adoptive transfer (using the model presented in Figure 4). Results shown are representative of two replicate experiments, n=5 each. A) Percentages of early, late, and total apoptotic cells within the WT and KO splenic T-cell populations B) Median fluorescent intensity (MFI) of caspase 3/7 C) Examples of flow-cytometry plots. *p<0.05 with Mann-Whitney U test.
### Supplemental Table 1. Experimental parameters of murine models of allo-BMT.

| Donor                  | Recipient                  | Mismatch          | TBI (cGy) | BM cells | T-cells     |
|------------------------|----------------------------|-------------------|-----------|----------|-------------|
| C57BL/6J (B6; H-2^b)   | B6D2F1 (F1; H-2^{bxd})     | Major (haploidentical) | 1300      | 5 x 10^6 | 1-2 x 10^6 |
| C57BL/6J (B6; H-2^b)   | BALB/cJ (Balb, H-2^d)      | Major             | 700       | 5 x 10^6 | 0.5-1 x 10^6 |
| C57BL/6J (B6; H-2^b)   | B6.C-H2<bm1>/ByJ (Bm1; H-2^b) | Major            | 1300      | 5 x 10^6 | 2 x 10^6 CD8+ |
| C57BL/6J (B6; H-2^b)   | B6.C-H2<bm12>/KhEgJ (Bm12; H-2^b) | Major         | 900-1100  | 5 x 10^6 | 2.5 x 10^5 CD4+ |
**Supplemental Table 2.** JSD of KO vs WT CD4+ T-cells, ranked in descending order.

| Rank | Gene  | Rank | Gene  | Rank | Gene  | Rank | Gene  |
|------|-------|------|-------|------|-------|------|-------|
| 1    | Anks1 | 76   | Ramp1 | 151  | Abl1 | 226  | Art4  |
| 2    | Rnf157| 77   | Trp53l13 | 152  | Bcat1 | 227  | P2ry14 |
| 3    | Txnip | 78   | Enthd1| 153  | Mlec | 228  | Rexo1 |
| 4    | Ncor2 | 79   | Irf8  | 154  | Ikzf2 | 229  | Adora2a |
| 5    | Uba7  | 80   | Mad1l1| 155  | Phldb3 | 230  | Tie6  |
| 6    | Rab3ip| 81   | Abcb9 | 156  | Rapgef3 | 231  | Sik1  |
| 7    | Cbfa2t3| 82  | Abhd15| 157  | Psma6 | 232  | Setd4 |
| 8    | Tcf7  | 83   | Rnf43 | 158  | Mmp9 | 233  | Mtsch |
| 9    | Gpr146| 84   | Pbx2  | 159  | Rasl11b | 234  | Myl12b |
| 10   | Cmtm7 | 85   | Nyap1 | 160  | Zfp236 | 235  | Atg16l2 |
| 11   | Vps37b| 86   | Jaknip1| 161  | Dhrs3 | 236  | Pttn6 |
| 12   | Ly1   | 87   | Ptpnm2| 162  | Ptms | 237  | Arhgap45 |
| 13   | Gm15441| 88  | Aqp11 | 163  | Fam189b | 238  | Mgt4a |
| 14   | Foxp1 | 89   | Hsd1 | 164  | Vrk1 | 239  | Gm9530 |
| 15   | Dnmt3a| 90   | Gpr132| 165  | Ccr9 | 240  | Fmd4a |
| 16   | Patz1 | 91   | Ly6m | 166  | Lag3 | 241  | Slc38a6 |
| 17   | Znrf1 | 92   | Stat3 | 167  | Nr3c1 | 242  | Zyx |
| 18   | Ptp4a3| 93   | Tmem63a| 168  | Zmynd8 | 243  | Slc29a1 |
| 19   | Stat5b | 94   | Gngl2 | 169  | Muc13 | 244  | Otx1 |
| 20   | Cux1  | 95   | Mir7687| 170  | Il1r1 | 245  | Fam71b |
| 21   | Agtrap| 96   | Ppp1r21| 171  | Erf | 246  | Sema4a |
| 22   | Hdac7 | 97   | Pxn  | 172  | Emp3 | 247  | Mica|
| 23   | Dtx1  | 98   | Plekho1| 173  | Dnajc7 | 248  | Bcl9 |
| 24   | Nr4a3 | 99   | Tbx2a2r| 174  | Sestd1 | 249  | Lcp2 |
| 25   | Slc16a5| 100  | Smad7 | 175  | Ftl1 | 250  | Crtc3 |
| 26   | Satb1 | 101  | Endou | 176  | Arpc3 | 251  | Nfam1 |
| 27   | Chdh  | 102  | Fam78a| 177  | Tlr6 | 252  | Ral1 |
| 28   | Il17rb | 103  | Rabgap1l| 178  | Vax2os | 253  | Fmnl3 |
| 29   | Inka1 | 104  | Slc43a2| 179  | Lrp5 | 254  | Trim13 |
| 30   | St6gal1| 105  | Hps4  | 180  | Rgs3 | 255  | Ripor2 |
| 31   | Smim5 | 106  | Eya2 | 181  | Edem1 | 256  | Eomes |
| 32   | Epg5 | 107  | Tom1l2| 182  | 9230102O04Rik | 257  | Zfp219 |
| 33   | 5830418P13Rik| 108  | Mvb12b| 183  | Rara | 258  | Uck2 |
| 34   | Emilin1 | 109  | Ldh | 184  | Pacsin2 | 259  | Pdk1 |
| 35   | Ccm2 | 110  | Runx3 | 185  | Chd7 | 260  | Ankrd13a |
| 36   | Auh | 111  | Hpcal1| 186  | Rapgef2 | 261  | Pdlim4 |
| 37   | Cyren | 112  | Fkbp5 | 187  | Rmnd5a | 262  | Csnk1e |
| 38   | Fam102a | 113  | Tcf25 | 188  | Sh3rf1 | 263  | Lipe |
| 39   | Rps6ka1| 114  | Fgr | 189  | Flt3 | 264  | Ets2 |
| 40   | 5830428M24Rik| 115  | Gm11346| 190  | Slc37a3 | 265  | Ccdc162 |
|   | Gene       |   | Gene       |   | Gene       |
|---|------------|---|------------|---|------------|
| 41 | Egr3       | 116 | St3gal2   | 191 | Ppp1r9b   |
| 42 | Dntt       | 117 | Neurl3    | 192 | Commd3    |
| 43 | Dot1l      | 118 | Gne       | 193 | Plekhh3   |
| 44 | Pgpep1l    | 119 | Med24     | 194 | Csad       |
| 45 | Kif23      | 120 | Zfp652    | 195 | Ggta1     |
| 46 | Rnf166     | 121 | Trak1     | 196 | Ezr        |
| 47 | Il6st      | 122 | Heg1      | 197 | Cd72       |
| 48 | Smad3      | 123 | Tapt1     | 198 | Fmnl1     |
| 49 | Sidt2      | 124 | Ccdc12    | 199 | Map7d1    |
| 50 | Zfp710     | 125 | Aldh3b1   | 200 | Mir23a    |
| 51 | Klih3      | 126 | Poc1b     | 201 | Pik3cd    |
| 52 | Psap       | 127 | Nomo1     | 202 | Pde4d     |
| 53 | A430093F15Rik | 128 | Sylt3    | 203 | Mir24-2   |
| 54 | 5033406O09Rik | 129 | Polm      | 204 | Fut7      |
| 55 | Ppa2       | 130 | Ubxn11    | 205 | Mir3074-2 |
| 56 | Mdk        | 131 | Cdk5rap1  | 206 | Gm12216   |
| 57 | Notch1     | 132 | Stk39     | 207 | Elovl6    |
| 58 | Xrcc6      | 133 | Stam      | 208 | Sapcd1    |
| 59 | Foxn3      | 134 | Ssbp3     | 209 | Scmh1     |
| 60 | Smim6      | 135 | Retreg1   | 210 | Gata3     |
| 61 | Kdm6b      | 136 | Zfp740    | 211 | Parp11    |
| 62 | Fes        | 137 | Aopep     | 212 | Ttc13     |
| 63 | Plac8      | 138 | Rassf2    | 213 | Chrna9    |
| 64 | Ankrd28    | 139 | Adgrg1    | 214 | Gng10     |
| 65 | Hic1       | 140 | C730014E05Rik | 215 | Mir27a   |
| 66 | Gm15880    | 141 | Trmt1     | 216 | Nim1k     |
| 67 | Tie5       | 142 | Susd1     | 217 | Arpp21    |
| 68 | Stat1      | 143 | Gals9     | 218 | BC049352  |
| 69 | Lrba       | 144 | Sema4b    | 219 | Capn3     |
| 70 | Lck        | 145 | 4930412O13Rik | 220 | Chd3      |
| 71 | Mab21l2    | 146 | Vezf1     | 221 | Bex6      |
| 72 | Eef2k      | 147 | Med13l    | 222 | Gm4632    |
| 73 | 2610307P16Rik | 148 | Lrig1     | 223 | Ikzf3     |
| 74 | Rgs10      | 149 | Rreb1     | 224 | Peg12     |
| 75 | Gtf2i      | 150 | Sgk3      | 225 | Col16a1   |

**Supplemental Table 2.** Genes (top 300) identified to be differentially methylated between KO and WT CD4+ T-cells. Higher JSD values (0-1) indicate differences in methylation due to differences in mean methylation level, methylation entropy, or both.
Supplemental Table 3. JSD of KO vs WT CD8+ T-cells, ranked in descending order.

