

Supplementary Table 4. Up-regulated genes in CCR7⁺CD8⁺ T cells compared with CCR7⁻CD8⁺ T cells.

| Gene Accession | Gene_Symbol | Gene Description | FC |
|-----------------|-------------|---|------|
| NM_001301714 | CCR7 | chemokine (C-C motif) receptor 7 | 23.5 |
| NM_002371 | MAL | mal, T-cell differentiation protein | 21.9 |
| NM_001099658 | LRRN3 | leucine rich repeat neuronal 3 | 19.1 |
| NM_001037535 | SCML1 | sex comb on midleg-like 1 (Drosophila) | 14.2 |
| NM_001130713 | LEF1 | lymphoid enhancer-binding factor 1 | 13.0 |
| NM_020404 | CD248 | CD248 molecule, endosialin | 12.9 |
| ENST00000360669 | FAM153A | family with sequence similarity 153, member A | 11.1 |
| NM_001145107 | NELL2 | neural EGFL like 2 | 9.8 |
| NM_001293274 | CACHD1 | cache domain containing 1 | 8.0 |
| NM_004948 | DSC1 | desmocollin 1 | 6.8 |
| NM_001102 | ACTN1 | actinin, alpha 1 | 6.8 |
| NR_029373 | LEF1-AS1 | LEF1 antisense RNA 1 | 6.6 |
| NM_016591 | GCNT4 | glucosaminyl (N-acetyl) transferase 4, core 2 | 6.1 |
| NM_001037132 | NRCAM | neuronal cell adhesion molecule | 6.1 |
| NM_001170794 | BACH2 | BTB and CNC homology 1, basic leucine zipper transcription factor 2 | 5.8 |
| NM_001174071 | SERINC5 | serine incorporator 5 | 5.8 |
| NM_001190981 | IL6ST | interleukin 6 signal transducer | 5.7 |
| NM_000565 | IL6R | interleukin 6 receptor | 5.3 |
| NM_001173977 | LRRC16A | leucine rich repeat containing 16A | 5.1 |
| NM_001251977 | RCAN3 | RCAN family member 3 | 5.0 |
| NM_001256482 | EPHX2 | epoxide hydrolase 2, cytoplasmic | 4.9 |
| NM_003498 | SNN | stannin | 4.9 |
| NM_003196 | TCEA3 | transcription elongation factor A (SII), 3 | 4.8 |
| NM_001168647 | CNKSR2 | connector enhancer of kinase suppressor of Ras 2 | 4.8 |

| | | | |
|--------------------|------------|---|-----|
| NM_002737 | PRKCA | protein kinase C, alpha | 4.6 |
| NM_001256850 | TTN | titin | 4.6 |
| NR_103776 | CHRM3-AS2 | CHRM3 antisense RNA 2 | 4.5 |
| NM_001080824 | TRABD2A | TraB domain containing 2A | 4.5 |
| NM_001289010 | MAN1C1 | mannosidase, alpha, class 1C, member 1 | 4.5 |
| NM_032160 | DSEL | dermatan sulfate epimerase-like | 4.3 |
| NM_024637 | GAL3ST4 | galactose-3-O-sulfotransferase 4 | 4.3 |
| NM_001170553 | VSIG1 | V-set and immunoglobulin domain containing 1 | 4.1 |
| NM_173511 | FAM117B | family with sequence similarity 117, member B | 4.1 |
| NM_003737 | DCHS1 | dachsous cadherin-related 1 | 4.1 |
| NM_001243254 | DENND5A | DENN/MADD domain containing 5A | 4.0 |
| NM_001204813 | NT5E | 5-nucleotidase, ecto (CD73) | 4.0 |
| NM_001287005 | SUSD3 | sushi domain containing 3 | 3.9 |
| NM_031469 | SH3BGRL2 | SH3 domain binding glutamate-rich protein like 2 | 3.9 |
| NR_036521 | ZNF667-AS1 | ZNF667 antisense RNA 1 (head to head) | 3.9 |
| NM_032427 | MAML2 | mastermind-like transcriptional coactivator 2 | 3.9 |
| NM_001278549 | PDK1 | pyruvate dehydrogenase kinase, isozyme 1 | 3.8 |
| NM_001270942 | KLF7 | Kruppel-like factor 7 (ubiquitous) | 3.8 |
| NM_001144952 | SDK2 | sidekick cell adhesion molecule 2 | 3.7 |
| OTTHUMT00000410945 | TRAJ53 | T cell receptor alpha joining 53 | 3.6 |
| NR_045407 | RCAN3AS | RCAN3 antisense | 3.6 |
| NM_018593 | SLC16A10 | solute carrier family 16 (aromatic amino acid transporter), member 10 | 3.6 |
| NM_001060 | TBXA2R | thromboxane A2 receptor | 3.5 |
| OTTHUMT00000351233 | TRBV9 | T cell receptor beta variable 9 | 3.5 |

