

Figure S1. Amplification of PEDV M gene and PCR sequencing. (A) PCR products of PEDV M gene. Lanes 1, 2, and 3 represent the PCR products of PEDV-infected samples; M: 50 bp DNA ladder. (B) Alignment of the M gene sequence (upper line) and PCR product sequence (lower line).

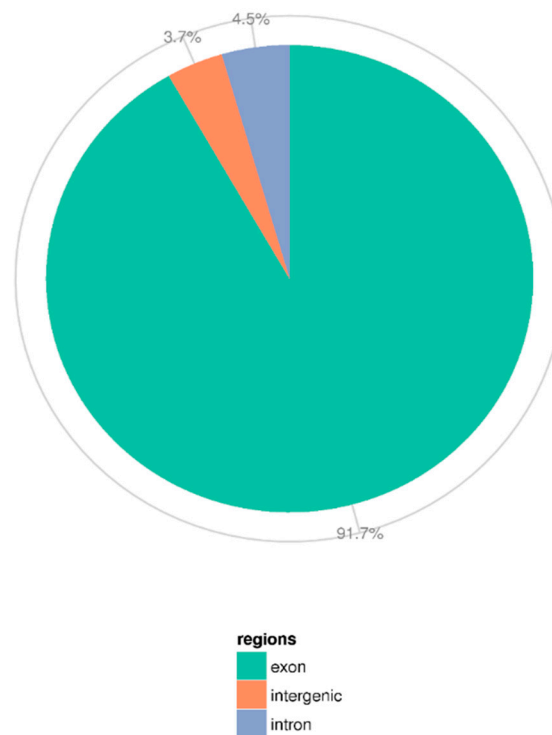


Figure S2. Percent of reads mapped to the genomic regions. Shown is an example of alignment analysis results of one randomly selected sample.

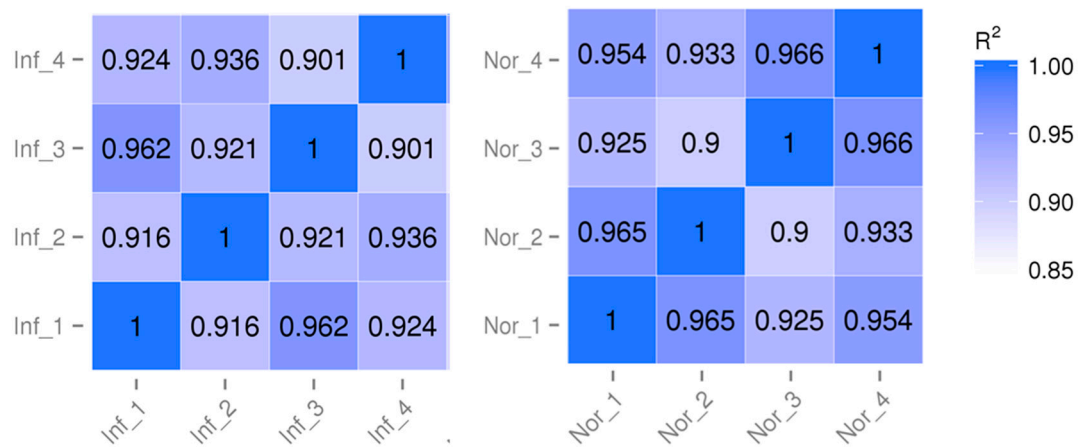


Figure S3. Pearson correlation coefficients between the samples within each group. Correlation analysis was performed based on the log₁₀ (FPKM+1) that represent the gene expression levels. Inf_1, Inf_2, Inf_3, and Inf_4 denote the infected samples, and Nor_1, Nor_2, Nor_3, and Nor_4 denote the control samples.

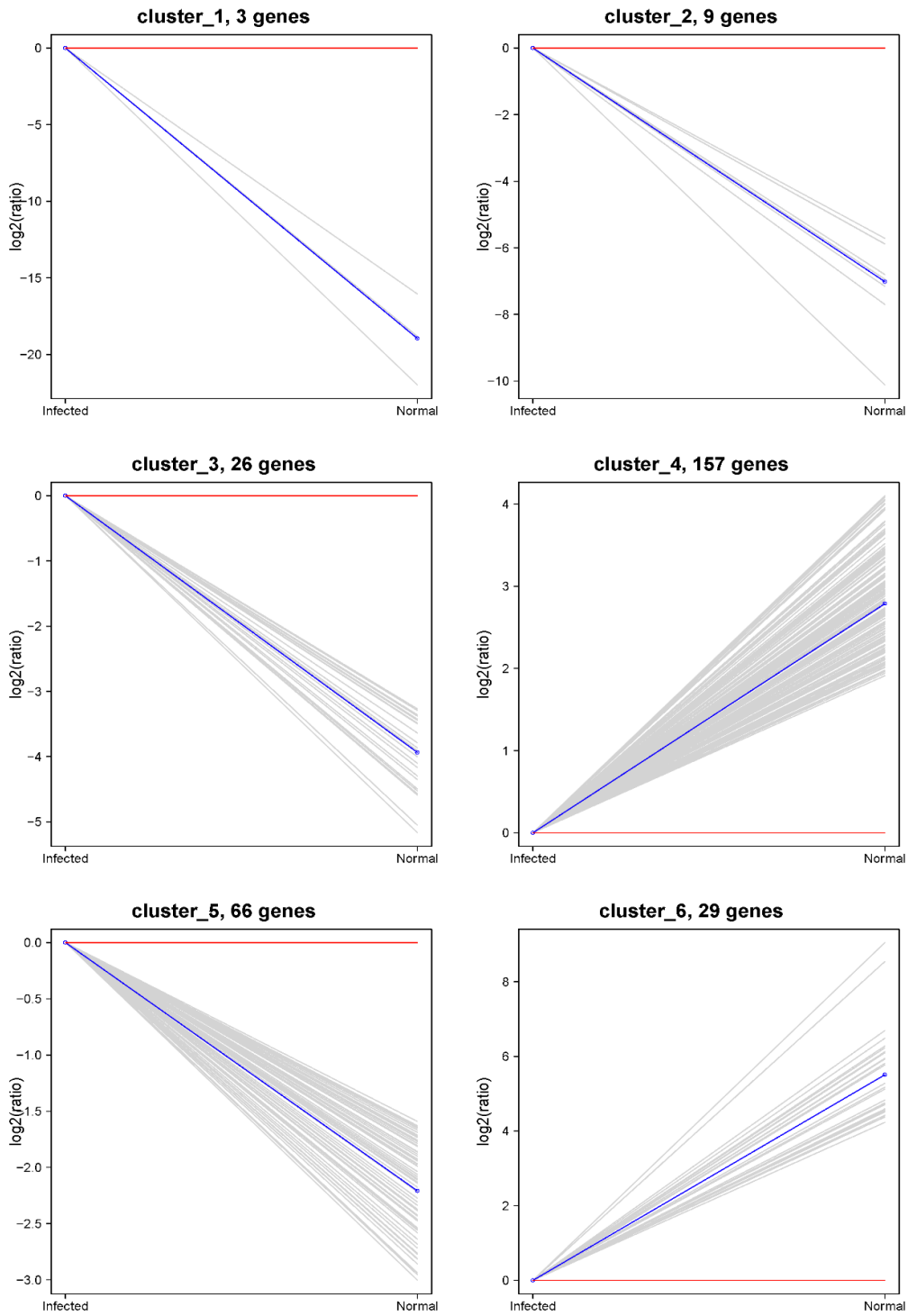


Figure S4. Clusters of the differential expression genes by K-means clustering analysis. The genes were clustered into six clusters (cluster 1 to cluster 6) which consisted of 3, 9, 26, 157, 66, and 29 genes, respectively. The gray lines denote the relative gene expression level between the infected and control, and the blue line denotes the means of expression level of all genes in the cluster.

Table S1. Primer sequences used for qRT-PCR.

| Gene symbol | Forward (5'-3') | Reverse (5'-3') | Annealing temperature (°C) | Reference/Accession |
|-------------|---------------------------|-----------------------|----------------------------|---------------------|
| APOC3 | AGGACACCTCCCTTCTGGAC | GTCGGTGAACCTGCCCTTGA | 60 | [1] |
| ANXA4 | GCGAAGAGCCATGAAGGGA | GCCACCAGCGGACAGAGAC | 60 | NM_001167639.1 |
| APOA1 | GTTCTGGGACAACCTGGAAA | GCTGCACCTTCTTCTTCACC | 60 | [2] |
| AGR2 | TGCTTGTGGCCCTCTCTTAT | GGGTTTGTTGCTTGTCTTGG | 60 | NM_001244968.1 |
| ENTPD5 | CTTGGAAAACTCAGGGATGGA | TGGGTGGAGACAAATGTAGGA | 60 | XM_021099509.1 |
| EPHX1 | CTGCTGACAGTCATCATGCTCTACT | GTGGACCTTGATCGCCTCAT | 60 | NM_214355.1 |
| GDPD2 | CCACAGCCCCATTCCTTC | GCCCCTCGGTGTCCCATC | 60 | XM_003135152.4 |
| HK2 | CATCCGCTTCCTCCGCTCT | CCTCGCTCCATTTCCACCT | 60 | NM_001122987.1 |
| NPM3 | GCTCCAACCACCTGTAACCT | ACTCCCCTCTTCTTCACTCT | 60 | XM_003359343.4 |
| OASL | CCTATGGCTACAGATGGGAC | GGACTGGGCTCTTGTGTGT | 60 | [3] |
| PNP-2 | ACAGTTTGTCTCCATCCTTA | AATCTTCCTCTCCTTTTTGC | 60 | XM_013989064.2 |
| ISG15 | GATGCTGGGAGGCAAGGA | CAGGATGCTCAGTGGGTCTCT | 60 | [4] |
| SLC40A1 | CTGGAATAATGGGAACTGTGG | TGGCTCTGTCTGAATGAACCT | 60 | XM_003483701.4 |
| UPP1 | CGGCTATGTTTGGAGATGTG | ATGATGGCAATGGAGGGAAT | 60 | XM_021078790.1 |
| GAPDH | ACATCATCCCTGCTTCTACTGG | CTCGGACGCCTGCTTCAC | 60 | AF017079.1 |

References

[1] Ogłuszka, M.; Szostak, A.; Te Pas, M.F.W.; Poławska, E.; Urbański, P.; Blicharski, T.; Pareek, C.S.; Juszczuk-Kubiak, E.; Dunkelberger, J.R.;

Horbańczuk, J.O.; et al. A porcine gluteus medius muscle genome-wide transcriptome analysis: dietary effects of omega-6 and omega-3 fatty acids on biological mechanisms. *Genes Nutr.* **2017**, *12*, 4.

[2] Skovgaard, K.; Mortensen, S.; Boye, M.; Poulsen, K. T.; Campbell, F. M.; Eckersall, P.D.; Heegaard, P.M.H. Rapid and widely disseminated acute phase protein response after experimental bacterial infection of pigs. *Vet. Res.* **2009**, *40*, 336-336.

[3] Zheng, S.; Zhu, D.; Lian, X.; Liu, W.; Cao, R.; Chen, P. Porcine 2', 5'-oligoadenylate synthetases inhibit japanese encephalitis virus replication in vitro. *J. Med. Virol.* **2016**, *88*, 760-768.

[4] Huang, J.; Zhao, S.; Zhu, M.; Wu, Z.; Yu, M. Sequence and expression analyses of porcine isg15 and isg43 genes. *Comp. Biochem. Physiol. B Biochem. Mol. Biol.* **2009**, *153*, 0-309.

Table S2. Statistics for RNA-seq data of all samples.

| Sample name | Raw reads | Clean reads | Clean bases | Error rate(%) | Q20(%) | Q30(%) | GC content(%) |
|-------------|-----------|-------------|-------------|---------------|--------|--------|---------------|
| Inf_1 | 51964190 | 50110508 | 7.52G | 0.02 | 96.36 | 91.25 | 55.72 |
| Inf_2 | 51882108 | 50528298 | 7.58G | 0.02 | 96.98 | 92.45 | 51.62 |
| Inf_3 | 58170206 | 56681794 | 8.5G | 0.02 | 96.81 | 92.16 | 52.9 |
| Inf_4 | 49020254 | 47251880 | 7.09G | 0.02 | 96.81 | 92.1 | 52.94 |
| Nor_1 | 55848424 | 54458148 | 8.17G | 0.01 | 97.44 | 93.53 | 54.6 |
| Nor_2 | 54855556 | 53478346 | 8.02G | 0.02 | 96.94 | 92.35 | 54.97 |
| Nor_3 | 46307770 | 45274664 | 6.79G | 0.02 | 96.99 | 92.42 | 50.97 |
| Nor_4 | 56014286 | 54632550 | 8.19G | 0.02 | 96.88 | 92.22 | 52.21 |

Inf_1, Inf_2, Inf_3, and Inf_4 represent the PEDV-infected samples; Nor_1, Nor_2, Nor_3, and Nor_4 represent the control samples.