| Rank | Gene     | Rank | Gene     | Rank | Gene     | Rank | Gene      |
|------|----------|------|----------|------|----------|------|-----------|
| 1    | Anks1    | 76   | Vezf1    | 151  | Mir23a   | 226  | Aqp11     |
| 2    | Ncor2    | 77   | Dntt     | 152  | Sell     | 227  | Vrk1      |
| 3    | Tcf7     | 78   | 5830428M24Rik | 153  | Mir1190  | 228  | Cd47      |
| 4    | Rnf157   | 79   | Gm15880  | 154  | Mir24-2  | 229  | Zfp652    |
| 5    | Uba7     | 80   | Ramp1    | 155  | Mir3074-2 | 230  | Gata3     |
| 6    | Ccm2     | 81   | Gngt2    | 156  | Fam167b  | 231  | Relt      |
| 7    | Txnip    | 82   | Lck      | 157  | Tcirg1   | 232  | Dzip1     |
| 8    | Cbfa2t3  | 83   | Slc43a2  | 158  | Lcp2     | 233  | Nfe2l2    |
| 9    | Patz1    | 84   | Tmie     | 159  | Ankrd13a | 234  | InsL3     |
| 10   | Vps37b   | 85   | Scn2b    | 160  | Cd3e     | 235  | Wnt10b    |
| 11   | Fam78a   | 86   | Epg5     | 161  | Lap1     | 236  | Ezr       |
| 12   | Stat3    | 87   | Susd1    | 162  | Ubxn11   | 237  | Nfatc2    |
| 13   | Kif23    | 88   | Als2cl   | 163  | Tspan13  | 238  | Fmn1      |
| 14   | Rab3ip   | 89   | A430093F15Rik | 164  | Elmo3    | 239  | Mir7023   |
| 15   | Satb1    | 90   | Med24    | 165  | Med13l   | 240  | Tlr12     |
| 16   | Foxp1    | 91   | Sidt2    | 166  | Zbtb34   | 241  | Rnf43     |
| 17   | Adgrg1   | 92   | Sh3rf1   | 167  | Abhd15   | 242  | Kif3      |
| 18   | Gpr146   | 93   | Rab11fip4os2 | 168  | 5033406009Rik | 243  | Zbtb7b    |
| 19   | Stat1    | 94   | Ldlrap1  | 169  | Zmynd8   | 244  | Cnr2      |
| 20   | Slc16a5  | 95   | Mad11l   | 170  | Aopep    | 245  | Poc1b     |
| 21   | Adgrg5   | 96   | Tapt1    | 171  | Fmnl3    | 246  | Fmd4b     |
| 22   | Dnmt3a   | 97   | Nsmce1   | 172  | Eef2k    | 247  | Sun2      |
| 23   | Arhgap45 | 98   | Vax2os   | 173  | Plac8    | 248  | Mpzl2     |
| 24   | Smim5    | 99   | Tcf25    | 174  | Ptns     | 249  | Scx       |
| 25   | Neurl3   | 100  | Fam189b  | 175  | Slc2a3   | 250  | Map7d1    |
| 26   | Psap     | 101  | Tie3     | 176  | Pik3cd   | 251  | Slfn8     |
| 27   | Znrf1    | 102  | Wasf2    | 177  | Sgsh     | 252  | Hpcal1    |
| 28   | Xrcc6    | 103  | Emilil1  | 178  | Trp53i13 | 253  | Tc7       |
| 29   | Egr3     | 104  | Rassf2   | 179  | Grb7     | 254  | Ccdc162   |
| 30   | Fes      | 105  | Ccr9     | 180  | Lgals9   | 255  | Dnajc7    |
| 31   | Notch1   | 106  | Tie5     | 181  | Rreb1    | 256  | Aldh3b1   |
| 32   | Gm15441  | 107  | Pvt1     | 182  | Myh9     | 257  | Il1r1     |
| 33   | Pxn      | 108  | Hic1     | 183  | Plcg1    | 258  | Lipe      |
| 34   | Dot1I    | 109  | Smad7    | 184  | Lfnq     | 259  | Jaml      |
| 35   | Rnf166   | 110  | Tnfrsf1a | 185  | Pde2a    | 260  | Rbms2     |
| 36   | Ly6m     | 111  | Slt6gal1 | 186  | 2610307P16Rik | 261  | Polg      |
| 37   | Hsd1I    | 112  | Smad3    | 187  | Ldhd     | 262  | Gpr25     |
| 38   | Cux1     | 113  | Kif21b   | 188  | Trim13   | 263  | Mab212     |
| 39   | Jakmip1  | 114  | Bcat1    | 189  | Syl3     | 264  | Pkn1      |
| 40   | Ptpn6    | 115  | Ptp4a3   | 190  | Galnt6   | 265  | Rasgrp1   |
| Rank | Gene     | Rank | Gene     | Rank | Gene     |
|------|----------|------|----------|------|----------|
| 41   | Ppa2     | 116  | Rp1      | 191  | Gramd3   |
| 42   | Gtf2i    | 117  | Zfp740   | 192  | Pitpn2   |
| 43   | Endou    | 118  | Eya2     | 193  | Polm     |
| 44   | Rps6ka1  | 119  | Rarg     | 194  | Bach2    |
| 45   | Nr4a3    | 120  | Tspan2os | 195  | Art4     |
| 46   | Cmtm7    | 121  | Gpr132   | 196  | Acp5     |
| 47   | 5830418P13Rik | 122 | Tom1l2   | 197  | Kcna2    |
| 48   | Adcy7    | 123  | Chd7     | 198  | Flt3l    |
| 49   | Cyren    | 124  | Rabgap1l | 199  | Rexo1    |
| 50   | Il6st    | 125  | Mir7674  | 200  | Itr1     |
| 51   | Abl1     | 126  | Nup214   | 201  | Ndst1    |
| 52   | Gm11346  | 127  | Abcb9    | 202  | Bop1     |
| 53   | Nfkbp1   | 128  | Bex6     | 203  | Plekh3   |
| 54   | Mir7687  | 129  | Pgpep1l  | 204  | Nyap1    |
| 55   | Rgs3     | 130  | Ccdc12   | 205  | Edem1    |
| 56   | Inka1    | 131  | Chdh     | 206  | Muc13    |
| 57   | Trak1    | 132  | Heg1     | 207  | Mir8119  |
| 58   | Ggta1    | 133  | Pdk1     | 208  | Scd2     |
| 59   | Stat5b   | 134  | Plekho1  | 209  | Fkbp5    |
| 60   | Lyl1     | 135  | Nomo1    | 210  | Wnt10a   |
| 61   | Stk39    | 136  | Fam71b   | 211  | Vgl4     |
| 62   | Ssbp3    | 137  | Il17rb   | 212  | G0s2     |
| 63   | Mlec     | 138  | Fam53b   | 213  | Hdac7    |
| 64   | Rmnd5a   | 139  | Cd2      | 214  | Stam     |
| 65   | Irf8     | 140  | Gng10    | 215  | Nim1k    |
| 66   | Enthd1   | 141  | Agtrap   | 216  | Trl6     |
| 67   | Nr4a2    | 142  | Tspan2   | 217  | Trmc8    |
| 68   | Foxn3    | 143  | Gm15850  | 218  | Gm12216  |
| 69   | Fam102a  | 144  | Nr3c1    | 219  | Niban2   |
| 70   | Fchsd2   | 145  | Gne      | 220  | Abi3     |
| 71   | Kctd10   | 146  | Lncppara | 221  | Dtx1     |
| 72   | Bcl9l    | 147  | Parp11   | 222  | Jade1    |
| 73   | Rgs10    | 148  | Mir27a   | 223  | Pb2x     |
| 74   | Mdk      | 149  | Crtc3    | 224  | Smim6    |
| 75   | Auh      | 150  | Stk4     | 225  | Unc13d   |

**Supplemental Table 3.** Genes (top 300) identified to be differentially methylated between KO and WT CD8+ T-cells. Higher JSD values (0-1) indicate differences in methylation due to differences in mean methylation level, methylation entropy, or both.