| | | | |
|-----------------|-----------|--|-----|
| NM_001035254 | FAM102A | family with sequence similarity 102, member A | 3.5 |
| NM_016224 | SNX9 | sorting nexin 9 | 3.5 |
| NM_001215 | CA6 | carbonic anhydrase VI | 3.4 |
| NM_001267036 | SLC7A8 | solute carrier family 7 (amino acid transporter light chain, L system), member 8 | 3.4 |
| NM_001098815 | TESPA1 | thymocyte expressed, positive selection associated 1 | 3.3 |
| NM_003863 | DPM2 | dolichyl-phosphate mannosyltransferase polypeptide 2, regulatory subunit | 3.3 |
| NM_005450 | NOG | noggin | 3.3 |
| XM_011520383 | ATHL1 | ATH1, acid trehalase-like 1 (yeast) | 3.3 |
| NM_000655 | SELL | selectin L | 3.3 |
| NM_001316745 | CCDC141 | coiled-coil domain containing 141 | 3.2 |
| NM_021095 | SLC5A6 | solute carrier family 5 (sodium/multivitamin and iodide cotransporter), member 6 | 3.2 |
| NM_001114634 | PLAG1 | pleiomorphic adenoma gene 1 | 3.2 |
| NM_130446 | KLHL6 | kelch-like family member 6 | 3.2 |
| NM_001134851 | TCF7 | transcription factor 7 (T-cell specific, HMG-box) | 3.2 |
| NR_029832 | MIR29C | microRNA 29c | 3.2 |
| NM_022336 | EDAR | ectodysplasin A receptor | 3.1 |
| NM_001076785 | SLC7A6 | solute carrier family 7 (amino acid transporter light chain, y+L system), member 6 | 3.1 |
| ENST00000586713 | CEP295NL | CEP295 N-terminal like | 3.1 |
| NM_001307952 | HAPLN3 | hyaluronan and proteoglycan link protein 3 | 3.1 |
| NM_001172435 | RAB3GAP1 | RAB3 GTPase activating protein subunit 1 (catalytic) | 3.1 |
| NM_001256126 | CERS6 | ceramide synthase 6 | 3.1 |
| NM_001145426 | YBX3 | Y box binding protein 3 | 3.1 |
| NM_001080437 | SNED1 | sushi, nidogen and EGF-like domains 1 | 3.1 |
| NR_103784 | ITPKB-IT1 | ITPKB intronic transcript 1 | 3.1 |

| | | | |
|--------------------|---------------|---|-----|
| OTTHUMT00000410959 | TRAJ39 | T cell receptor alpha joining 39 | 3.1 |
| NM_001256541 | TMEM204 | transmembrane protein 204 | 3.1 |
| NM_001271856 | GRASP | GRP1 (general receptor for phosphoinositides 1)-associated scaffold protein | 3.1 |
| NM_001265615 | FAM153B | family with sequence similarity 153, member B | 3.0 |
| NM_001006658 | CR2 | complement component (3d/Epstein Barr virus) receptor 2 | 3.0 |
| NM_203411 | TMEM88 | transmembrane protein 88 | 3.0 |
| NM_015888 | HOOK1 | hook microtubule-tethering protein 1 | 3.0 |
| NM_001130172 | MYB | v-myb avian myeloblastosis viral oncogene homolog | 3.0 |
| NM_052847 | GNG7 | guanine nucleotide binding protein (G protein), gamma 7 | 3.0 |
| NM_001271594 | SESN3 | sestrin 3 | 3.0 |
| NM_001260489 | LSR | lipolysis stimulated lipoprotein receptor | 2.9 |
| NM_152272 | CHMP7 | charged multivesicular body protein 7 | 2.9 |
| NM_000922 | PDE3B | phosphodiesterase 3B, cGMP-inhibited | 2.9 |
| ENST00000532740 | PDE3B | phosphodiesterase 3B, cGMP-inhibited | 2.9 |
| NM_001033045 | GPR155 | G protein-coupled receptor 155 | 2.9 |
| NM_002518 | NPAS2 | neuronal PAS domain protein 2 | 2.9 |
| NM_001003407 | ABLIM1 | actin binding LIM protein 1 | 2.9 |
| NM_138381 | OXNAD1 | oxidoreductase NAD-binding domain containing 1 | 2.8 |
| NR_109930 | CTD-2201I18.1 | uncharacterized LOC101929215 | 2.8 |
| NM_012093 | AK5 | adenylate kinase 5 | 2.8 |
| NM_015394 | ZNF10 | zinc finger protein 10 | 2.8 |
| NM_001345 | DGKA | diacylglycerol kinase alpha | 2.8 |
| NR_039641 | MIR4439 | microRNA 4439 | 2.8 |

| | | | |
|--------------|-----------|---|-----|
| NM_000875 | IGF1R | insulin-like growth factor 1 receptor | 2.8 |
| NR_023382 | ZNF815P | zinc finger protein 815, pseudogene | 2.8 |
| NM_144770 | RBM11 | RNA binding motif protein 11 | 2.8 |
| NM_003447 | ZNF165 | zinc finger protein 165 | 2.8 |
| NR_036502 | PRKCQ-AS1 | PRKCQ antisense RNA 1 | 2.8 |
| NM_001012505 | FOXP1 | forkhead box P1 | 2.8 |
| NM_001190259 | GCSAM | germinal center-associated, signaling and motility | 2.8 |
| NM_006909 | RASGRF2 | Ras protein-specific guanine nucleotide-releasing factor 2 | 2.7 |
| NM_006613 | GRAP | GRB2-related adaptor protein | 2.7 |
| NM_001039508 | SIRPG | signal-regulatory protein gamma | 2.7 |
| NM_001079906 | ZNF331 | zinc finger protein 331 | 2.7 |
| NM_014059 | RGCC | regulator of cell cycle | 2.7 |
| NM_001034850 | FAM134B | family with sequence similarity 134, member B | 2.7 |
| NM_001204197 | NBEA | neurobeachin | 2.7 |
| NR_033897 | EPHA1-AS1 | EPHA1 antisense RNA 1 | 2.7 |
| NM_001164443 | ANKRD31 | ankyrin repeat domain 31 | 2.7 |
| NM_003711 | PLPP1 | phospholipid phosphatase 1 | 2.7 |
| NM_004326 | BCL9 | B-cell CLL/lymphoma 9 | 2.7 |
| NM_007079 | PTP4A3 | protein tyrosine phosphatase type IVA, member 3 | 2.7 |
| NM_001005339 | RGS10 | regulator of G-protein signaling 10 | 2.7 |
| NM_212559 | XKRX | X-linked Kx blood group related, X-linked | 2.7 |
| NM_030571 | NDFIP1 | Nedd4 family interacting protein 1 | 2.6 |
| NM_000218 | KCNQ1 | potassium channel, voltage gated KQT-like subfamily Q, member 1 | 2.6 |
| NM_005232 | EPHA1 | EPH receptor A1 | 2.6 |
| NM_001130414 | APBA2 | amyloid beta (A4) precursor protein-binding, family A, member 2 | 2.6 |