Table S3. Summary of RNA-seq mapping results.

| Sample name | Inf_1 | Inf_2 | Inf_3 | Inf_4 | Nor_1 | Nor_2 | Nor_3 | Nor_4 |
|------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Total reads | 50110508 | 50528298 | 56681794 | 47251880 | 54458148 | 53478346 | 45274664 | 54632550 |
| Total mapped | 43558318 (86.92%) | 45516333 (90.08%) | 50162599 (88.5%) | 42075049 (89.04%) | 48510542 (89.08%) | 47746114 (89.28%) | 42220781 (93.25%) | 49774246 (91.11%) |
| Multiple mapped | 4365414 (8.71%) | 1240103 (2.45%) | 3767843 (6.65%) | 1237691 (2.62%) | 1522978 (2.8%) | 1302712 (2.44%) | 888181 (1.96%) | 1361862 (2.49%) |
| Uniquely mapped | 39192904 (78.21%) | 44276230 (87.63%) | 46394756 (81.85%) | 40837358 (86.42%) | 46987564 (86.28%) | 46443402 (86.85%) | 41332600 (91.29%) | 48412384 (88.61%) |
| Read-1 | 19874852 (39.66%) | 22297418 (44.13%) | 23392841 (41.27%) | 20626485 (43.65%) | 23698386 (43.52%) | 23398204 (43.75%) | 20825946 (46%) | 24384164 (44.63%) |
| Read-2 | 19318052 (38.55%) | 21978812 (43.5%) | 23001915 (40.58%) | 20210873 (42.77%) | 23289178 (42.77%) | 23045198 (43.09%) | 20506654 (45.29%) | 24028220 (43.98%) |
| Reads map to '+' | 19631733 (39.18%) | 22094958 (43.73%) | 23166487 (40.87%) | 20386058 (43.14%) | 23474911 (43.11%) | 23200167 (43.38%) | 20628114 (45.56%) | 24162536 (44.23%) |
| Reads map to '-' | 19561171 (39.04%) | 22181272 (43.9%) | 23228269 (40.98%) | 20451300 (43.28%) | 23512653 (43.18%) | 23243235 (43.46%) | 20704486 (45.73%) | 24249848 (44.39%) |
| Non-splice reads | 21007802 (41.92%) | 23596762 (46.7%) | 25775118 (45.47%) | 22607173 (47.84%) | 25722127 (47.23%) | 26510122 (49.57%) | 24744453 (54.65%) | 27221483 (49.83%) |
| Splice reads | 18185102 (36.29%) | 20679468 (40.93%) | 20619638 (36.38%) | 18230185 (38.58%) | 21265437 (39.05%) | 19933280 (37.27%) | 16588147 (36.64%) | 21190901 (38.79%) |

Inf_1, Inf_2, Inf_3, and Inf_4 represent the PEDV-infected samples; Nor_1, Nor_2, Nor_3, and Nor_4 represent the control samples.

Table S4. Differential expression genes between PEDV-infected and control groups.

| Gene ID | Read count Infected | Read count Normal | Log2 Fold Change | P value | Adjusted P value | Gene Name |
|-----------|------------------------|----------------------|---------------------|----------|---------------------|--------------|
| 414380 | 7.062879945 | 458.674154 | -6.0211 | 1.10E-19 | 2.71E-15 | DIO1 |
| 403104 | 2.648180345 | 1196.14734 | -8.8192 | 2.79E-15 | 3.45E-11 | CYP2B22 |
| 406187 | 4502.053242 | 101144.3495 | -4.4897 | 7.14E-15 | 5.87E-11 | APOC3 |
| 110261001 | 1.517730265 | 132.2506364 | -6.4452 | 3.15E-14 | 1.94E-10 | LOC110261001 |
| 100523844 | 114.532665 | 2.664185773 | 5.4259 | 2.06E-13 | 1.02E-09 | PIK3C2G |
| 100515970 | 29.60257566 | 561.7352392 | -4.2461 | 5.13E-13 | 2.11E-09 | OSBP2 |
| 110255314 | 11.69745033 | 255.8717125 | -4.4512 | 8.44E-13 | 2.98E-09 | LOC110255314 |
| 100155204 | 8.234480785 | 193.2503158 | -4.5526 | 2.25E-12 | 6.16E-09 | ZBBX |
| 100157319 | 14.79516526 | 449.6201503 | -4.9255 | 2.09E-12 | 6.16E-09 | SDR16C5 |
| 100738360 | 46.09527069 | 655.6525309 | -3.8302 | 9.90E-12 | 2.44E-08 | PDIA2 |
| 595119 | 2119.218907 | 166.4622486 | 3.6703 | 3.61E-11 | 8.10E-08 | OASL |
| 100525396 | 536.8132439 | 41.11941225 | 3.7065 | 9.37E-11 | 1.78E-07 | LOC100525396 |
| 397677 | 87.85229669 | 4517.724589 | -5.6844 | 9.18E-11 | 1.78E-07 | FOLH1B |
| 100628018 | 600.3133545 | 8232.409101 | -3.7775 | 1.31E-10 | 2.31E-07 | SLC46A1 |
| 100623097 | 542.0145186 | 7576.734489 | -3.8052 | 1.62E-10 | 2.67E-07 | SLC30A10 |
| 100156419 | 145.5578175 | 1534.254198 | -3.3979 | 2.11E-10 | 3.26E-07 | HOMER2 |
| 100510974 | 413.2052509 | 33.33126825 | 3.6319 | 2.91E-10 | 4.23E-07 | COL28A1 |
| 100516309 | 40.90502095 | 565.3841177 | -3.7889 | 3.12E-10 | 4.27E-07 | GDPD2 |
| 100156489 | 95.62438278 | 4.590001807 | 4.3808 | 4.33E-10 | 5.63E-07 | TGM1 |
| 100515798 | 542.8801212 | 49.54044244 | 3.454 | 7.87E-10 | 9.71E-07 | ARL14 |
| 100517307 | 29.602324 | 331.0605854 | -3.4833 | 2.07E-09 | 2.43E-06 | SLC6A4 |
| 100157318 | 739.5415214 | 43.02581697 | 4.1034 | 2.40E-09 | 2.69E-06 | APOD |
| 733625 | 791.4893522 | 35.82577461 | 4.4655 | 4.33E-09 | 4.65E-06 | SFN |
| 100627655 | 0.82490317 | 50.37163329 | -5.9322 | 4.89E-09 | 5.03E-06 | LOC100627655 |
| 397373 | 176.0306336 | 1585.765997 | -3.1713 | 6.32E-09 | 6.24E-06 | MYO7A |
| 100620627 | 20.42009613 | 649.7789361 | -4.9919 | 6.64E-09 | 6.31E-06 | LOC100620627 |
| 692188 | 61.12237917 | 722.9782049 | -3.5642 | 7.55E-09 | 6.90E-06 | APOM |
| 110256150 | 137.9489397 | 1184.956602 | -3.1026 | 9.20E-09 | 8.11E-06 | KCNJ12 |
| 100153752 | 14.88519008 | 232.5892431 | -3.9658 | 1.03E-08 | 8.50E-06 | CLDN10 |
| 106505478 | 942.1261064 | 106.2673261 | 3.1482 | 1.00E-08 | 8.50E-06 | LOC106505478 |
| 733608 | 7657.057496 | 1013.129757 | 2.918 | 1.25E-08 | 9.65E-06 | S100A6 |
| 100125551 | 169.7073795 | 1358.534046 | -3.0009 | 1.37E-08 | 1.03E-05 | SLC2A8 |

| | | | | | | |
|-----------|-------------|-------------|---------|----------|------------|--------------|
| 106505337 | 75.50729955 | 4.436794567 | 4.089 | 1.58E-08 | 1.15E-05 | LOC106505337 |
| 397691 | 65343.70832 | 636753.8988 | -3.2846 | 1.85E-08 | 1.31E-05 | APOA1 |
| 100738704 | 82.35121334 | 3.291872103 | 4.6448 | 1.93E-08 | 1.32E-05 | TNIP3 |
| 100737113 | 47.98680973 | 2.298964935 | 4.3836 | 4.39E-08 | 2.85E-05 | LOC100737113 |
| 100126844 | 118.5235199 | 2440.529245 | -4.3639 | 4.99E-08 | 3.16E-05 | GATM |
| 100512452 | 1197.402086 | 107.4162796 | 3.4786 | 8.69E-08 | 5.23E-05 | GALNT12 |
| 100625897 | 5384.632347 | 34459.373 | -2.678 | 1.55E-07 | 8.52E-05 | LOC100625897 |
| 100625192 | 14.23478634 | 236.1401625 | -4.0522 | 1.73E-07 | 9.31E-05 | GCKR |
| 100156922 | 282.9634985 | 34.03812745 | 3.0554 | 1.96E-07 | 0.0001032 | MAT1A |
| 100521889 | 56.32759432 | 3.976850743 | 3.8241 | 2.11E-07 | 0.00010851 | ADGRE1 |
| 414904 | 342.7626871 | 5.410987817 | 5.9852 | 2.58E-07 | 0.00012984 | CXCL2 |
| 110257275 | 11.20839585 | 107.368773 | -3.2599 | 2.81E-07 | 0.00013852 | LOC110257275 |
| 100134962 | 261.0502181 | 1723.426346 | -2.7229 | 3.06E-07 | 0.00014822 | PHYH |
| 100625277 | 2427.471387 | 378.9067256 | 2.6795 | 3.90E-07 | 0.00018496 | UPP1 |
| 100520068 | 40.19530006 | 293.3411389 | -2.8675 | 4.84E-07 | 0.00022522 | PCDH12 |
| 100156404 | 50.66066643 | 625.7451999 | -3.6266 | 5.82E-07 | 0.00026583 | PGF |
| 100312960 | 12614.08746 | 1955.88924 | 2.6891 | 6.41E-07 | 0.00028767 | ANXA4 |
| 100518950 | 601.4062675 | 2.861991888 | 7.7152 | 7.64E-07 | 0.00033427 | FGF19 |
| 100521912 | 143.2750411 | 871.5852239 | -2.6049 | 7.72E-07 | 0.00033427 | WNT11 |
| 100739839 | 13.82622965 | 130.4343503 | -3.2378 | 1.01E-06 | 0.00041396 | SPATC1 |
| 494561 | 391.8121505 | 60.74969244 | 2.6892 | 9.90E-07 | 0.00041396 | HK2 |
| 100135678 | 169.3444522 | 24.37646512 | 2.7964 | 1.12E-06 | 0.00044696 | PDE6C |
| 100512737 | 1010.480369 | 6784.614331 | -2.7472 | 1.11E-06 | 0.00044696 | SLC13A2 |
| 100514218 | 11.73876786 | 96.81290643 | -3.0439 | 1.16E-06 | 0.00045493 | GJC2 |
| 100158243 | 340.4624586 | 1916.692834 | -2.4931 | 1.26E-06 | 0.00048441 | SLC16A3 |
| 102161066 | 21.82008332 | 155.6475917 | -2.8346 | 1.34E-06 | 0.00050976 | LOC102161066 |
| 100516363 | 40.1712932 | 370.2857648 | -3.2044 | 1.40E-06 | 0.00051999 | NAT8 |
| 100626731 | 12.4038322 | 104.9812892 | -3.0813 | 1.57E-06 | 0.00057029 | LOC100626731 |
| 100524747 | 58.7583808 | 354.3702728 | -2.5924 | 1.64E-06 | 0.00058677 | DBP |
| 100516578 | 145.1269753 | 821.0362954 | -2.5001 | 2.09E-06 | 0.00073866 | CCDC80 |
| 100151843 | 169.9459462 | 1012.457821 | -2.5747 | 2.19E-06 | 0.00076002 | SNTA1 |
| 110262031 | 93.41387646 | 539.1338626 | -2.5289 | 2.79E-06 | 0.00095486 | LOC110262031 |
| 397207 | 41.59337535 | 0 | Inf | 3.00E-06 | 0.0010156 | HAMP |
| 100155341 | 101.8776285 | 587.5995942 | -2.528 | 3.38E-06 | 0.001129 | NEIL1 |