**Supplemental Table 4.** Differentially expressed genes in KO vs WT CD4+ T-cells.

| Gene       | Base mean | Log2FC | p-adj | Gene       | Base mean | Log2FC | p-adj |
|------------|-----------|--------|-------|------------|-----------|--------|-------|
| Trp1       | 54.0      | 4.37   | 0.012 | Hspa1b     | 1885.4    | -7.26  | 0.000 |
| Cd79b      | 434.8     | 3.72   | 0.000 | Hspa1a     | 3152.8    | -7.24  | 0.000 |
| Gzma       | 7733.1    | 3.49   | 0.000 | Actbl2     | 64.7      | -4.77  | 0.038 |
| Emilin1    | 235.6     | 3.17   | 0.000 | Fosb       | 957.3     | -4.38  | 0.000 |
| G0s2       | 81.4      | 2.95   | 0.000 | Pklr       | 68.8      | -3.56  | 0.000 |
| Gm15708    | 112.4     | 2.78   | 0.000 | Krt17      | 136.2     | -3.43  | 0.028 |
| Cabp1      | 65.0      | 2.68   | 0.000 | Apol11b    | 928.5     | -3.31  | 0.016 |
| Scn2b      | 127.1     | 2.67   | 0.000 | Unc13b     | 190.8     | -3.26  | 0.006 |
| Pygm       | 312.7     | 2.64   | 0.000 | Strc       | 50.0      | -3.20  | 0.000 |
| Qrp        | 853.6     | 2.57   | 0.000 | Ssop       | 64.6      | -3.20  | 0.000 |
| Lgsf23     | 296.8     | 2.49   | 0.000 | Snca       | 122.8     | -3.04  | 0.024 |
| Ston1      | 371.6     | 2.42   | 0.000 | Gcg        | 1763.4    | -2.99  | 0.000 |
| Sorcs2     | 56.1      | 2.25   | 0.001 | Ttn        | 791.9     | -2.82  | 0.000 |
| Gpnmb      | 960.7     | 2.25   | 0.000 | Scin       | 261.4     | -2.75  | 0.000 |
| 5830418P13Rik | 58.2   | 2.24   | 0.000 | Gm16712    | 90.4      | -2.72  | 0.000 |
| Klrb1c     | 405.8     | 2.23   | 0.003 | Jun        | 2570.9    | -2.70  | 0.000 |
| Muc13      | 54.9      | 2.15   | 0.022 | Dmxl2      | 72.6      | -2.68  | 0.000 |
| Fes        | 1557.1    | 2.14   | 0.000 | Otx1       | 56.8      | -2.67  | 0.001 |
| Gpr25      | 141.5     | 2.13   | 0.030 | Miat       | 459.0     | -2.62  | 0.000 |
| Haao       | 307.2     | 2.10   | 0.000 | Hpn        | 71.1      | -2.59  | 0.000 |
| Cnr2       | 175.1     | 2.07   | 0.000 | Naip5      | 98.8      | -2.58  | 0.000 |
| Rcn3       | 181.8     | 2.06   | 0.000 | Gatm       | 177.7     | -2.55  | 0.000 |
| Aqp9       | 265.5     | 2.02   | 0.000 | Tmcc2      | 241.4     | -2.55  | 0.046 |
| Txnlp      | 28545.0   | 1.98   | 0.006 | Ciita      | 129.4     | -2.53  | 0.000 |
| Atp1b1     | 98.3      | 1.96   | 0.001 | Plbd1      | 222.6     | -2.51  | 0.000 |
| Platr17    | 90.6      | 1.94   | 0.000 | Il20ra     | 53.6      | -2.50  | 0.003 |
| Alpk2      | 74.9      | 1.92   | 0.007 | Rab7b      | 58.8      | -2.49  | 0.000 |
| Apobec2    | 807.0     | 1.88   | 0.000 | Aldh1a1    | 101.1     | -2.43  | 0.001 |
| Fam109b    | 141.0     | 1.85   | 0.000 | Cxcl9      | 150.8     | -2.38  | 0.000 |
| Gp2        | 78.3      | 1.83   | 0.011 | Synpo2     | 56.9      | -2.35  | 0.000 |
| Fcer1g     | 339.9     | 1.80   | 0.000 | Zbtb46     | 118.6     | -2.26  | 0.000 |
| Pgam2      | 114.3     | 1.80   | 0.000 | Prrt2      | 74.8      | -2.24  | 0.000 |
| Ccr9       | 1385.9    | 1.76   | 0.026 | Cd83       | 403.4     | -2.23  | 0.000 |
| Ankrd35    | 93.3      | 1.73   | 0.002 | Malat1     | 24158.8   | -2.23  | 0.000 |
| Palm       | 941.5     | 1.72   | 0.000 | Lpl        | 118.5     | -2.20  | 0.000 |
| Tmem176b   | 1233.9    | 1.72   | 0.001 | Slamf8     | 52.3      | -2.18  | 0.000 |
| Adgrg5     | 168.4     | 1.70   | 0.000 | Mmp9       | 657.7     | -2.17  | 0.000 |
| Pls1       | 54.5      | 1.70   | 0.001 | Aif1       | 122.8     | -2.17  | 0.000 |
| Wfikkn2    | 2485.1    | 1.68   | 0.000 | Sema6d     | 64.8      | -2.17  | 0.000 |
| Gene   | Value 1  | Value 2  | Value 3  | Hz   | Value 4  | Value 5  | Value 6  | Value 7  | Value 8  | Value 9  | Value 10 | Value 11 | Value 12 | Value 13 | Value 14 | Value 15 |
|--------|---------|---------|---------|------|---------|---------|---------|---------|---------|---------|----------|----------|----------|----------|----------|----------|
| Nrarps | 507.8   | 1.67    | 0.000   |      |         |         |         |         |         |         |          |          |          |          |          |          |
| Rras2s | 1834.7  | 1.66    | 0.000   |      |         |         |         |         |         |         |          |          |          |          |          |          |
| Gm4285 | 159.7   | 1.65    | 0.000   |      |         |         |         |         |         |         |          |          |          |          |          |          |
| Aipl1s | 71.0    | 1.63    | 0.021   |      |         |         |         |         |         |         |          |          |          |          |          |          |
| Pik3ip1 | 2735.1  | 1.61    | 0.001   |      |         |         |         |         |         |         |          |          |          |          |          |          |
| Tusc1s | 91.2    | 1.60    | 0.001   |      |         |         |         |         |         |         |          |          |          |          |          |          |
| Ifitm3s | 4234.7  | 1.59    | 0.000   |      |         |         |         |         |         |         |          |          |          |          |          |          |
| Amica1s | 871.7   | 1.58    | 0.000   |      |         |         |         |         |         |         |          |          |          |          |          |          |
| C1qtnf4 | 60.0    | 1.58    | 0.030   |      |         |         |         |         |         |         |          |          |          |          |          |          |
| D930028M14Rik | 92.9 | 1.57 | 0.002 |      |         |         |         |         |         |         |          |          |          |          |          |          |
| Tmem176as | 828.3  | 1.51    | 0.010   |      |         |         |         |         |         |         |          |          |          |          |          |          |
| Fam212as | 150.8  | 1.50    | 0.000   |      |         |         |         |         |         |         |          |          |          |          |          |          |
| 9030617O03Rik | 503.9   | 1.49    | 0.000   |      |         |         |         |         |         |         |          |          |          |          |          |          |
| Grb7s | 826.1   | 1.48    | 0.000   |      |         |         |         |         |         |         |          |          |          |          |          |          |
| Cerk | 708.5   | 1.47    | 0.000   |      |         |         |         |         |         |         |          |          |          |          |          |          |
| 2810001G20Rik | 679.2  | 1.47    | 0.000   |      |         |         |         |         |         |         |          |          |          |          |          |          |
| Cpm | 488.9   | 1.46    | 0.000   |      |         |         |         |         |         |         |          |          |          |          |          |          |
| Zfp112s | 51.6    | 1.46    | 0.015   |      |         |         |         |         |         |         |          |          |          |          |          |          |
| Lrcc25s | 91.1    | 1.44    | 0.000   |      |         |         |         |         |         |         |          |          |          |          |          |          |
| Wbscr27s | 79.2    | 1.44    | 0.005   |      |         |         |         |         |         |         |          |          |          |          |          |          |
| Iraks | 1153.1  | 1.43    | 0.000   |      |         |         |         |         |         |         |          |          |          |          |          |          |
| Gm16845s | 135.8   | 1.42    | 0.001   |      |         |         |         |         |         |         |          |          |          |          |          |          |
| Gzmb | 33210.3 | 1.41    | 0.003   |      |         |         |         |         |         |         |          |          |          |          |          |          |
| Try4s | 95.8    | 1.41    | 0.027   |      |         |         |         |         |         |         |          |          |          |          |          |          |
| Hif3as | 142.7   | 1.40    | 0.049   |      |         |         |         |         |         |         |          |          |          |          |          |          |
| Sh3pdx2as | 198.6   | 1.40    | 0.000   |      |         |         |         |         |         |         |          |          |          |          |          |          |
| 1810041H14Rik | 106.8  | 1.39    | 0.000   |      |         |         |         |         |         |         |          |          |          |          |          |          |
| Gm19705s | 180.8   | 1.38    | 0.000   |      |         |         |         |         |         |         |          |          |          |          |          |          |
| Snhg4s | 445.0   | 1.36    | 0.000   |      |         |         |         |         |         |         |          |          |          |          |          |          |
| A630066F11Rik | 90.8   | 1.36    | 0.017   |      |         |         |         |         |         |         |          |          |          |          |          |          |
| Npc1s | 3516.3  | 1.36    | 0.000   |      |         |         |         |         |         |         |          |          |          |          |          |          |
| Dnajcs | 500.1   | 1.35    | 0.000   |      |         |         |         |         |         |         |          |          |          |          |          |          |
| Cd276s | 148.2   | 1.33    | 0.039   |      |         |         |         |         |         |         |          |          |          |          |          |          |
| Cpas | 151.3   | 1.33    | 0.038   |      |         |         |         |         |         |         |          |          |          |          |          |          |
| Gm17745s | 520.9   | 1.32    | 0.000   |      |         |         |         |         |         |         |          |          |          |          |          |          |
| Gng3s | 103.1   | 1.32    | 0.000   |      |         |         |         |         |         |         |          |          |          |          |          |          |