| | | | |
|--------------------|------------|--|-----|
| NM_025092 | ATHL1 | ATH1, acid trehalase-like 1 (yeast) | 2.6 |
| OTTHUMT00000410953 | TRAJ45 | T cell receptor alpha joining 45 | 2.6 |
| NR_037931 | ANAPC1P1 | anaphase promoting complex subunit 1 pseudogene 1 | 2.6 |
| NM_000210 | ITGA6 | integrin alpha 6 | 2.6 |
| XM_011517768 | GLIS3 | GLIS family zinc finger 3 | 2.6 |
| XM_006710960 | LRRC8C | leucine rich repeat containing 8 family, member C | 2.6 |
| OTTHUMT00000371928 | FAM153B | family with sequence similarity 153, member B | 2.6 |
| NM_001783 | CD79A | CD79a molecule, immunoglobulin-associated alpha | 2.6 |
| NM_006931 | SLC2A3 | solute carrier family 2 (facilitated glucose transporter), member 3 | 2.6 |
| NM_001204204 | SEC14L2 | SEC14-like lipid binding 2 | 2.6 |
| NM_001164716 | PYGM | phosphorylase, glycogen, muscle | 2.6 |
| NM_002072 | GNAQ | guanine nucleotide binding protein (G protein), q polypeptide | 2.6 |
| NR_003317 | SNORD116-2 | small nucleolar RNA, C/D box 116-2 | 2.5 |
| NM_006272 | S100B | S100 calcium binding protein B | 2.5 |
| NM_014938 | MLXIP | MLX interacting protein | 2.5 |
| NM_003890 | FCGBP | Fc fragment of IgG binding protein | 2.5 |
| NM_024758 | AGMAT | agmatinase | 2.5 |
| ENST00000423733 | PLCG1 | phospholipase C, gamma 1 | 2.5 |
| NM_000574 | CD55 | CD55 molecule, decay accelerating factor for complement (Cromer blood group) | 2.5 |
| NM_019072 | SGTB | small glutamine-rich tetratricopeptide repeat (TPR)-containing, beta | 2.5 |
| NM_015351 | TTC9 | tetratricopeptide repeat domain 9 | 2.5 |

| | | | |
|--------------------|-------------|---|-----|
| NM_001143819 | TPCN1 | two pore segment channel 1 | 2.5 |
| NM_001253900 | MEST | mesoderm specific transcript | 2.5 |
| NM_001309242 | MYO15B | myosin XVB | 2.5 |
| NM_001236 | CBR3 | carbonyl reductase 3 | 2.5 |
| NM_001145845 | ROBO1 | roundabout guidance receptor 1 | 2.5 |
| NM_005164 | ABCD2 | ATP binding cassette subfamily D member 2 | 2.5 |
| NM_001085384 | ZNF154 | zinc finger protein 154 | 2.5 |
| NM_001277291 | ZNF891 | zinc finger protein 891 | 2.5 |
| NM_001032221 | STXBP1 | syntaxin binding protein 1 | 2.5 |
| NM_005567 | LGALS3BP | lectin, galactoside-binding, soluble, 3 binding protein | 2.5 |
| NM_001001567 | PDE9A | phosphodiesterase 9A | 2.5 |
| NM_001190482 | PCSK5 | proprotein convertase subtilisin/kexin type 5 | 2.5 |
| NM_001136180 | HSBP1L1 | heat shock factor binding protein 1-like 1 | 2.5 |
| NM_003749 | IRS2 | insulin receptor substrate 2 | 2.5 |
| NR_003361 | SNORD116-28 | small nucleolar RNA, C/D box 116-28 | 2.5 |
| NM_003328 | TXK | TXK tyrosine kinase | 2.5 |
| NM_006493 | CLN5 | ceroid-lipofuscinosis, neuronal 5 | 2.4 |
| NR_003321 | SNORD116-6 | small nucleolar RNA, C/D box 116-6 | 2.4 |
| NR_030353 | MIR623 | microRNA 623 | 2.4 |
| OTTHUMT00000410944 | TRAJ54 | T cell receptor alpha joining 54 | 2.4 |
| NM_001281429 | PCED1B | PC-esterase domain containing 1B | 2.4 |
| NR_029506 | MIR32 | microRNA 32 | 2.4 |
| NM_052916 | RNF157 | ring finger protein 157 | 2.4 |
| NM_207360 | ZC3H12D | zinc finger CCCH-type containing 12D | 2.4 |
| XM_011519416 | ANKRD26 | ankyrin repeat domain 26 | 2.4 |