| | | | | | | |
|-----------|-------------|-------------|---------|----------|-----------|--------------|
| 100144620 | 176.31037 | 3233.62509 | -4.197 | 3.55E-06 | 0.0011539 | AQP10 |
| 100522927 | 189.4055852 | 1071.315422 | -2.4998 | 3.55E-06 | 0.0011539 | CGREF1 |
| 100153155 | 14.1703251 | 107.1046604 | -2.9181 | 3.81E-06 | 0.0011702 | XCL1 |
| 100155893 | 526.1751633 | 96.11947137 | 2.4526 | 3.68E-06 | 0.0011702 | ARG2 |
| 100157662 | 38.09419094 | 0.221801735 | 7.4242 | 3.77E-06 | 0.0011702 | HOXD1 |
| 106505853 | 29.10957067 | 179.5889912 | -2.6251 | 3.84E-06 | 0.0011702 | LOC106505853 |
| 397358 | 1396.869704 | 7341.483186 | -2.3939 | 3.72E-06 | 0.0011702 | SLC9A3 |
| 100171400 | 34.08652859 | 1093.797307 | -5.004 | 3.99E-06 | 0.0012014 | TRPV6 |
| 110256043 | 976.0847854 | 177.5844433 | 2.4585 | 4.46E-06 | 0.001327 | LOC110256043 |
| 100523209 | 592.8822791 | 2978.985942 | -2.329 | 4.59E-06 | 0.0013497 | COL7A1 |
| 100151790 | 243.3490291 | 1367.727192 | -2.4907 | 4.65E-06 | 0.0013506 | PMM1 |
| 100513308 | 965.6841669 | 6276.514351 | -2.7003 | 5.22E-06 | 0.0014994 | TM4SF5 |
| 100624476 | 474.7413285 | 2327.982142 | -2.2939 | 5.39E-06 | 0.0015297 | PRDM16 |
| 100157774 | 413.0628608 | 2098.418441 | -2.3449 | 5.55E-06 | 0.001557 | SLC25A27 |
| 100523600 | 76.66483625 | 658.1421013 | -3.1018 | 5.72E-06 | 0.0015865 | PCP4L1 |
| 100145895 | 10966.67191 | 2148.166602 | 2.3519 | 6.58E-06 | 0.0018039 | ISG15 |
| 100519006 | 2.533973993 | 119.443043 | -5.5588 | 6.85E-06 | 0.0018568 | DUSP9 |
| 100515460 | 19.57145 | 132.0847003 | -2.7546 | 7.09E-06 | 0.0019025 | USP27X |
| 100152247 | 509.9493411 | 2640.159201 | -2.3722 | 7.25E-06 | 0.0019097 | TP53INP2 |
| 100511370 | 1649.510322 | 323.5339706 | 2.35 | 7.27E-06 | 0.0019097 | HSH2D |
| 100739671 | 33.3272125 | 195.4511454 | -2.552 | 7.49E-06 | 0.0019473 | ESM1 |
| 106505256 | 9.73146266 | 182.8252913 | -4.2317 | 7.73E-06 | 0.001988 | LOC106505256 |
| 100627807 | 6065.433252 | 952.1357064 | 2.6714 | 8.09E-06 | 0.0020426 | RBM3 |
| 100127358 | 9473.133327 | 1935.817034 | 2.2909 | 8.61E-06 | 0.0021393 | IFITM1 |
| 100523325 | 8.389476546 | 208.9731832 | -4.6386 | 8.67E-06 | 0.0021393 | ASB4 |
| 100737774 | 6.484872216 | 71.39080687 | -3.4606 | 1.11E-05 | 0.0026914 | LRRC17 |
| 654317 | 65.81102037 | 668.0629696 | -3.3436 | 1.11E-05 | 0.0026914 | NR1I3 |
| 110256498 | 92.6564798 | 12.96652134 | 2.8371 | 1.14E-05 | 0.0027408 | CBS |
| 100156756 | 14.94665065 | 165.6888275 | -3.4706 | 1.24E-05 | 0.0029128 | ACVR1C |
| 100157138 | 3232.912053 | 370.3044663 | 3.1261 | 1.25E-05 | 0.0029128 | PNP |
| 100519115 | 4.725979052 | 43.46979927 | -3.2013 | 1.28E-05 | 0.0029254 | ADAMTS16 |
| 102161637 | 7.207162494 | 177.8711782 | -4.6253 | 1.27E-05 | 0.0029254 | LOC102161637 |
| 102164363 | 2.800451896 | 35.15656681 | -3.6501 | 1.80E-05 | 0.0040732 | LOC102164363 |
| 100738302 | 439.0498 | 96.54872451 | 2.1851 | 1.91E-05 | 0.0042847 | CEACAM19 |

| | | | | | | |
|-----------|-------------|-------------|---------|----------|-----------|--------------|
| 100523389 | 359.2645303 | 1688.024985 | -2.2322 | 2.03E-05 | 0.0045111 | SLC37A2 |
| 397013 | 56.57283153 | 310.1053672 | -2.4546 | 2.06E-05 | 0.0045352 | PPARGC1A |
| 100515408 | 68.6391872 | 356.8997324 | -2.3784 | 2.11E-05 | 0.0046004 | SHPK |
| 100158214 | 209.7059571 | 1008.345277 | -2.2655 | 2.45E-05 | 0.005313 | FLRT3 |
| 100522832 | 7.176178137 | 54.81016978 | -2.9332 | 2.62E-05 | 0.0056178 | GPR156 |
| 100512564 | 579.2349771 | 125.4192832 | 2.2074 | 2.75E-05 | 0.0058324 | FAM117B |
| 100623615 | 22.05380402 | 1.062929658 | 4.3749 | 2.76E-05 | 0.0058324 | LY6D |
| 100514979 | 23.98471332 | 194.3124127 | -3.0182 | 2.93E-05 | 0.0061213 | LOC100514979 |
| 100141405 | 6044.156959 | 26182.02079 | -2.115 | 3.13E-05 | 0.0064922 | CTSZ |
| 100511895 | 621.0209614 | 2777.401892 | -2.161 | 3.34E-05 | 0.0068096 | SLC25A15 |
| 100512800 | 25.44146335 | 134.1593691 | -2.3987 | 3.37E-05 | 0.0068096 | SCN4B |
| 396900 | 476.796436 | 101.7173123 | 2.2288 | 3.32E-05 | 0.0068096 | AMCF-II |
| 100516107 | 3.096039296 | 32.41574316 | -3.3882 | 3.44E-05 | 0.0069095 | LRRC3C |
| 100516755 | 691.5906154 | 150.3544636 | 2.2016 | 3.47E-05 | 0.0069167 | ETV4 |
| 100153917 | 64.86025854 | 426.8400739 | -2.7183 | 3.52E-05 | 0.0069272 | SLITRK6 |
| 100522112 | 5696.55909 | 1232.839977 | 2.2081 | 3.54E-05 | 0.0069272 | GCNT3 |
| 100521587 | 45.12202169 | 5.221298311 | 3.1114 | 3.77E-05 | 0.0073318 | ECEL1 |
| 100515264 | 358.4501221 | 1584.003638 | -2.1437 | 4.04E-05 | 0.0077267 | CAMK2N1 |
| 110256469 | 17.94667455 | 0.718039279 | 4.6435 | 4.01E-05 | 0.0077267 | LOC110256469 |
| 100511886 | 735.5754444 | 5.540820063 | 7.0526 | 4.39E-05 | 0.0083279 | FGFBP1 |
| 100048965 | 730.8634264 | 3079.732671 | -2.0751 | 4.79E-05 | 0.008958 | PGRMC2 |
| 100153250 | 420.00645 | 3565.119585 | -3.0855 | 4.84E-05 | 0.0089677 | GPD1 |
| 110255503 | 8.806904054 | 60.47101287 | -2.7795 | 4.90E-05 | 0.0089677 | LOC110255503 |
| 110259489 | 15.6332355 | 88.56731144 | -2.5022 | 4.87E-05 | 0.0089677 | TIFAB |
| 100623751 | 82.66254851 | 397.0831191 | -2.2641 | 5.20E-05 | 0.0093738 | RPS6KA5 |
| 397166 | 11.39774721 | 71.37140408 | -2.6466 | 5.20E-05 | 0.0093738 | MS4A2 |
| 100192320 | 11.78894389 | 847.8293013 | -6.1683 | 5.52E-05 | 0.0098341 | BCO1 |
| 399532 | 1270.938292 | 292.104155 | 2.1213 | 5.54E-05 | 0.0098341 | FABP3 |
| 100154506 | 2201.110364 | 9419.203557 | -2.0974 | 5.65E-05 | 0.0099617 | ENTPD5 |
| 403215 | 137.4240362 | 763.4250569 | -2.4739 | 6.85E-05 | 0.011989 | CYP2C49 |
| 100524750 | 605.8267097 | 2402.549581 | -1.9876 | 7.16E-05 | 0.012442 | CYP2J34 |
| 100152368 | 282.0109906 | 1187.263877 | -2.0738 | 7.33E-05 | 0.012659 | EGLN3 |
| 100187577 | 265.9503026 | 59.97532994 | 2.1487 | 7.62E-05 | 0.012888 | LRP8 |
| 100627912 | 560.6016393 | 2570.24453 | -2.1969 | 7.57E-05 | 0.012888 | GDPD5 |

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|-----------|-------------|-------------|---------|------------|----------|--------------|
| 397200 | 750.135762 | 3138.344518 | -2.0648 | 7.62E-05 | 0.012888 | SLC28A1 |
| 102165025 | 5.25065098 | 44.09174326 | -3.0699 | 7.75E-05 | 0.013013 | LOC102165025 |
| 100623590 | 73.9878581 | 13.73264075 | 2.4297 | 8.09E-05 | 0.013368 | PKP1 |
| 110257555 | 7.575735922 | 61.59810511 | -3.0234 | 8.03E-05 | 0.013368 | LOC110257555 |
| 100514726 | 572.8322276 | 3707.548527 | -2.6943 | 8.38E-05 | 0.01361 | ENPP7 |
| 100521274 | 849.6270036 | 3665.863621 | -2.1093 | 8.33E-05 | 0.01361 | FAM131C |
| 100152827 | 7.33097467 | 102.4765852 | -3.8051 | 8.83E-05 | 0.014147 | FCER1A |
| 497235 | 242.9409619 | 1090.978547 | -2.1669 | 8.79E-05 | 0.014147 | SLC5A10 |
| 100524951 | 23.56593908 | 1.873750439 | 3.6527 | 9.09E-05 | 0.01447 | ACOD1 |
| 100625050 | 1182.670272 | 279.6946268 | 2.0801 | 9.14E-05 | 0.01447 | EPSTI1 |
| 100522244 | 25.81875615 | 0.197669717 | 7.0292 | 9.24E-05 | 0.014491 | SCNN1G |
| 100622812 | 351.7361089 | 84.86818193 | 2.0512 | 9.28E-05 | 0.014491 | DUSP2 |
| 397687 | 616.8098004 | 4116.087607 | -2.7384 | 9.38E-05 | 0.014567 | CYP2D25 |
| 100151780 | 155.956284 | 1078.962561 | -2.7904 | 9.68E-05 | 0.014757 | KCNJ13 |
| 399542 | 15.19405889 | 0.241943648 | 5.9727 | 9.62E-05 | 0.014757 | SLC5A5 |
| 100144410 | 297.3597858 | 1186.873626 | -1.9969 | 9.77E-05 | 0.014788 | TPPP |
| 100157026 | 480.2612192 | 112.0736648 | 2.0994 | 9.96E-05 | 0.014949 | MTFR2 |
| 102159476 | 154.1478021 | 1001.593329 | -2.6999 | 9.99E-05 | 0.014949 | LOC102159476 |
| 102165634 | 472.8300002 | 1945.280686 | -2.0406 | 0.00010075 | 0.014982 | LOC102165634 |
| 106509607 | 29.0095569 | 135.7216352 | -2.2261 | 0.00010151 | 0.015005 | LOC106509607 |
| 100144591 | 2094.979824 | 14887.69734 | -2.8291 | 0.00010217 | 0.015013 | CYBRD1 |
| 100515143 | 20.08467835 | 147.5994045 | -2.8775 | 0.00010371 | 0.015138 | RNF207 |
| 100626343 | 1161.497253 | 5574.009335 | -2.2627 | 0.00010425 | 0.015138 | ABCD3 |
| 106508195 | 0.264757499 | 14.2413282 | -5.7493 | 0.00010502 | 0.01516 | TAS2R40 |
| 100737517 | 3347.802551 | 14292.34056 | -2.094 | 0.00010645 | 0.015278 | SLC40A1 |
| 100515955 | 47.58790973 | 226.7998842 | -2.2528 | 0.00010845 | 0.015386 | PTPRU |
| 100627632 | 22.06275973 | 111.0958561 | -2.3321 | 0.00010824 | 0.015386 | ZKSCAN7 |
| 100519539 | 152.6369392 | 832.090423 | -2.4466 | 0.00011026 | 0.015553 | KLHL3 |
| 110259946 | 2.967481256 | 31.13344386 | -3.3912 | 0.00011129 | 0.015609 | LOC110259946 |
| 100294675 | 380.5537124 | 5362.424784 | -3.8167 | 0.00011702 | 0.01632 | DGAT2 |
| 100621352 | 1059.07813 | 76.98765812 | 3.782 | 0.00011812 | 0.016381 | LOC100621352 |
| 110260940 | 7.626111177 | 49.97213525 | -2.7121 | 0.00011907 | 0.01642 | LOC110260940 |
| 100739218 | 6757.85641 | 1690.290061 | 1.9993 | 0.00012571 | 0.017144 | LOC100739218 |
| 110259210 | 89.12761609 | 14.39446505 | 2.6304 | 0.0001274 | 0.01728 | MUC5AC |