| Susd1s | 95.6    | 1.31    | 0.000   |      |         |         |         |         |         |         |          |          |          |          |          |          |
| Ifitm1s | 3775.5  | 1.30    | 0.047   |      |         |         |         |         |         |         |          |          |          |          |          |          |
| Ppp1r3bs | 135.7   | 1.30    | 0.000   |      |         |         |         |         |         |         |          |          |          |          |          |          |
| Zfp580s | 139.0   | 1.30    | 0.007   |      |         |         |         |         |         |         |          |          |          |          |          |          |
| Sclc41a2s | 87.6    | 1.30    | 0.003   |      |         |         |         |         |         |         |          |          |          |          |          |          |
| Gene      | Log2FoldChange | p-value | Adj p-value |
|-----------|----------------|---------|-------------|
| II7r      | 12144.2        | 1.29    | 0.000       |
| Gpr146    | 1595.3         | 1.28    | 0.000       |
| Bbc3      | 1951.7         | 1.27    | 0.017       |
| Dtx1      | 9434.6         | 1.27    | 0.024       |
| Apold1    | 53.8           | 1.26    | 0.040       |
| II2orb    | 197.5          | 1.25    | 0.003       |
| Cdnf      | 90.3           | 1.25    | 0.015       |
| Fkbp5     | 23039.1        | 1.24    | 0.000       |
| Serpinf1  | 250.9          | 1.24    | 0.009       |
| Cirbp     | 3717.2         | 1.24    | 0.017       |
| Abcb9     | 2682.0         | 1.24    | 0.000       |
| Smo       | 63.2           | 1.23    | 0.014       |
| Fam120aos | 489.6          | 1.23    | 0.000       |
| Ttyh3     | 5877.9         | 1.22    | 0.004       |
| Trib3     | 150.5          | 1.22    | 0.004       |
| Rnls      | 75.3           | 1.20    | 0.023       |
| 2310039H08Rik | 341.2 | 1.20 | 0.000  |
| Tmem9     | 1076.8         | 1.20    | 0.000       |
| 1700096K18Rik | 116.0 | 1.19 | 0.010  |
| F2rl1     | 1014.2         | 1.19    | 0.000       |
| Rom1      | 2297.0         | 1.19    | 0.015       |
| Cacnb4    | 50.5           | 1.19    | 0.045       |
| D330050I16Rik | 58.0 | 1.19 | 0.044  |
| Hid1      | 2477.8         | 1.15    | 0.000       |
| Lgals3    | 10475.1        | 1.15    | 0.000       |
| Prdm16    | 181.0          | 1.15    | 0.001       |
| Mt1       | 555.4          | 1.15    | 0.006       |
| Hsf4      | 269.4          | 1.14    | 0.000       |
| Mgst2     | 190.0          | 1.14    | 0.023       |
| Cand2     | 832.0          | 1.14    | 0.000       |
| Tgfb3     | 625.3          | 1.13    | 0.001       |
| Ndrg1     | 1202.5         | 1.13    | 0.000       |
| Nmnat2    | 148.4          | 1.13    | 0.005       |
| Ifitm2    | 4118.6         | 1.13    | 0.000       |
| Zbtb11os1 | 137.1          | 1.12    | 0.001       |
| Tbxa2r    | 991.6          | 1.11    | 0.000       |
| Gp1ba     | 71.8           | 1.11    | 0.042       |
| Dir2      | 502.2          | 1.11    | 0.001       |
| Bcl2      | 10412.1        | 1.11    | 0.000       |
| Dnmt3b    | 1113.9         | 1.10    | 0.000       |
| Sestd1    | 458.0          | 1.10    | 0.000       |
| Gene   | Exp. Ratio | P-value | Log Fold Change | Exp. Ratio | P-value | Log Fold Change |
|--------|------------|---------|----------------|------------|---------|----------------|
| Cpt1a  | 8486.1     | 1.10    | 0.013          | Ptprv      | 1075.1  | -1.57          | 0.002         |
| N4bp2  | 1550.5     | 1.08    | 0.000          | Card10     | 249.5   | -1.56          | 0.000         |
| Magi2  | 58.2       | 1.08    | 0.020          | Blvrb      | 284.5   | -1.56          | 0.000         |
| Scl14a | 793.8      | 1.08    | 0.000          | Rhd        | 62.7    | -1.55          | 0.031         |
| Pde2a  | 3692.5     | 1.07    | 0.000          | Ly66       | 54.5    | -1.55          | 0.002         |
| 1500009L16Rik | 1313.3   | 1.07    | 0.001          | Myo1d      | 74.7    | -1.55          | 0.027         |
| Tmem203| 593.5      | 1.07    | 0.000          | Ptgs1      | 78.1    | -1.54          | 0.001         |
| Plac8  | 8895.4     | 1.07    | 0.000          | 4930579G18Rik | 175.6  | -1.54          | 0.000         |
| Rab3d  | 1606.6     | 1.07    | 0.000          | Csf2ra     | 100.7   | -1.53          | 0.000         |
| Spef2  | 87.4       | 1.07    | 0.021          | Lppr3      | 276.0   | -1.53          | 0.000         |
| Ldhb   | 861.9      | 1.06    | 0.002          | Arnt2      | 726.1   | -1.52          | 0.000         |
| Lat2   | 287.4      | 1.05    | 0.000          | Cacng8     | 82.8    | -1.52          | 0.005         |
| Ldirap1| 1982.9     | 1.05    | 0.000          | Trim2      | 73.1    | -1.52          | 0.001         |
| Extl2  | 343.3      | 1.05    | 0.000          | Trp73      | 395.3   | -1.51          | 0.000         |
| Pdcd4  | 12562.8    | 1.04    | 0.000          | Cav2       | 99.5    | -1.50          | 0.002         |
| D130017N08Rik | 60.9      | 1.04    | 0.027          | Plcd1      | 85.7    | -1.50          | 0.001         |
| Tomt   | 107.2      | 1.04    | 0.011          | Tbc1d9     | 80.2    | -1.50          | 0.007         |
| Gm4890 | 55.5       | 1.04    | 0.025          | Cadm1      | 106.8   | -1.50          | 0.007         |
| 1700056E22Rik | 110.6  | 1.04    | 0.007          | Snora64    | 82.4    | -1.50          | 0.001         |
| Tbc1d16| 124.0      | 1.03    | 0.001          | C4b        | 61.7    | -1.49          | 0.001         |
| Eps8   | 319.0      | 1.03    | 0.002          | Vipr2      | 76.1    | -1.48          | 0.007         |
| Tef    | 1081.2     | 1.03    | 0.001          | App        | 231.9   | -1.48          | 0.000         |
| Dyx1c1 | 237.3      | 1.03    | 0.008          | Ablim2     | 72.9    | -1.48          | 0.003         |
| Galnt4 | 1413.0     | 1.02    | 0.000          | Gm20605    | 292.9   | -1.47          | 0.000         |
| Camk2b | 2540.0     | 1.02    | 0.000          | Susd2      | 1677.8  | -1.47          | 0.000         |
| Vmac   | 455.1      | 1.02    | 0.002          | Ubd        | 108.5   | -1.47          | 0.001         |
| Cd72   | 186.2      | 1.01    | 0.042          | A930013F10Rik | 101.8  | -1.47          | 0.002         |
| Kihl5  | 1411.2     | 1.01    | 0.000          | B4galt4    | 79.9    | -1.47          | 0.001         |
| Sft2d3 | 309.9      | 1.01    | 0.002          | Ctsh       | 78.7    | -1.46          | 0.001         |
| Fbxo17 | 182.7      | 1.00    | 0.031          | Igfs9b     | 103.5   | -1.46          | 0.003         |
| H6pd   | 1775.8     | 1.00    | 0.000          | H2-Ab1     | 1080.2  | -1.46          | 0.003         |
| Wdr34  | 145.1      | 1.00    | 0.002          | Nid2       | 125.2   | -1.46          | 0.000         |
| Acp5   | 6388.2     | 0.99    | 0.000          | Stlc43a1   | 301.2   | -1.45          | 0.002         |
| Ddit4  | 18173.3    | 0.99    | 0.000          | Nr1h3      | 117.5   | -1.45          | 0.025         |
| Magef1 | 236.0      | 0.99    | 0.010          | Shn1       | 202.1   | -1.45          | 0.000         |
| Macrod1| 190.8      | 0.99    | 0.000          | Tifab      | 69.6    | -1.44          | 0.021         |
| Zbed3  | 473.4      | 0.98    | 0.001          | Mir3064    | 148.6   | -1.44          | 0.002         |
| Snhg3  | 356.4      | 0.98    | 0.007          | Igfbp7     | 1292.1  | -1.43          | 0.016         |
| Mblac1 | 78.7       | 0.98    | 0.044          | Atat1      | 72.2    | -1.43          | 0.002         |
| C1qtnf6| 792.0      | 0.97    | 0.000          | Tnfaip2    | 206.7   | -1.43          | 0.005         |
| Klf2   | 11419.5    | 0.97    | 0.000          | Phlda1     | 788.9   | -1.43          | 0.000         |
| Gene       | Log2FC | p-value | Log2FC | p-value |
|------------|--------|---------|--------|---------|
| Sprn       | -0.97  | 0.009   | -0.97  | 0.009   |
| H2-Oa      | -0.97  | 0.030   | -1.43  | 0.001   |
| Vax2       | -0.97  | 0.004   | -1.42  | 0.004   |
| Ifitm10    | -0.97  | 0.021   | -1.41  | 0.001   |
| Slc2a9     | -0.97  | 0.000   | -1.41  | 0.003   |
| Klf11      | -0.96  | 0.003   | -1.41  | 0.000   |
| 1500015A07Rik | -0.96  | 0.009   | -1.40  | 0.000   |
| Fam117a    | -0.95  | 0.000   | -1.39  | 0.000   |
| 2010320M18Rik | -0.95  | 0.002   | -1.37  | 0.000   |
| Ifngr1     | -0.95  | 0.000   | -1.37  | 0.000   |
| Klf13      | -0.95  | 0.000   | -1.36  | 0.000   |
| Mvb12b     | -0.95  | 0.000   | -1.35  | 0.000   |
| 9330133O14Rik | -0.95  | 0.004   | -1.35  | 0.000   |
| Tnfrsf26   | -0.95  | 0.000   | -1.35  | 0.000   |
| Gm7120     | -0.95  | 0.006   | -1.35  | 0.000   |
| Arl4c      | -0.94  | 0.000   | -1.35  | 0.000   |
| Gramd4     | -0.94  | 0.000   | -1.35  | 0.000   |
| Gpc1       | -0.94  | 0.000   | -1.35  | 0.000   |
| Rasgrp2    | -0.94  | 0.033   | -1.35  | 0.002   |
| Cercam     | -0.94  | 0.001   | -1.35  | 0.000   |
| Sh3bp5     | -0.94  | 0.000   | -1.35  | 0.000   |
| Acss2      | -0.93  | 0.000   | -1.35  | 0.000   |
| Tcta       | -0.93  | 0.002   | -1.35  | 0.000   |
| Slc48a1    | -0.93  | 0.000   | -1.35  | 0.000   |
| Shf        | -0.92  | 0.019   | -1.35  | 0.000   |
| Atp1b3     | -0.92  | 0.000   | -1.34  | 0.001   |
| Slc25a20   | -0.92  | 0.000   | -1.33  | 0.013   |
| Klh6       | -0.92  | 0.014   | -1.33  | 0.003   |
| Tgfb3      | -0.92  | 0.004   | -1.33  | 0.033   |
| Man1c1     | -0.92  | 0.000   | -1.32  | 0.000   |
| Tpcn1      | -0.92  | 0.000   | -1.32  | 0.000   |
| Plxd1      | -0.91  | 0.000   | -1.31  | 0.001   |
| Cd69       | -0.91  | 0.000   | -1.31  | 0.001   |
| Prf1       | -0.90  | 0.001   | -1.31  | 0.000   |
| Myl4       | -0.90  | 0.004   | -1.31  | 0.001   |
| Gm2a       | -0.90  | 0.000   | -1.31  | 0.000   |
| Pgm2       | -0.89  | 0.000   | -1.31  | 0.001   |

**Supplemental Table 4.** Genes identified to be differentially expressed (adjusted $p$ value < 0.05) between KO and WT CD4+ T-cells. Genes with positive Log2 fold change (log2FC) values are upwardly expressed in KO T-cells (top 200 genes). Genes with negative log2FC values are downwardly expressed in KO T-cells (top 200 genes).