| | | | |
|--------------------|-------------|---|-----|
| ENST00000488284 | RASA4B | RAS p21 protein activator 4B | 2.4 |
| NM_001278359 | RHOH | ras homolog family member H | 2.4 |
| NM_024959 | SLC8B1 | solute carrier family 8 (sodium/lithium/calcium exchanger), member B1 | 2.4 |
| NR_003330 | SNORD116-15 | small nucleolar RNA, C/D box 116-15 | 2.4 |
| NR_037443 | MIR3671 | microRNA 3671 | 2.4 |
| NM_001277 | CHKA | choline kinase alpha | 2.4 |
| NM_002467 | MYC | v-myc avian myelocytomatosis viral oncogene homolog | 2.4 |
| NM_001165412 | NFKB1 | nuclear factor of kappa light polypeptide gene enhancer in B-cells 1 | 2.4 |
| NM_001744 | CAMK4 | calcium/calmodulin-dependent protein kinase IV | 2.4 |
| NM_020741 | KIAA1257 | KIAA1257 | 2.4 |
| NM_001135911 | PIK3IP1 | phosphoinositide-3-kinase interacting protein 1 | 2.4 |
| NM_015627 | LDLRAP1 | low density lipoprotein receptor adaptor protein 1 | 2.3 |
| NM_001102406 | ALPK1 | alpha kinase 1 | 2.3 |
| NM_001242 | CD27 | CD27 molecule | 2.3 |
| BX647165 | TRAV20 | T cell receptor alpha variable 20 | 2.3 |
| NM_001204502 | FLT3LG | fms-related tyrosine kinase 3 ligand | 2.3 |
| NM_001286247 | RALGPS2 | Ral GEF with PH domain and SH3 binding motif 2 | 2.3 |
| NM_032184 | SYDE2 | synapse defective 1, Rho GTPase, homolog 2 (C. elegans) | 2.3 |
| NM_001083910 | SIRPB1 | signal-regulatory protein beta 1 | 2.3 |
| OTTHUMT00000401893 | TRAV8-4 | T cell receptor alpha variable 8-4 | 2.3 |
| NM_001135109 | RIC3 | RIC3 acetylcholine receptor chaperone | 2.3 |
| NM_178563 | AGBL3 | ATP/GTP binding protein-like 3 | 2.3 |
| NM_001099410 | GPRASP1 | G protein-coupled receptor associated sorting protein 1 | 2.3 |

| | | | |
|--------------------|-------------|--|-----|
| NM_001134476 | LRRC8B | leucine rich repeat containing 8 family, member B | 2.3 |
| NR_002982 | SNORA54 | small nucleolar RNA, H/ACA box 54 | 2.3 |
| NR_110542 | PIK3IP1-AS1 | PIK3IP1 antisense RNA 1 (head to head) | 2.3 |
| NM_001085357 | BTLA | B and T lymphocyte associated | 2.3 |
| NM_001145304 | KIAA1683 | KIAA1683 | 2.3 |
| NM_001005328 | OR2A7 | olfactory receptor, family 2, subfamily A, member 7 | 2.3 |
| NM_001164317 | FLNB | filamin B, beta | 2.3 |
| NM_001170755 | NBPF15 | neuroblastoma breakpoint family, member 15 | 2.3 |
| NM_173354 | SIK1 | salt-inducible kinase 1 | 2.2 |
| NM_001114614 | MFGE8 | milk fat globule-EGF factor 8 protein | 2.2 |
| NM_024315 | TMEM243 | transmembrane protein 243, mitochondrial | 2.2 |
| NM_001276318 | PPP1R3E | protein phosphatase 1, regulatory subunit 3E | 2.2 |
| NR_001290 | SNORD116-19 | small nucleolar RNA, C/D box 116-19 | 2.2 |
| NR_001290 | SNORD116-19 | small nucleolar RNA, C/D box 116-19 | 2.2 |
| NM_001128208 | LEPROTL1 | leptin receptor overlapping transcript-like 1 | 2.2 |
| NM_001282674 | NGFRAP1 | nerve growth factor receptor (TNFRSF16) associated protein 1 | 2.2 |
| AF400486 | SNRPN | small nuclear ribonucleoprotein polypeptide N | 2.2 |
| NM_001110798 | NAA16 | N(alpha)-acetyltransferase 16, NatA auxiliary subunit | 2.2 |
| NR_030398 | MIR421 | microRNA 421 | 2.2 |
| NM_001252119 | PASK | PAS domain containing serine/threonine kinase | 2.2 |
| XM_011516411 | PRSS1 | protease, serine, 1 (trypsin 1) | 2.2 |
| OTTHUMT00000410946 | TRAJ52 | T cell receptor alpha joining 52 | 2.2 |
| NM_001100812 | CXCL16 | chemokine (C-X-C motif) ligand 16 | 2.2 |
| NM_001129778 | GRAPL | GRB2-related adaptor protein-like | 2.2 |

| | | | |
|--------------------|------------|---|-----|
| NM_021915 | ZNF69 | zinc finger protein 69 | 2.2 |
| NR_026932 | PDCD4-AS1 | PDCD4 antisense RNA 1 | 2.2 |
| AF400486 | SNRPN | small nuclear ribonucleoprotein polypeptide N | 2.2 |
| NM_001251882 | VIPR1 | vasoactive intestinal peptide receptor 1 | 2.2 |
| NM_001136501 | ZNF844 | zinc finger protein 844 | 2.2 |
| NM_001135648 | PTPRK | protein tyrosine phosphatase, receptor type, K | 2.2 |
| NM_001098623 | OBSCN | obscurin, cytoskeletal calmodulin and titin-interacting RhoGEF | 2.2 |
| NM_004915 | ABCG1 | ATP binding cassette subfamily G member 1 | 2.2 |
| NR_003047 | SNORD19 | small nucleolar RNA, C/D box 19 | 2.2 |
| NM_001128931 | NAF1 | nuclear assembly factor 1 ribonucleoprotein | 2.2 |
| NR_108047 | RNF139-AS1 | RNF139 antisense RNA 1 (head to head) | 2.2 |
| ENST00000558190 | ATXN3 | ataxin 3 | 2.2 |
| NM_019050 | USP53 | ubiquitin specific peptidase 53 | 2.1 |
| OTTHUMT00000409911 | TRAV26-2 | T cell receptor alpha variable 26-2 | 2.1 |
| NM_002221 | ITPKB | inositol-trisphosphate 3-kinase B | 2.1 |
| NM_003840 | TNFRSF10D | tumor necrosis factor receptor superfamily, member 10d, decoy with truncated death domain | 2.1 |
| NM_001097622 | OCM | oncomodulin | 2.1 |
| XM_006723698 | ZNF831 | zinc finger protein 831 | 2.1 |
| NM_001005218 | OR5B21 | olfactory receptor, family 5, subfamily B, member 21 | 2.1 |
| AL832294 | ARHGEF1 | Rho guanine nucleotide exchange factor 1 | 2.1 |
| NM_001289050 | SLC22A17 | solute carrier family 22, member 17 | 2.1 |
| NM_001300735 | RASGEF1B | RasGEF domain family member 1B | 2.1 |
| NM_005534 | IFNGR2 | interferon gamma receptor 2 (interferon gamma transducer 1) | 2.1 |
| NM_006823 | PKIA | protein kinase (cAMP-dependent, catalytic) inhibitor alpha | 2.1 |