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|-----------|-------------|-------------|---------|------------|----------|--------------|
| 100158162 | 394.5254686 | 96.76357109 | 2.0276 | 0.00013172 | 0.017685 | ATP10A |
| 100625759 | 11.16209921 | 63.79112034 | -2.5147 | 0.00013221 | 0.017685 | SMIM1 |
| 110259705 | 28.10216831 | 2410.519864 | -6.4225 | 0.00013254 | 0.017685 | TH |
| 106506279 | 67.39686297 | 653.8894402 | -3.2783 | 0.00013592 | 0.018039 | LOC106506279 |
| 100512686 | 504.0663441 | 81.40127355 | 2.6305 | 0.00013889 | 0.018281 | IRS1 |
| 100515902 | 866.9411348 | 112.2186208 | 2.9496 | 0.00014188 | 0.018281 | LOC100515902 |
| 100622375 | 594.3928187 | 2290.161801 | -1.946 | 0.00014196 | 0.018281 | SHANK3 |
| 110255508 | 104.6192004 | 21.27835514 | 2.2977 | 0.00013961 | 0.018281 | CER1 |
| 110260216 | 221.0892283 | 23.61761646 | 3.2267 | 0.00014219 | 0.018281 | LOC110260216 |
| 100155467 | 1562.213023 | 391.7909536 | 1.9954 | 0.00014728 | 0.018837 | IFIT2 |
| 100515422 | 93.70943933 | 374.949557 | -2.0004 | 0.00015291 | 0.019389 | MFSD4B |
| 100515639 | 142.0268003 | 33.23348577 | 2.0955 | 0.00015316 | 0.019389 | PCDH19 |
| 100037938 | 361.5500544 | 89.84802012 | 2.0086 | 0.00015488 | 0.019506 | CD14 |
| 403324 | 2155.222011 | 8684.428581 | -2.0106 | 0.00016234 | 0.020342 | CYP3A29 |
| 397645 | 16992.6644 | 4516.589052 | 1.9116 | 0.0001723 | 0.021373 | SAT1 |
| 110256586 | 13.89285143 | 82.44506693 | -2.5691 | 0.00017718 | 0.021759 | LOC110256586 |
| 100514482 | 10023.63523 | 2698.358014 | 1.8933 | 0.00018375 | 0.022344 | AGR2 |
| 397182 | 33.75899299 | 146.130702 | -2.1139 | 0.0001832 | 0.022344 | IGFBP5 |
| 100518544 | 9569.15744 | 2532.268539 | 1.918 | 0.00018682 | 0.022539 | IFITM3 |
| 397134 | 1685.372701 | 6100.035918 | -1.8558 | 0.00018718 | 0.022539 | DAO |
| 100037966 | 138.5566187 | 543.1278249 | -1.9708 | 0.00018835 | 0.02257 | SOCS2 |
| 100520832 | 81845.56028 | 9207.749961 | 3.152 | 0.00019202 | 0.022899 | LOC100520832 |
| 396645 | 4300.068263 | 1117.446065 | 1.9442 | 0.00019457 | 0.023091 | IRF8 |
| 100622336 | 259.3471014 | 32.84139438 | 2.9813 | 0.00019629 | 0.023184 | CSF3R |
| 102167936 | 4.030427747 | 39.00214983 | -3.2745 | 0.00020068 | 0.023477 | LOC102167936 |
| 595111 | 4783.933998 | 1310.453413 | 1.8681 | 0.00020055 | 0.023477 | KLF4 |
| 100625807 | 3419.223635 | 15588.51731 | -2.1887 | 0.00020209 | 0.023531 | LCT |
| 100736742 | 17.94295728 | 86.92780491 | -2.2764 | 0.00020825 | 0.02391 | GJA8 |
| 397639 | 1179.435935 | 10767.65863 | -3.1905 | 0.00020792 | 0.02391 | EPHX1 |
| 404698 | 929.0959798 | 3613.018015 | -1.9593 | 0.00020743 | 0.02391 | HYAL1 |
| 100153504 | 276.0777243 | 56.61329387 | 2.2859 | 0.00021285 | 0.024242 | F13A1 |
| 100738133 | 17.97843869 | 85.10074069 | -2.2429 | 0.00021311 | 0.024242 | LOC100738133 |
| 100316849 | 7210.921095 | 1855.727433 | 1.9582 | 0.00021795 | 0.024679 | ZFP36 |
| 100510947 | 15.34332977 | 77.7839019 | -2.3419 | 0.00023156 | 0.025982 | PTGDR2 |

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|-----------|-------------|-------------|---------|------------|----------|--------------|
| 768107 | 114.2785482 | 455.4921463 | -1.9949 | 0.00023104 | 0.025982 | RGN |
| 100158055 | 456.1780182 | 1663.182452 | -1.8663 | 0.00023628 | 0.026392 | OLFML3 |
| 100514091 | 22.80209036 | 108.0243122 | -2.2441 | 0.0002442 | 0.027153 | OTOG |
| 100233171 | 866.9551194 | 3108.551561 | -1.8422 | 0.00025102 | 0.027663 | AGPAT3 |
| 100157065 | 170.4170669 | 3277.895143 | -4.2656 | 0.00025674 | 0.028168 | ASAH2 |
| 100519179 | 12.51371594 | 115.9679587 | -3.2121 | 0.00025869 | 0.028256 | USP51 |
| 100155159 | 68.24241834 | 468.0860862 | -2.778 | 0.00026249 | 0.028419 | PYROXD2 |
| 102163819 | 1180.492775 | 6350.825045 | -2.4276 | 0.00026226 | 0.028419 | MS4A10 |
| 100157844 | 3815.951828 | 1033.049484 | 1.8851 | 0.00026681 | 0.028636 | PIM1 |
| 100519488 | 20.40262486 | 397.0625873 | -4.2825 | 0.0002665 | 0.028636 | MOV10L1 |
| 100152428 | 1444.57619 | 201.2347481 | 2.8437 | 0.00027288 | 0.02891 | LOC100152428 |
| 100156914 | 394.9367636 | 1365.212127 | -1.7894 | 0.00027592 | 0.029108 | SLC24A4 |
| 100514743 | 381.5275952 | 1502.293605 | -1.9773 | 0.00028234 | 0.029532 | WIPF3 |
| 110256820 | 181.9357766 | 37.35058958 | 2.2842 | 0.00028133 | 0.029532 | LOC110256820 |
| 100514493 | 966.4977771 | 3416.808393 | -1.8218 | 0.00029529 | 0.030627 | ATP1B3 |
| 102159800 | 216.1804276 | 788.5414963 | -1.867 | 0.00029411 | 0.030627 | MVB12B |
| 100523320 | 1710.728287 | 406.688303 | 2.0726 | 0.00030122 | 0.031112 | SOWAHB |
| 102164898 | 1229.962097 | 4416.184739 | -1.8442 | 0.00031306 | 0.0322 | SEC16B |
| 100519529 | 882.1852765 | 4065.975569 | -2.2044 | 0.00031863 | 0.032636 | ABCD1 |
| 100511161 | 245.9354104 | 63.47788325 | 1.954 | 0.00033121 | 0.033646 | PLA2G3 |
| 100156455 | 842.8232605 | 237.4107108 | 1.8278 | 0.00034782 | 0.035045 | TC2N |
| 100623476 | 62.74123826 | 5.437441252 | 3.5284 | 0.00034664 | 0.035045 | HTR6 |
| 397376 | 480.2198741 | 2261.369685 | -2.2354 | 0.00035096 | 0.035218 | SLC5A4 |
| 100622126 | 2.29140883 | 23.6761392 | -3.3691 | 0.00035845 | 0.035823 | CX3CR1 |
| 100126286 | 2071.887616 | 592.6216575 | 1.8058 | 0.00036308 | 0.036033 | KRT18 |
| 100623809 | 1340.591308 | 4734.773665 | -1.8204 | 0.00036347 | 0.036033 | TMC5 |
| 100522261 | 4907.787562 | 1358.929121 | 1.8526 | 0.00037651 | 0.037177 | PGM2 |
| 100738062 | 19.34275318 | 371.5610028 | -4.2637 | 0.00038127 | 0.037444 | ACOT12 |
| 110260714 | 34.56396482 | 140.7341254 | -2.0256 | 0.00038226 | 0.037444 | ETFBKMT |
| 396998 | 13.46511072 | 93.97928415 | -2.8031 | 0.0003856 | 0.037623 | HPX |
| 396764 | 200.3987486 | 31.82829953 | 2.6545 | 0.00038791 | 0.037699 | SLC11A1 |
| 100514568 | 34.98548326 | 141.1495026 | -2.0124 | 0.00039014 | 0.037767 | TMEM38A |
| 397568 | 2327.273261 | 8132.841789 | -1.8051 | 0.00039238 | 0.037835 | CAT |
| 100624487 | 20.80699628 | 90.22216106 | -2.1164 | 0.00039416 | 0.037859 | SLC2A10 |

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|------------|-------------|-------------|---------|------------|----------|--------------|
| 100624671 | 84.26914401 | 325.8855905 | -1.9513 | 0.00040769 | 0.039007 | CMTM8 |
| 100622156 | 2538.883969 | 550.0559698 | 2.2065 | 0.00041149 | 0.039068 | TNFAIP3 |
| 110260202 | 1877.043081 | 1.417553186 | 10.371 | 0.00041043 | 0.039068 | ARC |
| 100624791 | 688.3092863 | 2342.248125 | -1.7668 | 0.00041325 | 0.039085 | PLXNA2 |
| 100511552 | 15.24435691 | 0.889391959 | 4.0993 | 0.00042669 | 0.040201 | CIB3 |
| 110256050 | 73.16987362 | 273.277125 | -1.901 | 0.00043806 | 0.041116 | MMP28 |
| 100155871 | 6.387619763 | 387.7366804 | -5.9237 | 0.00044253 | 0.041222 | SLC16A9 |
| 100622227 | 73.81862221 | 867.3584972 | -3.5546 | 0.00044204 | 0.041222 | LOC100622227 |
| 100520717 | 40.51546745 | 7.1731357 | 2.4978 | 0.00044836 | 0.041452 | YPEL4 |
| 100522981 | 365.0265404 | 1291.584317 | -1.8231 | 0.000448 | 0.041452 | HOOK2 |
| 100628009 | 190.7510925 | 655.2142124 | -1.7803 | 0.00046066 | 0.042117 | XYLB |
| 396934 | 417.6566396 | 1511.845878 | -1.8559 | 0.00045956 | 0.042117 | RENBP |
| 397018 | 842.5857094 | 2881.928565 | -1.7741 | 0.00045773 | 0.042117 | SCARB1 |
| 100738064 | 957.1500616 | 0 | Inf | 0.00046926 | 0.042745 | PLA2G2A |
| 100522516 | 616.7283834 | 4196.422871 | -2.7665 | 0.00047664 | 0.043099 | GLYCTK |
| 110260118 | 304.0286983 | 82.21296243 | 1.8868 | 0.00047538 | 0.043099 | SOWAHC |
| 100522021 | 305.4248124 | 1087.50218 | -1.8321 | 0.00048053 | 0.043237 | LRRC66 |
| 100739719 | 44.97617777 | 322.2472227 | -2.8409 | 0.00048167 | 0.043237 | LOC100739719 |
| 397508 | 104.9002461 | 13.36180689 | 2.9728 | 0.00049262 | 0.044059 | SELE |
| 100515339 | 47136.17971 | 9946.57151 | 2.2446 | 0.00050216 | 0.04459 | KRT19 |
| 100624628 | 329.0548392 | 62.18236069 | 2.4038 | 0.00050146 | 0.04459 | LOC100624628 |
| 100141314 | 1785.589127 | 10720.37123 | -2.5859 | 0.000514 | 0.044785 | RARRES2 |
| 100516761 | 151.8693748 | 536.6607688 | -1.8212 | 0.00050996 | 0.044785 | SLC35A5 |
| 102158002 | 60.65630294 | 235.5545784 | -1.9573 | 0.00050797 | 0.044785 | LOC102158002 |
| 102159603 | 31.62776592 | 4.997447955 | 2.6619 | 0.00051224 | 0.044785 | LOC102159603 |
| 110255963 | 26.0389622 | 2.537107024 | 3.3594 | 0.00051009 | 0.044785 | LOC110255963 |
| 780409 | 179.2426363 | 21.10899429 | 3.086 | 0.00051525 | 0.044785 | CCL26 |
| 100522330 | 193.0975107 | 1557.023394 | -3.0114 | 0.00052823 | 0.045752 | SLC7A8 |
| 100627227 | 1646.589954 | 456.361517 | 1.8512 | 0.00053846 | 0.046476 | NPM3 |
| 100524265 | 340.1559041 | 29.36426244 | 3.5341 | 0.00054853 | 0.04718 | CXCL13 |
| 100524940 | 1105.632176 | 3630.525197 | -1.7153 | 0.00055352 | 0.047444 | LOC100524940 |
| 397195 | 2360.798695 | 299.6819444 | 2.9778 | 0.00056408 | 0.048181 | ADM |
| 448846 | 891.1766531 | 3105.707502 | -1.8011 | 0.00056823 | 0.048368 | EHHADH |
| Novel00365 | 37.60012025 | 1.335180448 | 4.8156 | 1.03E-07 | 6.07E-05 | -/- |