| Gene      | Base mean | Log2FC | p-adj | Gene      | Base mean | Log2FC | p-adj |
|-----------|-----------|--------|-------|-----------|-----------|--------|-------|
| Scn2b     | 207.3     | 3.69   | 0.000 | Hspa1a    | 2025.4    | -7.20  | 0.000 |
| Myl10     | 69.9      | 3.68   | 0.000 | Hspa1b    | 1212.5    | -6.78  | 0.000 |
| Igsf23    | 190.3     | 3.66   | 0.000 | Krt17     | 58.7      | -5.23  | 0.009 |
| Dnajc6    | 376.3     | 3.62   | 0.000 | Fosb      | 684.4     | -3.85  | 0.000 |
| Cd4       | 28376.7   | 3.47   | 0.000 | Miat      | 404.6     | -3.40  | 0.000 |
| Cd79b     | 955.4     | 3.22   | 0.000 | Ier5l     | 58.2      | -3.23  | 0.001 |
| Pygm      | 719.0     | 3.07   | 0.002 | Mrc2      | 123.0     | -3.19  | 0.034 |
| Atp1b1    | 118.9     | 2.95   | 0.000 | Plbd1     | 207.4     | -3.16  | 0.000 |
| Ston1     | 199.9     | 2.83   | 0.002 | Celf4     | 75.4      | -3.09  | 0.047 |
| Klr1c     | 773.7     | 2.82   | 0.000 | Rasd2     | 59.0      | -3.04  | 0.000 |
| Tmprss4   | 79.3      | 2.80   | 0.007 | Insr      | 98.9      | -2.96  | 0.000 |
| Abca1     | 291.3     | 2.79   | 0.005 | Fos       | 1509.8    | -2.95  | 0.000 |
| Tmem176b  | 729.4     | 2.71   | 0.000 | Gm4841    | 108.6     | -2.92  | 0.000 |
| Emilin1   | 358.8     | 2.69   | 0.000 | Rab7b     | 50.0      | -2.86  | 0.000 |
| G0s2      | 181.3     | 2.59   | 0.000 | Coch      | 83.2      | -2.76  | 0.000 |
| Cabp1     | 65.1      | 2.53   | 0.000 | Dkk3      | 84.1      | -2.74  | 0.000 |
| Islr      | 81.4      | 2.48   | 0.001 | Lmnd2     | 72.4      | -2.72  | 0.000 |
| Qrfp      | 754.0     | 2.47   | 0.000 | Jun       | 1930.5    | -2.68  | 0.000 |
| Cnr2      | 140.7     | 2.45   | 0.004 | Naip5     | 168.1     | -2.67  | 0.000 |
| Tmem176a  | 500.5     | 2.43   | 0.000 | Snord22   | 100.7     | -2.59  | 0.000 |
| Gpnmb     | 704.8     | 2.42   | 0.000 | Clgn      | 284.0     | -2.59  | 0.000 |
| Gzma      | 44263.5   | 2.41   | 0.023 | Map2      | 143.3     | -2.58  | 0.018 |
| Lrp5      | 909.0     | 2.37   | 0.000 | Ankle1    | 328.2     | -2.51  | 0.000 |
| Wfikkn2   | 2008.9    | 2.33   | 0.000 | Ltk       | 159.6     | -2.50  | 0.000 |
| Ifitm3    | 2724.5    | 2.32   | 0.000 | Anpep     | 52.0      | -2.46  | 0.002 |
| Aqp9      | 195.3     | 2.32   | 0.000 | Pspl-ps1  | 1105.4    | -2.40  | 0.000 |
| Eng       | 100.7     | 2.29   | 0.002 | Zan       | 234.0     | -2.40  | 0.000 |
| Ccr9      | 1137.5    | 2.27   | 0.022 | Mir7058   | 115.7     | -2.37  | 0.000 |
| Sh3pxd2a  | 169.5     | 2.18   | 0.000 | Aldh1a1   | 63.4      | -2.37  | 0.045 |
| Endou     | 106.2     | 2.17   | 0.016 | Zfp692    | 371.3     | -2.36  | 0.000 |
| Pgam2     | 130.6     | 2.17   | 0.000 | Glp1r     | 64.7      | -2.35  | 0.000 |
| Fam109b   | 224.9     | 2.17   | 0.000 | Ceacam16  | 74.1      | -2.33  | 0.030 |
| St8sia1   | 351.8     | 2.10   | 0.000 | Lrrk2     | 68.1      | -2.29  | 0.048 |
| 5830418P13Rik | 56.0 | 2.09   | 0.000 | Cxcl9     | 128.0     | -2.26  | 0.009 |
| Txnip     | 24635.0   | 2.07   | 0.031 | Rnf165    | 75.0      | -2.24  | 0.001 |
| Pik3ip1   | 2358.2    | 2.06   | 0.000 | 4933439C10Rik | 76.1 | -2.22  | 0.000 |
| Ldhb      | 539.8     | 2.05   | 0.000 | Sgpp2     | 74.2      | -2.22  | 0.001 |
| Fes       | 1750.6    | 1.99   | 0.000 | Ppp1r15a  | 2442.5    | -2.19  | 0.000 |
| Trat1     | 373.5     | 1.99   | 0.032 | Tvp23a    | 81.4      | -2.14  | 0.001 |
| Alpk2     | 95.3      | 1.98   | 0.003 | Rasgef1a  | 115.4     | -2.14  | 0.013 |
| Gene         | Value1 | Value2 | Value3 | Gene         | Value1 | Value2 | Value3 |
|--------------|--------|--------|--------|--------------|--------|--------|--------|
| Tgfr3        | 160.6  | 1.94   | 0.017  | Dnase1l3     | 512.3  | -2.13  | 0.000  |
| Fam212a      | 122.6  | 1.92   | 0.000  | Ccr6         | 106.5  | -2.12  | 0.002  |
| Try4         | 119.2  | 1.91   | 0.036  | 4930431p03Rik| 79.3   | -2.12  | 0.000  |
| Aipl1        | 89.4   | 1.89   | 0.009  | Mir155hg     | 92.9   | -2.11  | 0.000  |
| Il7r         | 7189.1 | 1.88   | 0.001  | Lima1        | 56.3   | -2.11  | 0.003  |
| Myh10        | 314.0  | 1.84   | 0.005  | Mir8113      | 52.5   | -2.11  | 0.001  |
| Mrc1         | 166.5  | 1.83   | 0.036  | Lmtk3        | 512.7  | -2.10  | 0.000  |
| Pis1         | 156.3  | 1.82   | 0.002  | Snora1       | 94.4   | -2.09  | 0.000  |
| Tgfb3        | 339.4  | 1.79   | 0.000  | Scl9a5       | 198.9  | -2.09  | 0.000  |
| Ifib3b       | 566.4  | 1.76   | 0.016  | Celf5        | 56.6   | -2.09  | 0.004  |
| P2ry14       | 320.2  | 1.76   | 0.000  | Pisd-ps2     | 320.4  | -2.07  | 0.000  |
| Fcer1g       | 788.5  | 1.76   | 0.000  | A930013f10Rik| 87.6   | -2.05  | 0.012  |
| Lair1        | 1105.2 | 1.73   | 0.000  | Dusp1        | 1832.9 | -2.05  | 0.000  |
| Ccdc122      | 84.6   | 1.71   | 0.013  | Wdfy4        | 367.2  | -2.03  | 0.007  |
| Ifit3        | 1005.3 | 1.66   | 0.025  | Ciita        | 111.5  | -2.02  | 0.004  |
| Bcl2         | 9176.0 | 1.65   | 0.004  | Arnt2        | 332.5  | -2.01  | 0.015  |
| Klh6         | 7217.8 | 1.61   | 0.000  | Gm996        | 73.9   | -1.99  | 0.018  |
| N4bp2        | 1728.0 | 1.60   | 0.000  | Tmprss6      | 65.4   | -1.99  | 0.028  |
| Dtx4         | 329.3  | 1.58   | 0.010  | Csf2ra       | 111.4  | -1.97  | 0.000  |
| D930028m14Rik| 144.9  | 1.55   | 0.038  | Rgs1         | 2361.8 | -1.96  | 0.000  |
| Nqo1         | 127.3  | 1.53   | 0.036  | Neat1        | 4691.7 | -1.95  | 0.000  |
| Tnfrsf26     | 928.6  | 1.52   | 0.000  | Mir7115      | 84.1   | -1.94  | 0.000  |
| Wbscr27      | 108.4  | 1.50   | 0.049  | Apol10b      | 98.5   | -1.93  | 0.000  |
| 2810001g20Rik| 821.9  | 1.49   | 0.000  | Lilr4b       | 5241.0 | -1.92  | 0.000  |
| Pde2a        | 3662.8 | 1.49   | 0.010  | Kit          | 130.4  | -1.92  | 0.002  |
| Fam101b      | 759.3  | 1.48   | 0.027  | Tmem198      | 133.5  | -1.90  | 0.000  |
| Nbl1         | 104.2  | 1.48   | 0.042  | Insl3        | 101.6  | -1.89  | 0.009  |
| Sh3d19       | 107.0  | 1.48   | 0.002  | Cadm1        | 84.5   | -1.89  | 0.013  |
| Zfp580       | 155.7  | 1.47   | 0.040  | H2-Aa        | 760.3  | -1.89  | 0.002  |
| Zbtb11os1    | 142.3  | 1.47   | 0.000  | Slc2a4rg-ps  | 1133.5 | -1.88  | 0.000  |
| Trib3        | 107.5  | 1.45   | 0.022  | Csf1         | 3522.0 | -1.87  | 0.021  |
| Gm16845      | 144.5  | 1.45   | 0.000  | Lpl          | 80.9   | -1.87  | 0.021  |
| Ldirap1      | 1589.9 | 1.43   | 0.000  | Sena6d       | 81.2   | -1.85  | 0.013  |
| Gm19705      | 324.7  | 1.43   | 0.000  | Tnfsf13b     | 113.1  | -1.84  | 0.011  |
| Eya2         | 446.1  | 1.40   | 0.000  | Atat1        | 81.9   | -1.84  | 0.000  |
| Npas1        | 58.2   | 1.40   | 0.031  | Asb2         | 2050.1 | -1.84  | 0.000  |
| 90306017003Rik| 462.5  | 1.39   | 0.003  | Rassf6       | 112.7  | -1.83  | 0.009  |