| | | | |
|--------------|----------|---|-----|
| NM_022117 | TSPYL2 | TSPY-like 2 | 2.1 |
| NM_152653 | UBE2E2 | ubiquitin conjugating enzyme E2E 2 | 2.1 |
| NM_177437 | TAS2R60 | taste receptor, type 2, member 60 | 2.1 |
| AF400486 | SNRPN | small nuclear ribonucleoprotein polypeptide N | 2.1 |
| NM_002114 | HIVEP1 | human immunodeficiency virus type I enhancer binding protein 1 | 2.1 |
| NM_053055 | THEM4 | thioesterase superfamily member 4 | 2.1 |
| NR_002157 | OR2A9P | olfactory receptor, family 2, subfamily A, member 9 pseudogene | 2.1 |
| NM_001010974 | BCAS4 | breast carcinoma amplified sequence 4 | 2.1 |
| NR_037507 | MIR3942 | microRNA 3942 | 2.1 |
| NM_001306080 | LMO7 | LIM domain 7 | 2.1 |
| NM_017918 | CCDC109B | coiled-coil domain containing 109B | 2.1 |
| NM_001256732 | SSBP2 | single-stranded DNA binding protein 2 | 2.1 |
| NM_001244 | TNFSF8 | tumor necrosis factor (ligand) superfamily, member 8 | 2.1 |
| NM_001297707 | CAMSAP2 | calmodulin regulated spectrin-associated protein family, member 2 | 2.1 |
| NM_015147 | CEP68 | centrosomal protein 68kDa | 2.1 |
| NM_001099289 | SH3RF3 | SH3 domain containing ring finger 3 | 2.1 |
| NM_001657 | AREG | amphiregulin | 2.1 |
| NM_001131010 | SATB1 | SATB homeobox 1 | 2.1 |
| NR_003697 | SNHG15 | small nucleolar RNA host gene 15 | 2.1 |
| NM_015042 | ZNF609 | zinc finger protein 609 | 2.1 |
| NM_020651 | PELI1 | pellino E3 ubiquitin protein ligase 1 | 2.1 |
| NM_001081 | CUBN | cubilin (intrinsic factor-cobalamin receptor) | 2.1 |
| NM_012092 | ICOS | inducible T-cell co-stimulator | 2.1 |
| NM_004625 | WNT7A | wingless-type MMTV integration site family, member 7A | 2.0 |

| | | | |
|--------------------|-----------|--|-----|
| NM_001024847 | TGFBR2 | transforming growth factor beta receptor II | 2.0 |
| ENST00000511560 | AREG | amphiregulin | 2.0 |
| NM_001171137 | STRBP | spermatid perinuclear RNA binding protein | 2.0 |
| NR_036191 | MIR4306 | microRNA 4306 | 2.0 |
| OTTHUMT00000410951 | TRAJ47 | T cell receptor alpha joining 47 | 2.0 |
| NM_001080424 | KDM6B | lysine (K)-specific demethylase 6B | 2.0 |
| NM_001300949 | ZNF101 | zinc finger protein 101 | 2.0 |
| NM_014784 | ARHGEF11 | Rho guanine nucleotide exchange factor 11 | 2.0 |
| AK095849 | SNHG1 | small nucleolar RNA host gene 1 | 2.0 |
| NM_001104595 | FAM118A | family with sequence similarity 118, member A | 2.0 |
| NM_032873 | UBASH3B | ubiquitin associated and SH3 domain containing B | 2.0 |
| NM_001004313 | TMEM220 | transmembrane protein 220 | 2.0 |
| NM_001304458 | PRMT9 | protein arginine methyltransferase 9 | 2.0 |
| NM_001012957 | DISC1 | disrupted in schizophrenia 1 | 2.0 |
| NM_001242318 | PDE7A | phosphodiesterase 7A | 2.0 |
| NM_001135564 | HSF2 | heat shock transcription factor 2 | 2.0 |
| NM_001257194 | KLHL3 | kelch-like family member 3 | 2.0 |
| NM_000633 | BCL2 | B-cell CLL/lymphoma 2 | 2.0 |
| OTTHUMT00000409906 | TRAV29DV5 | T cell receptor alpha variable 29/delta variable 5 (gene/pseudogene) | 2.0 |
| NR_038353 | FAM153C | family with sequence similarity 153, member C, pseudogene | 2.0 |
| NM_022552 | DNMT3A | DNA (cytosine-5-)-methyltransferase 3 alpha | 2.0 |
| NM_001307977 | WDR74 | WD repeat domain 74 | 2.0 |
| NM_001031714 | INF2 | inverted formin, FH2 and WH2 domain containing | 2.0 |
| NM_020448 | NIPAL3 | NIPA-like domain containing 3 | 2.0 |
| NM_001172303 | MASTL | microtubule associated serine/threonine kinase-like | 2.0 |
| NR_022008 | PWAR5 | Prader Willi/Angelman region RNA 5 | 2.0 |