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|------------|-------------|-------------|---------|------------|------------|-----|
| Novel00382 | 0.264757499 | 81.96500331 | -8.2742 | 1.18E-07 | 6.79E-05 | -/- |
| Novel00537 | 4.632167406 | 63.42110771 | -3.7752 | 1.27E-07 | 7.14E-05 | -- |
| Novel00251 | 32.31354463 | 0.463745383 | 6.1227 | 1.13E-08 | 8.96E-06 | -/- |
| Novel00202 | 106.4137234 | 6.424173296 | 4.05 | 3.03E-08 | 2.02E-05 | -/- |
| Novel00495 | 19.49959134 | 191.7022351 | -3.2974 | 5.66E-08 | 3.50E-05 | |
| Novel00078 | 52.24573973 | 8.139832967 | 2.6822 | 0.00027094 | 0.028828 | -/- |
| Novel00533 | 23.99244273 | 0.865259941 | 4.7933 | 0.00027043 | 0.028828 | -/- |
| Novel00482 | 0.529514999 | 24.08282943 | -5.5072 | 0.00032129 | 0.032773 | -/- |
| Novel00256 | 4.85765667 | 35.63236038 | -2.8749 | 0.0002484 | 0.027497 | -- |
| Novel00425 | 0.264757499 | 13.28355317 | -5.6488 | 0.00014213 | 0.018281 | -/- |
| Novel00679 | 5.124610259 | 38.63407584 | -2.9144 | 0.0001687 | 0.021032 | -- |
| Novel00257 | 12.67334323 | 74.41025704 | -2.5537 | 0.00017637 | 0.021759 | -/- |
| Novel00280 | 35.39557215 | 0.197669717 | 7.4843 | 0.00012338 | 0.01692 | -- |
| Novel00255 | 4.739932283 | 41.44515844 | -3.1283 | 8.12E-05 | 0.013368 | -/- |
| Novel00441 | 13.53391937 | 77.5882313 | -2.5193 | 9.64E-05 | 0.014757 | -/- |
| Novel00496 | 7.243275604 | 54.89840706 | -2.9221 | 4.59E-05 | 0.0086434 | -- |
| Novel00615 | 24.79301937 | 0.637283082 | 5.2819 | 8.11E-06 | 0.0020426 | -/- |
| Novel00535 | 39.43096643 | 2.305140059 | 4.0964 | 1.18E-05 | 0.002801 | -- |
| Novel00217 | 17.8130773 | 0 | Inf | 9.33E-07 | 0.00039703 | -- |
| Novel00584 | 10.14141087 | 149.0529914 | -3.8775 | 1.41E-06 | 0.00051999 | -/- |

Table S5. List of genes in different gene clusters.

| Gene clusters | Gene ID | Name | Log2 Fold Change | P value | Adjusted P value |
|---------------|------------|--------------|------------------|----------|------------------|
| Cluster 1 | 100738064 | PLA2G2A | -- | 4.69E-04 | 0.042745 |
| | 397207 | HAMP | -- | 3.00E-06 | 0.0010156 |
| | Novel00217 | -- | -- | 9.33E-07 | 0.00039703 |
| Cluster 2 | 100157662 | HOXD1 | 7.4242 | 3.77E-06 | 0.0011702 |
| | 100511886 | FGFBP1 | 7.0526 | 4.39E-05 | 0.0083279 |
| | 100518950 | FGF19 | 7.7152 | 7.64E-07 | 0.00033427 |
| | 100522244 | SCNN1G | 7.0292 | 9.24E-05 | 0.014491 |
| | 110260202 | ARC | 10.371 | 4.10E-04 | 0.039068 |
| | 399542 | SLC5A5 | 5.9727 | 9.62E-05 | 0.014757 |
| | 414904 | CXCL2 | 5.9852 | 2.58E-07 | 0.00012984 |
| | Novel00251 | -- | 6.1227 | 1.13E-08 | 8.96E-06 |
| Novel00280 | -- | 7.4843 | 1.23E-04 | 0.01692 | |
| Cluster 3 | 595119 | OASL | 3.6703 | 3.61E-11 | 8.10E-08 |
| | 733625 | SFN | 4.4655 | 4.33E-09 | 4.65E-06 |
| | 100156489 | TGM1 | 4.3808 | 4.33E-10 | 5.63E-07 |
| | 100157318 | APOD | 4.1034 | 2.40E-09 | 2.69E-06 |
| | 100510974 | COL28A1 | 3.6319 | 2.91E-10 | 4.23E-07 |
| | 100511552 | CIB3 | 4.0993 | 4.27E-04 | 0.040201 |
| | 100512452 | GALNT12 | 3.4786 | 8.69E-08 | 5.23E-05 |
| | 100515798 | ARL14 | 3.454 | 7.87E-10 | 9.71E-07 |
| | 100521889 | ADGRE1 | 3.8241 | 2.11E-07 | 0.00010851 |
| | 100523844 | PIK3C2G | 5.4259 | 2.06E-13 | 1.02E-09 |
| | 100524265 | CXCL13 | 3.5341 | 5.49E-04 | 0.04718 |
| | 100524951 | ACOD1 | 3.6527 | 9.09E-05 | 0.01447 |
| | 100525396 | LOC100525396 | 3.7065 | 9.37E-11 | 1.78E-07 |
| | 100621352 | LOC100621352 | 3.782 | 1.18E-04 | 0.016381 |
| | 100623476 | HTR6 | 3.5284 | 3.47E-04 | 0.035045 |
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| | 397195 | ADM | 2.9778 | 5.64E-04 | 0.048181 |
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| | 100156922 | MAT1A | 3.0554 | 1.96E-07 | 0.0001032 |
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| | 100157138 | PNP | 3.1261 | 1.25E-05 | 0.0029128 |
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| | 100312960 | ANXA4 | 2.6891 | 6.41E-07 | 0.00028767 |
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| | 100512564 | FAM117B | 2.2074 | 2.75E-05 | 0.0058324 |
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| 110259210 | MUC5AC | 2.6304 | 1.27E-04 | 0.01728 |
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| | 110259705 | TH | -6.4225 | 1.33E-04 | 0.017685 |
| | 110261001 | LOC110261001 | -6.4452 | 3.15E-14 | 1.94E-10 |
| | Novel00382 | -- | -8.2742 | 1.18E-07 | 6.79E-05 |
| | Novel00425 | -- | -5.6488 | 1.42E-04 | 0.018281 |
| | Novel00482 | -- | -5.5072 | 3.21E-04 | 0.032773 |

Table S6. Gene Ontology analyses for differential expression genes.

| GO accession | Description | Term type | P value | Gene ID |
|--------------|---|--------------------|------------|--|
| GO:0008009 | chemokine activity | Molecular function | 1.21E-05 | 780409,396900,100525396,414904,100524265, 100153155 |
| GO:0042379 | chemokine receptor binding | Molecular function | 1.21E-05 | 100524265,396900,100525396,414904,780409, 100153155 |
| GO:0001664 | G-protein coupled receptor binding | Molecular function | 1.74E-05 | 100524265,100525396,396900,414904,780409, 100153155,397200 595119,110259210,100520717,100153504,399542,100157026, 100627632,414380,397687,100144591,448846,100626731, |
| GO:0055114 | oxidation-reduction process | Biological process | 0.00026513 | 100152368,100153250,397134,397013,403215,403324,403104,10051730 7,100625192,397568,100524940,100155159,397166,100738360,1005247 50,100516578,100515970,110259705 |
| GO:0005335 | serotonin:sodium symporter activity | Molecular function | 0.00040681 | 100517307, 102164898 |
| GO:0008504 | monoamine transmembrane transporter activity | Molecular function | 0.00040681 | 100517307, 102164898 |
| GO:0015222 | serotonin transmembrane transporter activity | Molecular function | 0.00040681 | 100517307, 102164898 100623590,100518544,100522244,110256043,100737113,100152428,100 126286,399542,100515339,397358,100737517,100626343,100153917,10 0515422,102164898,397013,100523389,100624487,100155871,10062801 8,397376,397691,100620627,100514568,406187,100516578,100623097,1 00125551,100514493,448846,110256150,497235,100158243,100522330, 100512737,100151780,100156419,100171400,100517307,100515970,100 519529,100516761,100624671,100156914 100623590,100518544,100522244,110256043,100737113,100152428,100 126286,399542,100515339, |
| GO:1901618 | organic hydroxy compound transmembrane transporter activity | Molecular function | 0.00040681 | 397358,100737517,100626343,100153917,100515422,102164898,39701 3,100523389,100624487,100155871,100628018,397376,397691,1006206 |
| GO:1902578 | single-organism localization | Biological process | 0.00045122 | |

| | | | | |
|------------|--|--------------------|------------|--|
| | | | | 27,100514568,406187,100516578,100623097,100125551,100514493,448846,110256150,497235,100158243,100522330,100512737,100151780,100156419,100171400,100517307,100515970,100519529,100516761,100624671,100156914 |
| | | | | 399542,100515339,100737113,110256043,100152428,100126286,100518544,100522244,100623590, 100515970,100519529,100156914,100516761,100624671,100151780,100156419,100517307,100171400,497235,100158243,100512737,100522330,110256150,100514493,448846,100620627,100514568,397376,397691,100125551,100623097,406187,100516578,100155871,100628018,102164898,397013,100624487,100523389,100737517,100626343,397358,100515422 |
| GO:0044765 | single-organism transport | Biological process | 0.00049795 | 171400,497235,100158243,100512737,100522330,110256150,100514493,448846,100620627,100514568,397376,397691,100125551,100623097,406187,100516578,100155871,100628018,102164898,397013,100624487,100523389,100737517,100626343,397358,100515422 |
| GO:0005125 | cytokine activity | Molecular function | 0.0006886 | 414904,396900,100525396,100524265,780409, 100153155399542,100157026,595119,110259210,100153504,100520717,100157319,403104,100625192,397568,100738360,100155159,397166,100524940,100516578,100524750,100625807,110259705,100515970,414380,100627632,448846,397687,100626731,100152368,397134,100153250,403324,100625897,403215399542,100623590,100152428,100516578,100623097,100125551,100156914,397376,100519529,100620627,100171400,100628018,100155871,100512737,100522330,100624487,100523389,100158243,497235,100515422,397358,100626343,100737517 |
| GO:0016491 | oxidoreductase activity | Molecular function | 0.00085566 | 0516578,100524750,100625807,110259705,100515970,414380,100627632,448846,397687,100626731,100152368,397134,100153250,403324,100625897,403215399542,100623590,100152428,100516578,100623097,100125551,100156914,397376,100519529,100620627,100171400,100628018,100155871,100512737,100522330,100624487,100523389,100158243,497235,100515422,397358,100626343,100737517 |
| GO:0055085 | transmembrane transport | Biological process | 0.0015613 | 397645,100156489,100153504,100521587,100233171,106506279,100514493,100516363,100294675 |
| GO:0016746 | transferase activity, transferring acyl groups | Molecular function | 0.0017606 | |