| Apobec2      | 1005.0 | 1.39   | 0.000  | Nr4a2        | 1719.7 | -1.82  | 0.027  |
| Palm         | 1663.6 | 1.38   | 0.000  | Trpm2        | 64.7   | -1.82  | 0.014  |
| Arl4c        | 11026.8| 1.38   | 0.000  | Echdc2       | 126.1  | -1.81  | 0.002  |
| Sestd1       | 321.3  | 1.37   | 0.001  | Bcl2l14      | 49.7   | -1.81  | 0.003  |
| Gene       | Value1  | Value2 | Value3 | Gene       | Value1  | Value2 | Value3 |
|------------|---------|--------|--------|------------|---------|--------|--------|
| Rras2      | 2644.4  | 1.37   | 0.001  | Clnd2      | 102.9   | -1.80  | 0.000  |
| Tns2       | 532.1   | 1.36   | 0.023  | Snord104   | 54.8    | -1.79  | 0.001  |
| Acss2      | 1020.2  | 1.35   | 0.000  | Snhg20     | 175.3   | -1.79  | 0.000  |
| Rcn3       | 1045.9  | 1.35   | 0.001  | Ypel2      | 298.8   | -1.78  | 0.000  |
| Dbx1       | 6730.7  | 1.34   | 0.042  | Plekhn1    | 123.3   | -1.78  | 0.029  |
| Idh2       | 1199.7  | 1.34   | 0.000  | Syk        | 729.1   | -1.78  | 0.006  |
| Tanc1      | 612.8   | 1.33   | 0.000  | Naip1      | 59.2    | -1.78  | 0.033  |
| Ifitm2     | 2264.4  | 1.32   | 0.001  | Ocid2      | 270.0   | -1.78  | 0.040  |
| Ttyh3      | 5390.7  | 1.32   | 0.003  | Alf1       | 96.5    | -1.77  | 0.000  |
| Bbc3       | 1394.2  | 1.32   | 0.008  | Tert       | 113.6   | -1.77  | 0.000  |
| Igf2bp2    | 53.1    | 1.31   | 0.015  | 4-Sep      | 145.0   | -1.76  | 0.006  |
| Treml2     | 529.8   | 1.28   | 0.000  | Tnfaip2    | 166.2   | -1.75  | 0.001  |
| Pltr17     | 63.4    | 1.28   | 0.048  | Rhbd1      | 116.2   | -1.75  | 0.000  |
| Il2orb     | 239.2   | 1.28   | 0.006  | Lilrb4a    | 3411.6  | -1.74  | 0.000  |
| Zc3h6      | 516.9   | 1.27   | 0.004  | Gatm       | 148.7   | -1.74  | 0.001  |
| Plxdc2     | 229.5   | 1.27   | 0.036  | B4galt4    | 77.2    | -1.74  | 0.020  |
| 0610009L18Rik | 63.3   | 1.26   | 0.016  | Gabbr1     | 1264.1  | -1.73  | 0.000  |
| Fkbp5      | 20827.6 | 1.26   | 0.000  | Npnt       | 636.4   | -1.72  | 0.023  |
| Scl14a1    | 958.3   | 1.26   | 0.000  | 4930579G18Rik | 165.8 | -1.72  | 0.021  |
| Gm17745    | 609.9   | 1.26   | 0.000  | Vill       | 81.0    | -1.72  | 0.025  |
| Cdnf       | 86.1    | 1.25   | 0.015  | Adams10    | 3210.4  | -1.70  | 0.000  |
| Nmmat2     | 169.8   | 1.25   | 0.018  | Tbc1d9     | 74.7    | -1.70  | 0.001  |
| Abhd15     | 247.6   | 1.25   | 0.002  | Clec7a     | 55.2    | -1.69  | 0.033  |
| Avpi1      | 178.7   | 1.24   | 0.000  | H2-Eb1     | 854.8   | -1.69  | 0.011  |
| Npc1       | 3525.8  | 1.23   | 0.000  | Ifng       | 5891.3  | -1.69  | 0.000  |
| Scl2a9     | 648.8   | 1.23   | 0.001  | Prrt2      | 67.7    | -1.68  | 0.002  |
| Shh2       | 5766.3  | 1.23   | 0.000  | Lppr3      | 260.2   | -1.68  | 0.000  |
| Pdcd4      | 10562.8 | 1.23   | 0.001  | Snora64    | 74.4    | -1.67  | 0.004  |
| Mvb12b     | 932.1   | 1.22   | 0.003  | Trp73      | 351.5   | -1.67  | 0.003  |
| Lef1       | 4736.7  | 1.22   | 0.000  | Snx32      | 192.2   | -1.67  | 0.000  |
| Akr1c13    | 278.9   | 1.22   | 0.000  | Dennd6b    | 237.8   | -1.66  | 0.009  |
| F2rl1      | 1036.9  | 1.21   | 0.000  | Acrbp      | 125.8   | -1.66  | 0.000  |
| Gpr146     | 1499.3  | 1.21   | 0.000  | Gm4956     | 207.8   | -1.65  | 0.035  |
| Nrarp      | 596.4   | 1.20   | 0.010  | Chrm4      | 312.8   | -1.64  | 0.003  |
| Ssc4d      | 130.0   | 1.19   | 0.006  | Rsrp1      | 5243.8  | -1.64  | 0.000  |
| Zyg11b     | 4607.3  | 1.19   | 0.000  | Vwa5a      | 333.7   | -1.64  | 0.003  |
| Zfp36l2    | 22231.1 | 1.19   | 0.008  | Snord35a   | 59.1    | -1.63  | 0.009  |
| Gm4285     | 197.3   | 1.18   | 0.015  | Gpr162     | 76.1    | -1.62  | 0.043  |
| S1pr1      | 9681.3  | 1.18   | 0.002  | Eps81      | 302.9   | -1.62  | 0.000  |
| Snhg4      | 518.9   | 1.18   | 0.002  | Slc43a1    | 151.1   | -1.62  | 0.002  |
| 1700056E22Rik | 127.7 | 1.17   | 0.010  | Icam5      | 71.9    | -1.62  | 0.001  |
| Gene             | log2FoldChange | adj.P.Val | p.Val  |
|------------------|----------------|-----------|--------|
| Tcp11l2          | 1.16           | 0.000     |        |
| Spata6           | 1.15           | 0.003     |        |
| Lgals9           | 1.15           | 0.000     |        |
| Rab3d            | 1.14           | 0.000     |        |
| H2-Oa            | 1.14           | 0.008     |        |
| 5730508B09Rik    | 1.13           | 0.000     |        |
| Ilga2            | 1.13           | 0.007     |        |
| 1700096K18Rik    | 1.12           | 0.037     |        |
| Ada              | 1.12           | 0.000     |        |
| Timp2            | 1.12           | 0.000     |        |
| Klf13            | 1.12           | 0.000     |        |
| Klhl5            | 1.12           | 0.000     |        |
| 9330175E14Rik    | 1.12           | 0.023     |        |
| Vmac             | 1.12           | 0.004     |        |
| Itfg3            | 1.11           | 0.000     |        |
| Piwil2           | 1.11           | 0.049     |        |
| 2310039H08Rik    | 1.11           | 0.000     |        |
| Cpt1a            | 1.11           | 0.045     |        |
| Cyp2s1           | 1.10           | 0.044     |        |
| Eef2k            | 1.10           | 0.015     |        |
| Slc43a2          | 1.09           | 0.000     |        |
| Serpinb9b        | 1.08           | 0.012     |        |
| Fam117a          | 1.08           | 0.001     |        |
| Gramd4           | 1.08           | 0.000     |        |
| Kbtbd11          | 1.07           | 0.000     |        |
| Ddit4            | 1.07           | 0.000     |        |
| Sh3bp5           | 1.07           | 0.025     |        |
| Tmem38a          | 1.07           | 0.026     |        |
| Egln3            | 1.07           | 0.019     |        |
| 1700025G04Rik    | 1.07           | 0.045     |        |
| Klf11            | 1.07           | 0.029     |        |
| Mfsd4            | 1.06           | 0.001     |        |
| A930005H10Rik    | 1.06           | 0.004     |        |
| Cd6              | 1.06           | 0.000     |        |
| Rreb1            | 1.06           | 0.000     |        |
| Ndst1            | 1.06           | 0.001     |        |
| Card6            | 1.06           | 0.021     |        |
| Lrrc75b          | 1.06           | 0.005     |        |
| Elk4             | 1.05           | 0.001     |        |
| Amica1           | 1.05           | 0.000     |        |
| Nckap1           | 1.05           | 0.003     |        |

| Gene             | log2FoldChange | adj.P.Val | p.Val  |
|------------------|----------------|-----------|--------|
| Gm3636           | 1.16           |          |        |
| H2-Ab1           | 1.15           |          |        |
| Xcr1             | 1.15           |          |        |
| Cdh24            | 1.14           |          |        |
| Dnase1l2         | 1.14           |          |        |
| Ttc16            | 1.13           |          |        |