| | | | |
|--------------------|---------|--|-----|
| NR_022011 | PWARSN | Prader Willi/Angelman region RNA, SNRPN neighbor | 2.0 |
| NM_001114171 | FOSB | FBJ murine osteosarcoma viral oncogene homolog B | 2.0 |
| NM_016148 | SHANK1 | SH3 and multiple ankyrin repeat domains 1 | 2.0 |
| NM_022355 | DPEP2 | dipeptidase 2 | 2.0 |
| NM_001284239 | SARAF | store-operated calcium entry-associated regulatory factor | 2.0 |
| NM_173602 | DIP2B | disco-interacting protein 2 homolog B | 2.0 |
| AF400486 | SNRPN | small nuclear ribonucleoprotein polypeptide N | 2.0 |
| NM_001079524 | PAICS | phosphoribosylaminoimidazole carboxylase, phosphoribosylaminoimidazole succinocarboxamide synthetase | 1.9 |
| NM_001008530 | LGMN | legumain | 1.9 |
| NM_001042413 | GLIS3 | GLIS family zinc finger 3 | 1.9 |
| NM_000070 | CAPN3 | calpain 3 | 1.9 |
| NR_003057 | SNORD69 | small nucleolar RNA, C/D box 69 | 1.9 |
| NM_001193270 | MSL3 | male-specific lethal 3 homolog (Drosophila) | 1.9 |
| OTTHUMT00000410976 | TRAJ22 | T cell receptor alpha joining 22 | 1.9 |
| NR_029616 | MIR187 | microRNA 187 | 1.9 |
| NM_003596 | TPST1 | tyrosylprotein sulfotransferase 1 | 1.9 |
| NM_001098412 | GAGE13 | G antigen 13 | 1.9 |
| NR_002923 | BCORP1 | BCL6 corepressor pseudogene 1 | 1.9 |
| NM_002167 | ID3 | inhibitor of DNA binding 3, dominant negative helix-loop-helix protein | 1.9 |
| NM_001042574 | CRTC3 | CREB regulated transcription coactivator 3 | 1.9 |
| NM_005539 | INPP5A | inositol polyphosphate-5-phosphatase A | 1.9 |
| AF400486 | SNRPN | small nuclear ribonucleoprotein polypeptide N | 1.9 |
| NR_030364 | MIR634 | microRNA 634 | 1.9 |
| NM_001144034 | TMEM25 | transmembrane protein 25 | 1.9 |

| | | | |
|--------------------|-----------|--|-----|
| NM_001164 | APBB1 | amyloid beta (A4) precursor protein-binding, family B, member 1 (Fe65) | 1.9 |
| NM_001202233 | NR4A1 | nuclear receptor subfamily 4, group A, member 1 | 1.9 |
| NM_001174097 | LDHB | lactate dehydrogenase B | 1.9 |
| NM_001105539 | ZBTB10 | zinc finger and BTB domain containing 10 | 1.9 |
| NM_014698 | TMEM63A | transmembrane protein 63A | 1.9 |
| NM_001146094 | FAN1 | FANCD2/FANCI-associated nuclease 1 | 1.9 |
| OTTHUMT00000410954 | TRAJ44 | T cell receptor alpha joining 44 | 1.9 |
| NM_001277335 | RASA4B | RAS p21 protein activator 4B | 1.9 |
| XM_011529753 | CHAF1B | chromatin assembly factor 1, subunit B (p60) | 1.9 |
| NM_006578 | GNB5 | guanine nucleotide binding protein (G protein), beta 5 | 1.9 |
| NM_001287036 | KIAA1958 | KIAA1958 | 1.9 |
| NM_001005287 | OR2A1 | olfactory receptor, family 2, subfamily A, member 1 | 1.9 |
| NM_000901 | NR3C2 | nuclear receptor subfamily 3, group C, member 2 | 1.9 |
| NM_001171818 | PPARD | peroxisome proliferator-activated receptor delta | 1.9 |
| OTTHUMT00000401872 | TRAV1-1 | T cell receptor alpha variable 1-1 | 1.9 |
| XM_006711826 | OBSCN | obscurin, cytoskeletal calmodulin and titin-interacting RhoGEF | 1.9 |
| NM_004073 | PLK3 | polo-like kinase 3 | 1.9 |
| NM_015041 | CLUAP1 | clusterin associated protein 1 | 1.9 |
| NM_005646 | TARBP1 | TAR (HIV-1) RNA binding protein 1 | 1.9 |
| NM_006598 | SLC12A7 | solute carrier family 12 (potassium/chloride transporter), member 7 | 1.9 |
| AK057897 | CRHR1-IT1 | CRHR1 intronic transcript 1 | 1.9 |