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|------------|--|--------------------|-----------|---|
| GO:0020037 | heme binding | Molecular function | 0.0020672 | 403324,403215,100519529,100524750,100524940,397568,397687,403104 |
| GO:0046906 | tetrapyrrole binding | Molecular function | 0.0028868 | 100524940,100524750,100519529,403215,403324,397687,403104,397568 |
| GO:0005126 | cytokine receptor binding | Molecular function | 0.0028969 | 100524265,414904,396900,100525396,780409 2 100153155,100156914 |
| GO:0003906 | DNA-(apurinic or apyrimidinic site) lyase activity | Molecular function | 0.004691 | 100516761,100155341 |
| GO:0005215 | transporter activity | Molecular function | 0.004932 | 100518544,100522244,399542,396764,100152428,100623590,497235,100192320,100522330,100512737,110256150,100519529,100516761,100624671,100151780,100171400,100517307,100233171,102164898,397013,100144620,100624487,100523389,397358,100737517,100626343,397376,100620627,100514568,100516578,100623097,100125551,100628018 |
| GO:0008519 | ammonium transmembrane transporter activity | Molecular function | 0.0067175 | 102164898,100517307 |
| GO:0019050 | suppression by virus of host apoptotic process | Biological process | 0.0068383 | 100624487,100513308 |
| GO:0033668 | negative regulation by symbiont of host apoptotic process | Biological process | 0.0068383 | 100624487,100513308 |
| GO:0052041 | negative regulation by symbiont of host programmed cell death | Biological process | 0.0068383 | 100624487,100513308 |
| GO:0052490 | negative regulation by organism of programmed cell death in other organism involved in symbiotic interaction | Biological process | 0.0068383 | 100624487,100513308 |
| GO:0019054 | modulation by virus of host process | Biological process | 0.0076563 | 110260940,100513308,100624487 |
| GO:0044068 | modulation by symbiont of host cellular process | Biological process | 0.0076563 | 100513308,110260940,100624487 |
| GO:0016705 | oxidoreductase activity, acting on paired donors, with incorporation or reduction of molecular oxygen | Molecular function | 0.0078364 | 403104,397687,100524750,100524940,403324,403215,110259705 |

| | | | | |
|------------|--|--------------------|-----------|--|
| GO:0006858 | extracellular transport | Biological process | 0.0082705 | 100515339,100126286 |
| GO:0016855 | racemase and epimerase activity, acting on amino acids and derivatives | Molecular function | 0.0084302 | 110259210, 448846 |
| GO:0036361 | racemase activity, acting on amino acids and derivatives | Molecular function | 0.0084302 | 110259210, 448846 |
| GO:0003824 | catalytic activity | Molecular function | 0.00885 | 100156922,100511370,100522112,100156489,100737113,100135678,100152428,100622812,100523844,397645,100625277,100511161,100623590,100520717,100153504,110259210,595119,733625,494561,399542,100157844,100515798,100126286,100522261,100510974,100738704,100521587,100157138,100157026,100524951,100521889,100622336,396645,100621352,100516309,100519529,100156914,100155159,100519179,100514743,100625192,100233171,100628009,110256050,100519115,106509607,100515955,102161066,100514726,100523209,100515143,100523325,100141405,106506279,448846,100514493,397691,397166,100516578,100625807,100524750,100156756,100157319,397373,100516363,100154506,403324,100625897,100515460,100152247,100294675,100519488,100626343,414380,397687,100515970,100519006,100516761,100151780,397568,100156419,404698,403215,106505256,100153250,397134,100627912,100516107,100626731,100623751,100627632,100151790,110259705,100514568,110260714,100738360,100524940,100144410,100157065,403104,100511895,397013,100152368,100515408,100155341 |
| GO:0019988 | charged-tRNA amino acid modification | Biological process | 0.0093132 | 100622812, 100519006 |
| GO:0043399 | tRNA A64-2'-O-ribosylphosphate transferase activity | Molecular function | 0.0093132 | 100622812, 100519006 |

Table S7. Pathway analyses for differentially expressed genes.

| Term | Database | ID | P-Value | Gene ID |
|---|--------------|----------|-------------|--|
| Linoleic acid metabolism | KEGG PATHWAY | ssc00591 | 0.000278519 | 100524940 403324 100511161 100524750 403215 |
| Mineral absorption | KEGG PATHWAY | ssc04978 | 0.00086121 | 100144591 396764 100514493 100171400 100737517 |
| Galactose metabolism | KEGG PATHWAY | ssc00052 | 0.001567163 | 100625807 494561 100522261 100625897 |
| Retinol metabolism | KEGG PATHWAY | ssc00830 | 0.002408319 | 100192320 403324 100157319 403104 403215 |
| Metabolic pathways | KEGG PATHWAY | ssc01100 | 0.002837742 | 100514726 768107 100294675 100151790 100522261 100625277 100628009 404698 403324 100511161 100625807 100157065 100522112 110259705 397645 100126844 494561 100524750 100625897 403104 100156922 100522516 100233171 100157138 100523844 100192320 403215 100524940 100155893 100512452 397677 397134 |
| Serotonergic synapse | KEGG PATHWAY | ssc04726 | 0.002904062 | 403215 100524940 110259705 397687 100517307 100623476 100524750 |
| Fat digestion and absorption | KEGG PATHWAY | ssc04975 | 0.002986019 | 100294675 100511161 397018 397691 |
| Arachidonic acid metabolism | KEGG PATHWAY | ssc00590 | 0.004192787 | 100524940 100511161 100524750 403104 403215 |
| Aldosterone-regulated sodium reabsorption | KEGG PATHWAY | ssc04960 | 0.005527373 | 100512686 100514493 733625 100522244 |
| Carbohydrate digestion and absorption | KEGG PATHWAY | ssc04973 | 0.005979542 | 100625807 494561 100514493 100625897 |
| Vitamin digestion and absorption | KEGG PATHWAY | ssc04977 | 0.006996254 | 397677 397018 397691 |
| Chemokine signaling pathway | KEGG PATHWAY | ssc04062 | 0.008410048 | 100524265 414904 780409 396900 100153155 100525396 110256043 100622126 |
| Asthma | KEGG PATHWAY | ssc05310 | 0.00869264 | 110255503 100152827 397166 |
| Amino sugar and nucleotide sugar metabolism | KEGG PATHWAY | ssc00520 | 0.009843896 | 494561 396934 100151790 100522261 |

Table S8. The full set of significant motif occurrences.

| Gene clusters | Gene ID | Symbol | TF | Strand | Start | End | p-value | q-value | Matched Sequence |
|---------------|-----------|--------------|-------|--------|-------|------|----------|---------|------------------|
| Cluster 3 | 100521889 | ADGRE1 | IRF8 | - | 852 | 865 | 7.20E-07 | 0.0038 | CTGAAACTGAAACA |
| | 100521889 | ADGRE1 | IRF8 | - | 858 | 871 | 1.79E-05 | 0.0477 | AAAAAACTGAAACT |
| | 100510974 | COL28A1 | IRF8 | - | 1979 | 1992 | 2.10E-06 | 0.0106 | CTGAAAGTGAAACA |
| | 100524951 | ACOD1 | IRF8 | + | 1733 | 1746 | 7.71E-06 | 0.041 | CCAAAACCTGAAAGC |
| | 100145895 | ISG15 | IRF8 | + | 2070 | 2083 | 5.91E-07 | 0.00317 | AGGAAACCGAAACT |
| Cluster 5 | 100145895 | ISG15 | IRF8 | + | 1836 | 1849 | 5.94E-06 | 0.0159 | TGGAAAGTGAAAGT |
| | 100145895 | ISG15 | IRF8 | - | 2090 | 2103 | 1.53E-05 | 0.0269 | CCGAAATCGAAATC |
| | 100145895 | ISG15 | IRF8 | + | 2076 | 2089 | 2.00E-05 | 0.0269 | CCGAAACTGAAGCC |
| | 110256043 | LOC110256043 | IRF8 | + | 58 | 71 | 1.49E-06 | 0.00798 | AAGAAACCGAAAGC |
| | 100512686 | IRS1 | IRF8 | + | 692 | 705 | 4.94E-06 | 0.0206 | CTGAAACTGAAATC |
| Cluster 4 | 595111 | KLF4 | IRF8 | + | 928 | 941 | 9.12E-06 | 0.049 | TAGAAAGCGATACC |
| | 397013 | PPARGC1A | IRF8 | - | 51 | 64 | 1.39E-06 | 0.00747 | AGGAAACTGAAACT |
| | 110256586 | LOC110256586 | IRF8 | + | 934 | 947 | 2.50E-06 | 0.0127 | CTGAAACCGAAATC |
| | 100626731 | LOC100626731 | IRF8 | + | 996 | 1009 | 2.70E-06 | 0.0145 | TTGAAACCGAAATC |
| | 100519539 | KLHL3 | IRF8 | - | 2454 | 2467 | 6.25E-06 | 0.0312 | ATGAAACTGATACA |
| Cluster 5 | 100517307 | SLC6A4 | IRF8 | + | 2282 | 2295 | 8.60E-06 | 0.0462 | GAGAAAGCGATACT |
| | 110260714 | ETFBKMT | IRF8 | + | 12 | 25 | 8.73E-06 | 0.0466 | ATAAAAGCGAAACT |
| | 100625897 | LOC100625897 | IRF8 | + | 1460 | 1473 | 9.00E-06 | 0.0466 | CAGATACTGAAACC |
| | 100520717 | YPEL4 | NFIL3 | + | 1684 | 1694 | 2.25E-06 | 0.0121 | TTATGTAATGT |
| | 397166 | MS4A2 | NFIL3 | + | 710 | 720 | 2.25E-06 | 0.011 | TTATGTAATGT |
| Cluster 4 | 448846 | EHHADH | NFIL3 | - | 1628 | 1638 | 3.91E-06 | 0.021 | TTATGTAATAT |
| | 100233171 | AGPAT3 | NFIL3 | + | 513 | 523 | 3.91E-06 | 0.021 | TTATGTAATAT |
| | 100156419 | HOMER2 | NFIL3 | - | 2291 | 2301 | 4.66E-06 | 0.0251 | TTACGTAACCT |
| Cluster 6 | 100522021 | LRRC66 | NFIL3 | + | 2170 | 2180 | 5.42E-06 | 0.0268 | TTATGTAATCT |
| | 100625192 | GCKR | NFIL3 | + | 2358 | 2368 | 4.36E-06 | 0.0234 | TTATGTAACCT |
| | 100518950 | FGF19 | KLF4 | + | 825 | 835 | 4.21E-06 | 0.019 | CCACACCCAGG |
| Cluster 2 | 399542 | SLC5A5 | KLF4 | + | 113 | 123 | 4.52E-06 | 0.022 | CCACACCCACG |
| | 110260202 | ARC | KLF4 | + | 950 | 960 | 7.62E-06 | 0.0308 | CCACACCCATT |
| | 100518950 | FGF19 | KLF4 | - | 1924 | 1934 | 1.28E-05 | 0.028 | ACACACCCACT |
| Cluster 3 | 110260202 | ARC | KLF4 | + | 1375 | 1385 | 1.35E-05 | 0.0308 | ACACACCCAGA |
| | 100623615 | LY6D | KLF4 | + | 1290 | 1300 | 2.76E-07 | 0.00128 | CCACACCCCTCC |
| | 100521889 | ADGRE1 | KLF4 | + | 2240 | 2250 | 8.89E-07 | 0.00474 | CCACACCCCTCT |

| | | | | | | | | | |
|-----------|-----------|--------------|------|---|------|------|----------|----------|-------------|
| | 106505337 | LOC106505337 | KLF4 | + | 1380 | 1390 | 1.90E-06 | 0.00987 | CCACACCCTTG |
| | 733625 | SFN | KLF4 | - | 2046 | 2056 | 2.27E-06 | 0.0114 | CCACACCCTTT |
| | 100623615 | LY6D | KLF4 | - | 2193 | 2203 | 8.44E-06 | 0.0195 | CCACGCCCTCC |
| | 100523389 | SLC37A2 | KLF4 | + | 398 | 408 | 1.38E-07 | 0.00071 | CCACACCCTGC |
| | 397166 | MS4A2 | KLF4 | + | 2270 | 2280 | 1.38E-07 | 0.000743 | CCACACCCTGC |
| | 100738360 | PDIA2 | KLF4 | - | 83 | 93 | 2.76E-07 | 0.00124 | CCACACCCTCC |
| | 100514493 | ATP1B3 | KLF4 | + | 58 | 68 | 4.14E-07 | 0.00213 | CCACACCCTGG |
| | 396934 | RENBP | KLF4 | + | 1029 | 1039 | 7.21E-07 | 0.00324 | CCACACCCTCG |
| | 106509607 | LOC106509607 | KLF4 | + | 2348 | 2358 | 7.21E-07 | 0.00361 | CCACACCCTCG |
| | 100516578 | CCDC80 | KLF4 | - | 892 | 902 | 8.89E-07 | 0.00478 | CCACACCCTCT |
| | 100513308 | TM4SF5 | KLF4 | - | 1005 | 1015 | 8.89E-07 | 0.00466 | CCACACCCTCT |
| | 100738360 | PDIA2 | KLF4 | + | 798 | 808 | 2.07E-06 | 0.00464 | ACACACCCTCC |
| | 100294675 | DGAT2 | KLF4 | + | 414 | 424 | 2.41E-06 | 0.0115 | CCACACCCAGC |
| | 100155159 | PYROXD2 | KLF4 | + | 717 | 727 | 2.55E-06 | 0.0121 | CCACACCCACC |
| | 102159476 | LOC102159476 | KLF4 | + | 2686 | 2696 | 2.55E-06 | 0.0131 | CCACACCCACC |
| | 110257275 | LOC110257275 | KLF4 | + | 2053 | 2063 | 3.13E-06 | 0.0167 | CCACACCCTAT |
| | 100737517 | SLC40A1 | KLF4 | - | 1055 | 1065 | 3.33E-06 | 0.0168 | CCACACCCTAA |
| | 100514218 | GJC2 | KLF4 | - | 569 | 579 | 3.50E-06 | 0.0146 | ACACACCCTGG |
| Cluster 4 | 100738133 | LOC100738133 | KLF4 | + | 1576 | 1586 | 3.87E-06 | 0.0205 | ACACACCCTCG |
| | 100154506 | ENTPD5 | KLF4 | - | 562 | 572 | 4.21E-06 | 0.0212 | CCACACCCAGG |
| | 397687 | CYP2D25 | KLF4 | - | 1604 | 1614 | 4.21E-06 | 0.0206 | ACACACCCTCT |
| | 100158243 | SLC16A3 | KLF4 | + | 423 | 433 | 4.21E-06 | 0.0194 | CCACACCCAGG |
| | 397013 | PPARGC1A | KLF4 | - | 10 | 20 | 4.52E-06 | 0.0238 | CCACACCCAGT |
| | 397018 | SCARB1 | KLF4 | - | 512 | 522 | 4.52E-06 | 0.0221 | CCACACCCACG |
| | 100627632 | ZKSCAN7 | KLF4 | - | 840 | 850 | 4.52E-06 | 0.0238 | CCACACCCACG |
| | 102161066 | LOC102161066 | KLF4 | + | 894 | 904 | 4.52E-06 | 0.0217 | CCACACCCACG |
| | 448846 | EHHADH | KLF4 | - | 1127 | 1137 | 5.64E-06 | 0.03 | CCACACCCAGA |
| | 100515955 | PTPRU | KLF4 | - | 1533 | 1543 | 5.81E-06 | 0.03 | CCACACCCACA |
| | 100233171 | AGPAT3 | KLF4 | + | 327 | 337 | 5.81E-06 | 0.027 | CCACACCCACA |
| | 100151843 | SNTA1 | KLF4 | + | 2169 | 2179 | 5.81E-06 | 0.0288 | CCACACCCACA |
| | 100514218 | GJC2 | KLF4 | - | 1122 | 1132 | 5.95E-06 | 0.0146 | GCACACCCTGC |
| | 100516578 | CCDC80 | KLF4 | + | 2356 | 2366 | 6.08E-06 | 0.0164 | GCACACCCTCC |
| | 100626343 | ABCD3 | KLF4 | + | 983 | 993 | 6.29E-06 | 0.0326 | ACACACCCTAC |
| | 110262031 | LOC110262031 | KLF4 | + | 1548 | 1558 | 6.46E-06 | 0.0301 | CCACACCCAAC |