| Enpp2            | 1.13           |          |        |
| Cdk14            | 1.12           |          |        |
| Rccd1            | 1.12           |          |        |
| Marcks           | 1.12           |          |        |
| Sirt4            | 1.12           |          |        |
| Tppp3            | 1.12           |          |        |
| Ttk1             | 1.12           |          |        |
| Dgds2            | 1.12           |          |        |
| Pawr             | 1.12           |          |        |
| Mpeg1            | 1.12           |          |        |
| Smarcd3          | 1.12           |          |        |
| 9430015G10Rik    | 1.12           |          |        |
| Myadn            | 1.12           |          |        |
| Ptpn5            | 1.12           |          |        |
| Kifc2            | 1.12           |          |        |
| Rab3l1           | 1.12           |          |        |
| Mir17hg          | 1.12           |          |        |
| Agrm             | 1.12           |          |        |
| 2010016I18Rik    | 1.12           |          |        |
| Rassf4           | 1.12           |          |        |
| Prmt2            | 1.12           |          |        |
| Izumo4           | 1.12           |          |        |
| Fam193b          | 1.12           |          |        |
| Tnfsf4           | 1.12           |          |        |
| Dvl1             | 1.12           |          |        |
| Fam129c          | 1.12           |          |        |
| Sec14l2          | 1.12           |          |        |
| Mical2           | 1.12           |          |        |
| Plod2            | 1.12           |          |        |
| Gene       | Log2FC | p Value | Adj p Value |
|------------|--------|---------|-------------|
| H2-DMa     | 1.05   | 0.000   |             |
| Gm2a       | 1.05   | 0.000   |             |
| Bach1      | 1.05   | 0.000   |             |
| Cxcr4      | 1.05   | 0.000   |             |
| Oasl1      | 1.04   | 0.025   |             |
| Mtus2      | 1.04   | 0.035   |             |
| Rnf144a    | 1.04   | 0.043   |             |
| Rassf3     | 1.04   | 0.000   |             |
| Tomt       | 1.03   | 0.000   |             |
| Atp1b3     | 1.03   | 0.000   |             |
| H1f0       | 1.02   | 0.011   |             |
| Cirbp      | 1.01   | 0.027   |             |
| Fbxo17     | 1.01   | 0.023   |             |
| Slc39a8    | 1.01   | 0.048   |             |
| Clybl      | 1.01   | 0.000   |             |
| Cpm        | 1.00   | 0.002   |             |
| Atp13a2    | 1.00   | 0.000   |             |
| Acp5       | 1.00   | 0.000   |             |
| Vax2       | 1.00   | 0.034   |             |
| Satb1      | 1.00   | 0.000   |             |
| Zfp652     | 1.00   | 0.002   |             |
| Tspan3     | 0.99   | 0.000   |             |
| Tmem71     | 0.99   | 0.000   |             |
| Tbc1d2     | 0.99   | 0.049   |             |
| Mylipp     | 0.98   | 0.006   |             |
| Fbxo32     | 0.98   | 0.002   |             |
| 4933421O10Rik | 0.97 | 0.001   |             |
| H6pd       | 0.97   | 0.000   |             |
| Dyx1c1     | 0.96   | 0.004   |             |
| Etv4       | 0.96   | 0.005   |             |
| Slc25a20   | 0.96   | 0.001   |             |
| Pxylp1     | 0.96   | 0.000   |             |
| Tpcn1      | 0.96   | 0.000   |             |
| Pink1      | 0.96   | 0.000   |             |
| Frat1      | 0.95   | 0.019   |             |
| Rab37      | 0.95   | 0.017   |             |
| Pdk1       | 0.94   | 0.000   |             |

Supplemental Table 5. Genes identified to be differentially expressed (adjusted p value <0.05) between KO and WT CD8+ T-cells. Genes with positive Log2 fold change (log2FC) values are upwardly expressed in KO T-cells (top 200 genes). Genes with negative log2FC values are downwardly expressed in KO T-cells (top 200 genes).
## Supplemental Table 6

Published gene sets enriched for genes upwardly expressed in KO vs. WT CD4+ T-cells.

| MSigDB C7 GeneSet                                      | p-adj  | FDR   | NES    | Genes                                                                 |
|--------------------------------------------------------|--------|-------|--------|------------------------------------------------------------------------|
| GSE22886_NAIVE_CD4_TCELL_VS_48H_ACT_TH2_UP             | 0.0017 | 0.0043| 1.8033 | Add3, Bcl2, Eef2, Islr, Lsr, Ndst1, Pcf1, Plac8, Plxdc1, Ptp4a3, Rpl29, Rpl3, Rpl32, Rpl8, Samhd1, Slc48a1, Smpd1, Tbx2r, Tns2 |
| GSE43955_10H_VS_60H_ACT_CD4_TCELL_LL_WITH_TGFBI6_UP    | 0.0186 | 0.0045| 1.4780 | Akt1, Atp1b3, Bsc12, Chmp6, Elf3k, Emb Eya2, Gorasp2, Hdgf, Hic1, Imp3, Ints9, Plxnd1 |
| GSE11057_NAIVE_VS_CENT_MEMORY_CD4_TCELL_DN             | 0.0260 | 0.0074| 1.4264 | Adam19, Capns1, Chst12, Cot1, Efh2, Ezr1, Kih15, Lgals3, Rab27a, Slc6a6, Tigit, Ub13 Cmtm7, Efh2, Gm2a, Gna15, Gramd4, Lrcc28, Mbd2, Ndufa8, Ndufb5, Ppp2r5a, Rftrn1, Suox, Syl3, Urm1, Zadh2 |
| GSE13738_RESTING_VS_TCR_ACTIVATED_CD4_TCELL_DN         | 0.0052 | 0.0120| 1.6202 | Add3, Bcl2, Eef2, Islr, Lsr, Ndst1, Pcf1, Plac8, Plxdc1, Ptp4a3, Rpl29, Rpl3, Rpl32, Rpl8, Samhd1, Slc48a1, Smpd1, Tbx2r, Tns2 |
| GSE45739_UNSTIM_VS_ACD3_ACD28.TIM_SHORT_CD4_TCELL_DN   | 0.0017 | 0.0158| 1.8562 | Add3, Bcl2, Eef2, Islr, Lsr, Ndst1, Pcf1, Plac8, Plxdc1, Ptp4a3, Rpl29, Rpl3, Rpl32, Rpl8, Samhd1, Slc48a1, Smpd1, Tbx2r, Tns2 |
| GSE22886_NAIVE_CD4_TCELL_VS_MEMORY_CD4_TCELL_DN        | 0.0180 | 0.0197| 1.4729 | Add3, Bcl2, Eef2, Islr, Lsr, Ndst1, Pcf1, Plac8, Plxdc1, Ptp4a3, Rpl29, Rpl3, Rpl32, Rpl8, Samhd1, Slc48a1, Smpd1, Tbx2r, Tns2 |
| GSE37301_HEMATOPOIETIC_STEM_CELL_VS_MULTIPOTENT_PROGENITOR_DN | 0.0314 | 0.0215| 1.4688 | Add3, Bcl2, Eef2, Islr, Lsr, Ndst1, Pcf1, Plac8, Plxdc1, Ptp4a3, Rpl29, Rpl3, Rpl32, Rpl8, Samhd1, Slc48a1, Smpd1, Tbx2r, Tns2 |
| GSE37301_MULTIPOTENT_PROGENITOR_VS_COMMON_LYMPHOID_PROGENITOR_UP | 0.0017 | 0.0002| 1.8754 | Add3, Bcl2, Eef2, Islr, Lsr, Ndst1, Pcf1, Plac8, Plxdc1, Ptp4a3, Rpl29, Rpl3, Rpl32, Rpl8, Samhd1, Slc48a1, Smpd1, Tbx2r, Tns2 |
| GSE37301_MULTIPOTENT_PROGENITOR_VS_CD4_TCELL_UP        | 0.0017 | 0.0037| 1.8511 | Add3, Bcl2, Eef2, Islr, Lsr, Ndst1, Pcf1, Plac8, Plxdc1, Ptp4a3, Rpl29, Rpl3, Rpl32, Rpl8, Samhd1, Slc48a1, Smpd1, Tbx2r, Tns2 |
| GSE22601_DOUBLE_NEGATIVE_VS_IMMATURE_CD4_SP_THYMOCYTE_UP | 0.0083 | 0.0093| 1.5708 | Add3, Bcl2, Eef2, Islr, Lsr, Ndst1, Pcf1, Plac8, Plxdc1, Ptp4a3, Rpl29, Rpl3, Rpl32, Rpl8, Samhd1, Slc48a1, Smpd1, Tbx2r, Tns2 |

**Supplemental Table 6.** Gene set enrichment analyses (GSEA) were conducted using the MSigDB C7 Immunologic Signature database. Select immune-related gene sets overrepresented in genes upregulated in KO vs. WT CD4+ T-cells. P-adj = adjusted p-value, FDR = false discovery rate, NES = normalized enrichment score. Last column represents genes considered key drivers of the enrichment signal.