| | | | |
|-----------------|-----------|---|-----|
| NR_038286 | PSMD6-AS2 | PSMD6 antisense RNA 2 | 1.9 |
| NM_176877 | INADL | InaD-like (Drosophila) | 1.9 |
| NM_001166103 | SPINT2 | serine peptidase inhibitor, Kunitz type, 2 | 1.9 |
| NM_020451 | SEPN1 | selenoprotein N, 1 | 1.9 |
| NM_001178100 | CD8B | CD8b molecule | 1.9 |
| NR_002952 | SNORA9 | small nucleolar RNA, H/ACA box 9 | 1.9 |
| NM_001301054 | PCYOX1L | prenylcysteine oxidase 1 like | 1.9 |
| AF400486 | SNRPN | small nuclear ribonucleoprotein polypeptide N | 1.9 |
| NM_138435 | FAM83F | family with sequence similarity 83, member F | 1.9 |
| NR_030299 | MIR573 | microRNA 573 | 1.9 |
| ENST00000622469 | ZNRD1-AS1 | ZNRD1 antisense RNA 1 | 1.9 |
| NM_001042494 | SLC12A6 | solute carrier family 12 (potassium/chloride transporter), member 6 | 1.9 |
| NM_001164114 | CASS4 | Cas scaffolding protein family member 4 | 1.9 |
| NM_002568 | PABPC1 | poly(A) binding protein, cytoplasmic 1 | 1.9 |
| ENST00000247815 | HELB | helicase (DNA) B | 1.9 |
| NM_080603 | ZSWIM1 | zinc finger, SWIM-type containing 1 | 1.9 |
| NM_001199741 | GADD45A | growth arrest and DNA-damage-inducible, alpha | 1.9 |
| NR_039778 | MIR4635 | microRNA 4635 | 1.8 |
| NM_013240 | N6AMT1 | N-6 adenine-specific DNA methyltransferase 1 (putative) | 1.8 |
| NM_001277285 | IGSF9B | immunoglobulin superfamily, member 9B | 1.8 |

| | | | |
|--------------------|----------|--|-----|
| ENST00000473426 | ARHGAP15 | Rho GTPase activating protein 15 | 1.8 |
| ENST00000285737 | LONP2 | lon peptidase 2, peroxisomal | 1.8 |
| NM_001164605 | FXYD5 | FXYD domain containing ion transport regulator 5 | 1.8 |
| NM_001253875 | UXS1 | UDP-glucuronate decarboxylase 1 | 1.8 |
| NR_033347 | SNORA70E | small nucleolar RNA, H/ACA box 70E | 1.8 |
| NM_001013437 | SEH1L | SEH1-like nucleoporin | 1.8 |
| NM_005546 | ITK | IL2-inducible T-cell kinase | 1.8 |
| OTTHUMT00000410988 | TRAJ10 | T cell receptor alpha joining 10 | 1.8 |
| NM_003463 | PTP4A1 | protein tyrosine phosphatase type IVA, member 1 | 1.8 |
| NM_001136199 | GRAMD1A | GRAM domain containing 1A | 1.8 |
| NM_001012398 | AKTIP | AKT interacting protein | 1.8 |
| NM_001270960 | NOSIP | nitric oxide synthase interacting protein | 1.8 |
| NM_024989 | PGAP1 | post-GPI attachment to proteins 1 | 1.8 |
| AF319524 | SNRPN | small nuclear ribonucleoprotein polypeptide N | 1.8 |
| NM_002229 | JUNB | jun B proto-oncogene | 1.8 |
| NR_037498 | MIR3934 | microRNA 3934 | 1.8 |
| AF400487 | SNRPN | small nuclear ribonucleoprotein polypeptide N | 1.8 |
| NM_022754 | SFXN1 | sideroflexin 1 | 1.8 |
| NM_001287529 | MFSD12 | major facilitator superfamily domain containing 12 | 1.8 |
| NM_001198978 | SMAP2 | small ArfGAP2 | 1.8 |

| | | | |
|--------------------|-------------|--|-----|
| XM_005250085 | RASA4B | RAS p21 protein activator 4B | 1.8 |
| ENST00000504352 | PCBD2 | pterin-4 alpha-carbinolamine dehydratase/dimerization cofactor of hepatocyte nuclear factor 1 alpha (TCF1) 2 | 1.8 |
| NR_003329 | SNORD116-14 | small nucleolar RNA, C/D box 116-14 | 1.8 |
| NM_000276 | OCRL | oculocerebrorenal syndrome of Lowe | 1.8 |
| NR_039824 | MIR4677 | microRNA 4677 | 1.8 |
| NM_001024956 | SC5D | sterol-C5-desaturase | 1.8 |
| NM_001002255 | SUMO4 | small ubiquitin-like modifier 4 | 1.8 |
| NM_001004720 | NCK2 | NCK adaptor protein 2 | 1.8 |
| NR_003584 | SNHG8 | small nucleolar RNA host gene 8 | 1.8 |
| NM_020405 | PLXDC1 | plexin domain containing 1 | 1.8 |
| OTTHUMT00000410994 | TRAJ4 | T cell receptor alpha joining 4 | 1.8 |
| NM_001142784 | IL11RA | interleukin 11 receptor, alpha | 1.8 |
| NM_001136537 | BTBD19 | BTB (POZ) domain containing 19 | 1.8 |
| OTTHUMT00000401891 | TRAV13-1 | T cell receptor alpha variable 13-1 | 1.8 |
| NR_003360 | SNORD116-29 | small nucleolar RNA, C/D box 116-29 | 1.8 |
| NR_003326 | SNORD116-11 | small nucleolar RNA, C/D box 116-11 | 1.8 |
| NM_001005404 | YPEL2 | yippee like 2 | 1.8 |
| NM_015395 | TECPR1 | tectonin beta-propeller repeat containing 1 | 1.7 |
| NM_012216 | MID2 | midline 2 | 1.7 |
| NM_178026 | GGT7 | gamma-glutamyltransferase 7 | 1.7 |