| | | | | | | | | | |
|-----------|--------------|--------|------|------|------|----------|----------|-------------|-------------|
| 100153250 | GPD1 | KLF4 | - | 513 | 523 | 7.25E-06 | 0.0358 | CCACACCCATG | |
| 100521912 | WNT11 | KLF4 | - | 943 | 953 | 7.25E-06 | 0.0343 | CCACACCCATG | |
| 100623809 | TMC5 | KLF4 | - | 1366 | 1376 | 7.25E-06 | 0.0379 | CCACACCCATG | |
| 100156914 | SLC24A4 | KLF4 | - | 1336 | 1346 | 7.42E-06 | 0.0371 | ACACACCCACC | |
| 100512737 | SLC13A2 | KLF4 | + | 723 | 733 | 7.42E-06 | 0.036 | ACACACCCACC | |
| 396934 | RENBP | KLF4 | + | 1316 | 1326 | 8.44E-06 | 0.0176 | CCACGCCCTCC | |
| 100519179 | USP51 | KLF4 | - | 1692 | 1702 | 8.91E-06 | 0.0479 | GCACACCCTCT | |
| 100144591 | CYBRD1 | KLF4 | + | 575 | 585 | 9.08E-06 | 0.0347 | TCACACCCTGC | |
| 102161066 | LOC102161066 | KLF4 | + | 828 | 838 | 1.13E-05 | 0.0217 | CAACACCCTGC | |
| 396934 | RENBP | KLF4 | - | 2283 | 2293 | 1.18E-05 | 0.0176 | CAACACCCTCC | |
| 100141405 | CTSZ | KLF4 | + | 578 | 588 | 1.22E-05 | 0.0432 | ACACACCCAGG | |
| 100144591 | CYBRD1 | KLF4 | - | 487 | 497 | 1.35E-05 | 0.0347 | ACACACCCAGA | |
| 397687 | CYP2D25 | KLF4 | - | 1653 | 1663 | 1.41E-05 | 0.0345 | ACACACCCACA | |
| 100738360 | PDIA2 | KLF4 | + | 2020 | 2030 | 1.42E-05 | 0.0213 | CCACGCCCTCT | |
| 100737517 | SLC40A1 | KLF4 | - | 2068 | 2078 | 1.46E-05 | 0.0366 | CCACGCCCTTC | |
| 397013 | PPARGC1A | KLF4 | + | 2496 | 2506 | 1.59E-05 | 0.0418 | GCACACCCAGC | |
| 100141405 | CTSZ | KLF4 | - | 512 | 522 | 1.93E-05 | 0.0432 | CCACACCCCGT | |
| 100512737 | SLC13A2 | KLF4 | + | 1194 | 1204 | 2.10E-05 | 0.036 | CCACACCCCA | |
| 100512737 | SLC13A2 | KLF4 | + | 1547 | 1557 | 2.19E-05 | 0.036 | ACACACCCATG | |
| 100515339 | KRT19 | KLF4 | + | 183 | 193 | 1.38E-07 | 0.00068 | CCACACCCTGC | |
| 100625050 | EPSTI1 | KLF4 | + | 138 | 148 | 4.14E-07 | 0.0021 | CCACACCCTGG | |
| 100511161 | PLA2G3 | KLF4 | + | 2260 | 2270 | 8.89E-07 | 0.00445 | CCACACCCTCT | |
| 100515339 | KRT19 | KLF4 | - | 2138 | 2148 | 1.73E-06 | 0.00426 | ACACACCCTGC | |
| 100126286 | KRT18 | KLF4 | - | 1484 | 1494 | 1.90E-06 | 0.00953 | CCACACCCTTG | |
| 733608 | S100A6 | KLF4 | - | 2439 | 2449 | 2.07E-06 | 0.005577 | ACACACCCTCC | |
| 494561 | HK2 | KLF4 | + | 1672 | 1682 | 2.07E-06 | 0.0104 | ACACACCCTCC | |
| Cluster 5 | 733608 | S100A6 | KLF4 | - | 438 | 448 | 2.41E-06 | 0.00577 | CCACACCCAGC |
| 100156455 | TC2N | KLF4 | - | 2501 | 2511 | 2.41E-06 | 0.0125 | CCACACCCAGC | |
| 100622336 | CSF3R | KLF4 | - | 2142 | 2152 | 3.50E-06 | 0.0178 | ACACACCCTGG | |
| 100158162 | ATP10A | KLF4 | + | 223 | 233 | 4.21E-06 | 0.0222 | CCACACCCAGG | |
| 733608 | S100A6 | KLF4 | + | 734 | 744 | 4.73E-06 | 0.00754 | ACACACCCTTC | |
| 100512686 | IRS1 | KLF4 | - | 233 | 243 | 5.10E-06 | 0.0235 | CCACACCCACT | |
| 100623590 | PKP1 | KLF4 | - | 1005 | 1015 | 5.95E-06 | 0.0238 | GCACACCCTGC | |
| 396764 | SLC11A1 | KLF4 | + | 975 | 985 | 7.25E-06 | 0.0306 | CCACACCCATG | |

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|-----------|-----------|--------------|------|---|------|------|----------|---------|-------------|
| | 494561 | HK2 | KLF4 | + | 1213 | 1223 | 7.62E-06 | 0.0192 | CCACACCCATT |
| | 100153504 | F13A1 | KLF4 | - | 1931 | 1941 | 7.98E-06 | 0.0391 | CCACGCCCTGC |
| | 100515902 | LOC100515902 | KLF4 | - | 1941 | 1951 | 7.98E-06 | 0.0419 | CCACGCCCTGC |
| | 100511161 | PLA2G3 | KLF4 | - | 967 | 977 | 9.25E-06 | 0.0231 | GCACACCCTTC |
| | 100623590 | PKP1 | KLF4 | - | 820 | 830 | 9.59E-06 | 0.0238 | TCACACCCTCC |
| | 110260216 | LOC110260216 | KLF4 | - | 193 | 203 | 1.01E-05 | 0.0419 | CGACACCCTGC |
| | 396764 | SLC11A1 | KLF4 | - | 809 | 819 | 1.19E-05 | 0.0306 | CCACACCCCCC |
| | 110259210 | MUC5AC | KLF4 | + | 2039 | 2049 | 1.32E-05 | 0.0423 | ACACACCCATC |
| | 110260216 | LOC110260216 | KLF4 | + | 52 | 62 | 1.59E-05 | 0.0419 | TCACACCCTCT |
| | 100625050 | EPSTI1 | KLF4 | + | 2087 | 2097 | 1.89E-05 | 0.047 | CCACACCCCGG |
| | 110259210 | MUC5AC | KLF4 | - | 1643 | 1653 | 1.89E-05 | 0.0423 | CCACACCCCGG |
| | 406187 | APOC3 | KLF4 | + | 1318 | 1328 | 1.23E-06 | 0.00619 | CCACACCCTGA |
| | 100192320 | BCO1 | KLF4 | + | 1542 | 1552 | 1.23E-06 | 0.00643 | CCACACCCTGA |
| | 403104 | CYP2B22 | KLF4 | - | 2417 | 2427 | 2.07E-06 | 0.0108 | ACACACCCTCC |
| Cluster 6 | 100171400 | TRPV6 | KLF4 | + | 456 | 466 | 5.10E-06 | 0.0255 | CCACACCCACT |
| | 403104 | CYP2B22 | KLF4 | - | 1640 | 1650 | 7.08E-06 | 0.0185 | ACACACCCAGC |
| | 100519006 | DUSP9 | KLF4 | + | 2568 | 2578 | 8.91E-06 | 0.0396 | GCACACCCTCT |
| | 110259705 | TH | KLF4 | + | 357 | 367 | 1.09E-05 | 0.0486 | CCACACCCAAT |

Table S9. List of gene associated with H3K4me3 enrichment.

| Chromosome | Peak Start | Peak End | Strand | Log 2 fold enrichment of H3K4me3 | Distance | Closest TSS ID | Symbol | Gene Start | Gene End |
|-------------|------------|-----------|--------|----------------------------------|----------|----------------|---------|------------|-----------|
| NC_010456.5 | 98908619 | 98908850 | + | -1.44 | 149 | 100155074 | AICF | 98908585 | 98990362 |
| NC_010456.5 | 98909294 | 98909665 | + | 2.05 | 894 | 100155074 | AICF | 98908585 | 98990362 |
| NC_010456.5 | 98908272 | 98908561 | + | -0.76 | -168 | 100155074 | AICF | 98908585 | 98990362 |
| NC_010451.4 | 12278683 | 12278971 | + | 0.40 | 300 | 100737883 | AAMDC | 12278527 | 12305217 |
| NC_010450.4 | 55644792 | 55645073 | - | 0.05 | 588 | 100627475 | AASDH | 55604394 | 55645521 |
| NC_010444.4 | 77373995 | 77374283 | - | 1.46 | 932 | 100623892 | ABCA7 | 77357161 | 77375071 |
| NC_010456.5 | 60305062 | 60305350 | + | 0.78 | -4687 | 100153026 | ABCB10 | 60309893 | 60346283 |
| NC_010448.4 | 36464866 | 36465097 | + | -0.95 | 815 | 110260969 | ABCC11 | 36464166 | 36546989 |
| NC_010445.4 | 112000220 | 112000526 | - | 0.78 | 1742 | 100525041 | ABHD1 | 111996138 | 112002115 |
| NC_010455.5 | 147775286 | 147775599 | - | -0.05 | 2628 | 100623142 | ABHD10 | 147760742 | 147778071 |
| NC_010445.4 | 11004009 | 11004297 | - | 2.46 | -364 | 100525863 | ABHD11 | 11000993 | 11003789 |
| NC_010443.5 | 225191222 | 225191453 | - | 0.46 | 1991 | 100155547 | ABHD17B | 225149922 | 225193329 |
| NC_010449.5 | 49541720 | 49542008 | + | 1.78 | 1166 | 100522555 | ABHD17C | 49540698 | 49599323 |
| NC_010455.5 | 27006966 | 27007306 | + | -1.27 | 805 | 497624 | ABHD5 | 27006331 | 27053760 |
| NC_010443.5 | 270762880 | 270763111 | + | 0.20 | 1166 | 100524544 | ABL1 | 270761829 | 270906708 |
| NC_010455.5 | 23019953 | 23020312 | - | 2.73 | 5 | 100515577 | ACAA1 | 22964844 | 23020138 |
| NC_010451.4 | 60807769 | 60808057 | + | 0.95 | 452 | 100627341 | ACAD8 | 60807461 | 60828379 |
| NC_010452.4 | 48921782 | 48922212 | - | 0.73 | -667 | 100514676 | ACBD5 | 48883116 | 48921330 |
| NC_010451.4 | 11004967 | 11005255 | + | 1.78 | 407 | 100524160 | ACER3 | 11004704 | 11167386 |
| NC_010455.5 | 73774435 | 73774671 | + | 0.37 | 691 | 100037292 | ACKR4 | 73773862 | 73777770 |
| NC_010448.4 | 55539630 | 55539958 | + | 1.68 | 4388 | 100620403 | ACPT | 55535406 | 55541929 |
| NC_010447.5 | 64038419 | 64038707 | + | 0.61 | 1753 | 397317 | ACRBP | 64036810 | 64047846 |
| NC_010454.4 | 26714801 | 26715089 | + | 3.78 | 1155 | 100512859 | ACSF2 | 26713790 | 26752352 |
| NC_010457.5 | 124742941 | 124743331 | + | -1.29 | 1147 | 100233169 | ACSL3 | 124741989 | 124816955 |
| NC_010456.5 | 122776624 | 122776912 | + | 1.73 | -376 | 100157521 | ACSL5 | 122777144 | 122828054 |
| NC_010445.4 | 4088277 | 4088593 | - | 2.46 | 1948 | 414396 | ACTB | 4084275 | 4090383 |
| NC_010458.4 | 36471929 | 36472217 | - | 3.20 | -297 | 100522578 | ACTBL2 | 36469062 | 36471776 |
| NC_010443.5 | 136279644 | 136279875 | + | -0.71 | -1359 | 100152267 | ACTC1 | 136281119 | 136286551 |
| NC_010455.5 | 117597564 | 117597852 | + | 2.95 | -707 | 100523570 | ACTL6A | 117598415 | 117627311 |
| NC_010456.5 | 113498694 | 113499145 | - | 1.27 | -126 | 100156619 | ACTR1A | 113480196 | 113498793 |
| NC_010443.5 | 113288749 | 113289037 | + | 4.05 | -587 | 397345 | ADAM10 | 113289480 | 113407940 |