### Supplemental Table 7. Published gene sets enriched for genes upwardly expressed in KO vs. WT CD8+ T-cells.

| MSigDB C7 GeneSet                                           | p-adj | FDR   | NES    | Genes                                                                                                                                 |
|-------------------------------------------------------------|-------|-------|--------|---------------------------------------------------------------------------------------------------------------------------------------|
| GSE9650_EFFECTOR_VS_EXHAUSTED_CD8_TCELL_UP                  | 0.0036| <1.00E-5| 2.3623 | Acp5, Ak3, Anapc16, Arl4c, B4gal1, Bnip3l, Brap, Bsc12, Cdkn2d, Cib1, Comm7d, Dap, Elf3l, Entpd4, Fam117a, Fez2, Gdap2, Glipr2, Gpc1, Hadhb, Hipk1, Hsd11b1, Il17ra, Ilgb7, Lef1, Lgals9, Mtc1, Pkp3, Plac8, Psmd13, Satb1, Scp2, Smpd1, Tf2w, Usp22 |
| GSE9650_EFFECTOR_VS_MEMORY_CD8_TCELL_UP                     | 0.0201| 0.0846| 1.4417 | Ak3, Capsn1, Cdkn2d, Dap, Galnt4, Gdap2, Lgals3, Lgals9, Msrb1, Ndrgr1, Ppp2r5c, Psmd8, Rap1b, Abilm1, Acp5, Anapc16, Api5, Arl4c, Arl6ip5, Bci2, Bnip3l, Cda4, Cipl, Entpd4, Eya2, Fam117a, Gm2a, Gpc1, Hadhb, Il17ra, Ilt7r, Kcn4, Kctd10, Lef1, Map1lc3b, Pdk1, Pk3r1, Pitpnc1, Plac8, Poldip2, Psmd13, Rreb1, Satb1, Slc9a3r1, Slco3a1, St8swsa1, Suc1g1, Tafl1, Tm9sf2, Tran1, Tf2w |
| GSE9650_EXHAUSTED_VS_MEMORY_CD8_TCELL_DN                    | 0.0036| <1.00E-5| 2.4012 | Ablim1, Acp5, Anapc16, Api5, Arl4c, Arl6ip5, Bci2, Bnip3l, Cda4, Cipl, Entpd4, Eya2, Fam117a, Gm2a, Gpc1, Hadhb, Il17ra, Ilt7r, Kcn4, Kctd10, Lef1, Map1lc3b, Pdk1, Pk3r1, Pitpnc1, Plac8, Poldip2, Psmd13, Rreb1, Satb1, Slc9a3r1, Slco3a1, St8swsa1, Suc1g1, Tafl1, Tm9sf2, Tran1, Tf2w |
| GSE9650_NAIVE_VS_EFF_CD8_TCELL_DN                           | 0.0075| 0.0064| 1.5405 | Bsl2, Capsn1, Dap, Fgl2, Hsd11b1, Lgals3, Mbd2, Msrb1, Psmd8, Rnf19b, Starlo10, Txndc5, Ykt6, Abilm1, Acp5, Anapc16, Api5, Arfgap2, B4gal1, Brap, Cndp2, Dap, Eng, Eya2, Gm2a, Gsn, Hadhb, Hsd11b1, Idh2, Ilt7r, Iltgb7, Kcn4, Map1lc3b, Mtc1, Plac8, Psmd13, Rtb, S1pr4, Satb1, Slc3a1, Tbec, Tmem50b, Tf2w |
| GSE9650_NAIVE_VS_EXHAUSTED_CD8_TCELL_UP                     | 0.0036| <1.00E-5| 2.0304 | Bsl2, Capsn1, Dap, Fgl2, Hsd11b1, Lgals3, Mbd2, Msrb1, Psmd8, Rnf19b, Starlo10, Txndc5, Ykt6, Abilm1, Acp5, Anapc16, Api5, Arfgap2, B4gal1, Brap, Cndp2, Dap, Eng, Eya2, Gm2a, Gsn, Hadhb, Hsd11b1, Idh2, Ilt7r, Iltgb7, Kcn4, Map1lc3b, Mtc1, Plac8, Psmd13, Rtb, S1pr4, Satb1, Slc3a1, Tbec, Tmem50b, Tf2w |
| GSE30962_ACUTE_VS_CHRONIC_LCM_V_PRIMARY_INF_CD8_TCELL_UP   | 0.0036| <1.00E-5| 2.3480 | Acss2, Aqp9, Arl2b, Arl4c, Arl6ip5, B4gal1, Bnip3l, Cox7a2l, Cpm, Crebf, Fam117a, Fam78a, G0s2, Pdlm1, Ppp2r5a, Pxylp1, Rap1b, Seiplg, Slc9a3r1, Slc3a1, St8swsa1, Sun2, Tnafp8l2, Tpasa5, Txndc5, Wfikkn2, Zfp652 |
| GSE30962_ACUTE_VS_CHRONIC_LCM_V_SECONDARY_INF_CD8_TCELL_UP | 0.0036| <1.00E-5| 2.1165 | Acss2, Aqp9, Arl4c, B4gal1, Cbr1, Crebf, Gimap1, Hid1, Ilt7, Lair1, Lef1, Mylil, Pitpnc1, Slc3a1, Ssh2, Tanc1, Tceanc2, Tnafp8l2, Tpgrl, Tpasa5, Us3, Wfikkn2, Zfp652 |
| GOLDRATH_NAIVE_VS_MEMORY_CD8_TCELL_UP                       | 0.0061| 0.0142| 1.6176 | Acss2, Aqp9, Arl2b, Cdkn2d, Dap, Ddit4, Eng, Ezr, Gsn, Gucd1, H2-Oa, Idh2, Klhd2, Lef1, Lgals3, Ndrgr1, Pdk1, Plac8, Ppp2r5a, Rmnd5a, Satb1, Sptbn1, St8swsa1, Tbec, Tmem50b |
| KAEC_H8_EFF_VS_DAY15_EFF_CD8_TCELL_UP                       | 0.0036| 4.00E-5| 1.9911 | Ak3, Ap3s2, Cib1, Cndp2, Dap, Eif3c, Eif3d, Emc3, F2rl3, Gyy, H13, Lgals3, Lgals3bp, Lgals9, Mbd2, Plac8, Ppp2r5c, Psmd8, Tnafp8l1, Us3 |
| GSE22601_DOUBLE_POSITIVE_VS_CD8_SINGLE_POSITIVE_THYMOCYTE_UP | 0.0036| <1.00E-5| 2.0585 | Atg13, Atp1a1, B2wz2, Cdkn2d, Dap, Ddit4, Eng, Ezr, Gsn, Gucd1, H12-Oa, Idh2, Klhd2, Lef1, Lgals3, Ndrgr1, Pdk1, Plac8, Ppp2r5a, Rmnd5a, Satb1, Sptbn1, St8swsa1, Tbec, Tmem50b |

Genes
**Supplemental Table 7.** Gene set enrichment analyses (GSEA) were conducted using the MSigDB C7 Immunologic Signature database. Select immune-related gene sets overrepresented in genes upregulated in KO vs. WT CD8+ T-cells. P-adj = adjusted p-value, FDR = false discovery rate, NES = normalized enrichment score. Last column represents genes considered key drivers of the enrichment signal.