| | | | |
|--------------------|----------|---|-----|
| NR_039696 | MIR3689F | microRNA 3689f | 1.7 |
| OTTHUMT00000399953 | SOD2 | superoxide dismutase 2, mitochondrial | 1.7 |
| OTTHUMT00000401888 | TRAV12-1 | T cell receptor alpha variable 12-1 | 1.7 |
| NR_003367 | PVT1 | Pvt1 oncogene (non-protein coding) | 1.7 |
| NM_003033 | ST3GAL1 | ST3 beta-galactoside alpha-2,3-sialyltransferase 1 | 1.7 |
| NR_103741 | IPO5P1 | importin 5 pseudogene 1 | 1.7 |
| NM_001304507 | ZBTB25 | zinc finger and BTB domain containing 25 | 1.7 |
| AF086543 | CD44 | CD44 molecule (Indian blood group) | 1.7 |
| AF400486 | SNRPN | small nuclear ribonucleoprotein polypeptide N | 1.7 |
| NM_002015 | FOXO1 | forkhead box O1 | 1.7 |
| NM_014400 | LYPD3 | LY6/PLAUR domain containing 3 | 1.7 |
| NR_024034 | CLUHP3 | clustered mitochondria (cluA/CLU1) homolog pseudogene 3 | 1.7 |
| NM_001165258 | TMEM14C | transmembrane protein 14C | 1.7 |
| NM_001142473 | FCMR | Fc fragment of IgM receptor | 1.7 |
| NR_002327 | SNORA10 | small nucleolar RNA, H/ACA box 10 | 1.7 |
| NM_001080425 | BEX4 | brain expressed X-linked 4 | 1.7 |
| NM_001001895 | UBASH3A | ubiquitin associated and SH3 domain containing A | 1.7 |
| NM_021078 | KAT2A | K(lysine) acetyltransferase 2A | 1.7 |
| NM_001307924 | NAP1L1 | nucleosome assembly protein 1-like 1 | 1.7 |
| NM_001127399 | YPEL5 | yippee like 5 | 1.7 |

| | | | |
|-----------------|-----------|--|-----|
| NM_014611 | MDN1 | midasin AAA ATPase 1 | 1.7 |
| NR_125803 | SATB1-AS1 | SATB1 antisense RNA 1 | 1.7 |
| NM_152405 | JMY | junction mediating and regulatory protein, p53 cofactor | 1.7 |
| NM_001130955 | ARHGEF18 | Rho/Rac guanine nucleotide exchange factor 18 | 1.7 |
| NM_006981 | NR4A3 | nuclear receptor subfamily 4, group A, member 3 | 1.7 |
| NM_001130048 | DOCK9 | dedicator of cytokinesis 9 | 1.7 |
| XM_011530938 | ZC3H12B | zinc finger CCCH-type containing 12B | 1.7 |
| ENST00000274242 | RPL37 | ribosomal protein L37 | 1.7 |
| NM_001286631 | RBM26 | RNA binding motif protein 26 | 1.7 |
| NM_001286262 | TCP11L2 | t-complex 11, testis-specific-like 2 | 1.7 |
| NM_000418 | IL4R | interleukin 4 receptor | 1.7 |
| NM_001142287 | SEMA4D | sema domain, immunoglobulin domain (Ig), transmembrane domain (TM) and short cytoplasmic domain, (semaphorin) 4D | 1.6 |
| NM_003291 | TPP2 | tripeptidyl peptidase II | 1.6 |
| NM_001014436 | DBNL | drebrin-like | 1.6 |
| NM_016584 | IL23A | interleukin 23, alpha subunit p19 | 1.6 |
| NM_001098200 | GPR18 | G protein-coupled receptor 18 | 1.6 |
| NM_015986 | CRLF3 | cytokine receptor-like factor 3 | 1.6 |
| NR_002779 | NUDT9P1 | nudix hydrolase 9 pseudogene 1 | 1.6 |
| NR_037482 | MIR3918 | microRNA 3918 | 1.6 |
| NM_001293735 | LYRM7 | LYR motif containing 7 | 1.6 |

| | | | |
|--------------------|-------------|---|-----|
| NR_047032 | SNORD116-30 | small nucleolar RNA, C/D box 116-30 | 1.6 |
| NR_046084 | SH3BP5-AS1 | SH3BP5 antisense RNA 1 | 1.6 |
| NM_005252 | FOS | FBJ murine osteosarcoma viral oncogene homolog | 1.6 |
| ENST00000610952 | CD24 | CD24 molecule | 1.6 |
| NM_014366 | GNL3 | guanine nucleotide binding protein-like 3 (nucleolar) | 1.6 |
| AK054610 | SRSF1 | serine/arginine-rich splicing factor 1 | 1.6 |
| NR_039760 | MIR378I | microRNA 378i | 1.6 |
| NR_046579 | CACNA1C-AS2 | CACNA1C antisense RNA 2 | 1.6 |
| NM_017592 | MED29 | mediator complex subunit 29 | 1.6 |
| NM_178868 | CMTM8 | CKLF-like MARVEL transmembrane domain containing 8 | 1.6 |
| NM_001009 | RPS5 | ribosomal protein S5 | 1.6 |
| OTTHUMT00000410964 | TRAJ34 | T cell receptor alpha joining 34 | 1.5 |
| AF400486 | SNRPN | small nuclear ribonucleoprotein polypeptide N | 1.5 |
| BC025727 | TRAV20 | T cell receptor alpha variable 20 | 1.5 |
| NM_001285549 | ZDBF2 | zinc finger, DBF-type containing 2 | 1.5 |
| NM_001004304 | ZNF740 | zinc finger protein 740 | 1.5 |
| OTTHUMT00000351238 | TRBV2 | T cell receptor beta variable 2 | 1.5 |
| NM_006186 | NR4A2 | nuclear receptor subfamily 4, group A, member 2 | 1.5 |