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|-------------|-----------|-----------|---|-------|-------|-----------|---------|-----------|-----------|
| NC_010454.4 | 18597789 | 18598077 | - | 1.46 | -519 | 100525073 | ADAM11 | 18575727 | 18597414 |
| NC_010457.5 | 47210199 | 47210492 | + | -0.71 | 2618 | 397006 | ADAM2 | 47207727 | 47278315 |
| NC_010456.5 | 8485417 | 8485648 | + | -1.35 | 1141 | 100157954 | ADAM7 | 8484391 | 8554879 |
| NC_010450.4 | 1628259 | 1628490 | + | -2.71 | 1228 | 100517353 | ADD1 | 1627146 | 1710653 |
| NC_010450.4 | 121267435 | 121267723 | + | 1.14 | 785 | 100513555 | ADH5 | 121266794 | 121282313 |
| NC_010456.5 | 10734110 | 10734645 | - | 2.46 | -999 | 100144471 | ADRA1A | 10623391 | 10733378 |
| NC_010447.5 | 53688227 | 53688510 | - | -0.22 | 3118 | 100522805 | AEBP2 | 53617362 | 53691487 |
| NC_010443.5 | 1696237 | 1696539 | - | 3.05 | 2086 | 100514741 | AFDN | 1569652 | 1698474 |
| NC_010450.4 | 69709853 | 69710226 | + | 1.88 | 3216 | 100628071 | AFM | 69706823 | 69728268 |
| NC_010457.5 | 39713502 | 39713877 | - | 2.24 | 876 | 100152203 | AGA | 39702900 | 39714566 |
| NC_010444.4 | 14935372 | 14935603 | + | -1.44 | 2299 | 100514151 | AGBL2 | 14933188 | 14971416 |
| NC_010457.5 | 128898557 | 128898986 | + | 1.10 | -34 | 100514990 | AGFG1 | 128898806 | 128980782 |
| NC_010444.4 | 85891238 | 85891469 | + | -0.12 | 930 | 100520064 | AGGF1 | 85890423 | 85941314 |
| NC_010448.4 | 92082836 | 92083175 | + | -1.12 | 1241 | 100499509 | AGO3 | 92081764 | 92225811 |
| NC_010448.4 | 91975811 | 91976099 | + | 1.46 | 4632 | 100499507 | AGO4 | 91971323 | 92013030 |
| NC_010457.5 | 37801239 | 37801642 | + | 2.68 | 319 | 100233172 | AGPAT5 | 37801121 | 37853472 |
| NC_010446.5 | 110131636 | 110131924 | - | 2.20 | 1046 | 100512899 | AHCYL1 | 110092983 | 110132826 |
| NC_010449.5 | 100513583 | 100513992 | + | 1.31 | 3191 | 100626607 | AHSA1 | 100510596 | 100520353 |
| NC_010449.5 | 100511256 | 100511487 | + | -1.12 | 775 | 100626607 | AHSA1 | 100510596 | 100520353 |
| NC_010452.4 | 11468003 | 11468343 | - | 2.78 | -1794 | 100518326 | AIDA | 11430758 | 11466379 |
| NC_010444.4 | 5049093 | 5049402 | - | 1.61 | -362 | 100511065 | AIP | 5042883 | 5048885 |
| NC_010448.4 | 89316016 | 89316304 | - | -1.44 | 1880 | 100620859 | AK2 | 89295166 | 89318040 |
| NC_010451.4 | 71895356 | 71895690 | + | 2.05 | -103 | 396908 | AKAP9 | 71895626 | 72054898 |
| NC_010451.4 | 71896205 | 71896581 | + | 0.73 | 767 | 396908 | AKAP9 | 71895626 | 72054898 |
| NC_010443.5 | 56070390 | 56070621 | - | -0.93 | -323 | 100519991 | AKIRIN2 | 56047188 | 56070182 |
| NC_010455.5 | 34334627 | 34335411 | + | 3.20 | 1756 | 100307125 | ALAS1 | 34333263 | 34347435 |
| NC_010461.5 | 47892305 | 47892593 | - | 1.46 | 3592 | 100518817 | ALAS2 | 47871519 | 47896041 |
| NC_010451.4 | 39620051 | 39620295 | - | 0.56 | -274 | 100519965 | ALG9 | 39531280 | 39619899 |
| NC_010450.4 | 110367640 | 110368101 | - | 1.22 | 130 | 100514116 | ALPK1 | 110241220 | 110368001 |
| NC_010443.5 | 76841420 | 76841757 | + | -1.27 | 2140 | 100155925 | AMD1 | 76839448 | 76863745 |
| NC_010448.4 | 29362288 | 29362541 | + | 0.46 | -4397 | 100516197 | AMFR | 29366812 | 29417800 |
| NC_010461.5 | 92649013 | 92649301 | - | 3.46 | -2761 | 100158213 | AMOT | 92581995 | 92646396 |
| NC_010454.4 | 11894721 | 11895009 | - | 1.20 | 616 | 100626953 | AMZ2 | 11885682 | 11895481 |
| NC_010456.5 | 75082438 | 75082753 | + | 2.88 | -130 | 100155019 | ANAPC16 | 75082726 | 75093078 |

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|----------------|-----------|-----------|---|-------|-------|-----------|----------|-----------|-----------|
| NC_010456.5 | 31259943 | 31260700 | + | 1.56 | 594 | 100152087 | ANAPC5 | 31259727 | 31301153 |
| NC_010456.5 | 31790304 | 31790590 | - | -1.12 | -697 | 100155743 | ANAPC7 | 31744729 | 31789750 |
| NC_010451.4 | 32622746 | 32622982 | - | -1.12 | 4473 | 100519911 | ANGPTL5 | 32610041 | 32627337 |
| NC_010448.4 | 98813336 | 98813813 | - | 0.00 | 1117 | 100519490 | ANKRD12 | 98697220 | 98814692 |
| NC_010456.5 | 100771466 | 100771754 | - | 1.88 | 802 | 100152630 | ANKRD22 | 100747955 | 100772412 |
| NC_010447.5 | 17249843 | 17250131 | + | 1.46 | 2647 | 100522737 | ANKRD33 | 17247340 | 17251099 |
| NW_018084979.1 | 1265398 | 1265698 | - | 2.20 | -1318 | 100739812 | ANKRD9 | 1257830 | 1264230 |
| NC_010445.4 | 24849244 | 24849547 | - | -1.12 | 3420 | 100525512 | ANKS4B | 24836446 | 24852816 |
| NC_010456.5 | 21315891 | 21316181 | - | 2.20 | -776 | 100627945 | ANXA10 | 21249020 | 21315260 |
| NC_010450.4 | 102389396 | 102389684 | + | 1.88 | 1707 | 100521982 | ANXA5 | 102387833 | 102420868 |
| NC_010448.4 | 14807290 | 14807748 | - | 2.20 | 2302 | 100514713 | AP1G1 | 14719949 | 14809821 |
| NC_010444.4 | 87141087 | 87141418 | - | 0.07 | 1469 | 100049670 | AP3B1 | 86875922 | 87142722 |
| NC_010450.4 | 32303886 | 32304174 | - | 1.78 | -1793 | 100514856 | APBB2 | 31921587 | 32302237 |
| NC_010444.4 | 18993773 | 18994128 | - | 3.05 | 284 | 100522006 | API5 | 18962262 | 18994235 |
| NC_010447.5 | 62816032 | 62816320 | - | 0.46 | 4353 | 100512412 | APOBEC1 | 62811819 | 62820529 |
| NC_010454.4 | 37614402 | 37614690 | + | 2.05 | 776 | 100525889 | APPBP2 | 37613770 | 37678710 |
| NC_010452.4 | 33470310 | 33470598 | + | 0.88 | 365 | 387596 | APTX | 33470089 | 33495584 |
| NC_010451.4 | 12067697 | 12067928 | + | -0.71 | 2262 | 100127151 | AQP11 | 12065550 | 12076339 |
| NC_010455.5 | 39428443 | 39428731 | - | 3.31 | 1590 | 595108 | ARF4 | 39410094 | 39430177 |
| NC_010460.4 | 20697445 | 20697747 | - | 1.20 | 1039 | 100270722 | ARF5 | 20695706 | 20698635 |
| NC_010456.5 | 89326590 | 89326821 | - | -0.44 | 4923 | 102159729 | ARHGAP22 | 89243015 | 89331629 |
| NC_010451.4 | 31721863 | 31722152 | + | 0.73 | 1421 | 100519555 | ARHGAP42 | 31720586 | 31999730 |
| NC_010449.5 | 67592850 | 67593296 | - | -0.86 | 1170 | 100520849 | ARHGAP5 | 67494237 | 67594243 |
| NC_010447.5 | 22761035 | 22761598 | - | 2.61 | -901 | 100518732 | ARHGAP9 | 22747346 | 22760415 |
| NC_010446.5 | 94054420 | 94054781 | + | 2.05 | -1843 | 100145887 | ARHGEF2 | 94056444 | 94082206 |
| NC_010446.5 | 94053878 | 94054186 | + | 3.05 | -2412 | 100145887 | ARHGEF2 | 94056444 | 94082206 |
| NC_010450.4 | 116200031 | 116200319 | - | 2.20 | -901 | 100738766 | ARHGEF38 | 116063725 | 116199274 |
| NC_010453.5 | 77428936 | 77429210 | + | -0.12 | 1721 | 100516509 | ARHGEF7 | 77427352 | 77522698 |
| NC_010447.5 | 76635054 | 76635632 | + | 1.46 | -2042 | 100625757 | ARID2 | 76637385 | 76800155 |
| NC_010447.5 | 82796898 | 82797280 | + | 2.05 | 1348 | 595113 | ARL1 | 82795741 | 82812153 |
| NC_010451.4 | 82226247 | 82226632 | + | -0.76 | 440 | 595121 | ARL4A | 82225999 | 82228951 |
| NC_010452.4 | 55700979 | 55701279 | - | -1.12 | -740 | 100627052 | ARL5B | 55675129 | 55700389 |
| NC_010452.4 | 55698655 | 55698943 | - | 1.78 | 1590 | 100627052 | ARL5B | 55675129 | 55700389 |
| NC_010445.4 | 17109349 | 17109637 | - | 2.20 | -970 | 110255213 | ARMC5 | 17100612 | 17108523 |

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|-------------|-----------|-----------|---|-------|-------|-----------|----------|-----------|-----------|
| NC_010457.5 | 120299095 | 120299569 | + | 2.20 | 2210 | 100153175 | ARPC2 | 120297122 | 120328795 |
| NC_010457.5 | 120298285 | 120298573 | + | 0.14 | 1307 | 100153175 | ARPC2 | 120297122 | 120328795 |
| NC_010444.4 | 98441802 | 98442469 | - | 1.63 | 2544 | 100520233 | ARRDC3 | 98430451 | 98444680 |
| NC_010443.5 | 67656038 | 67656326 | - | 2.20 | 898 | 100625273 | ASCC3 | 67331939 | 67657080 |
| NC_010443.5 | 67656581 | 67656920 | - | 2.29 | 329 | 100625273 | ASCC3 | 67331939 | 67657080 |
| NC_010444.4 | 66260982 | 66261270 | - | 3.46 | 9 | 100520362 | ASNA1 | 66251381 | 66261135 |
| NC_010445.4 | 42192020 | 42192251 | - | -0.12 | 766 | 100511749 | ASPN | 42165553 | 42192902 |
| NC_010456.5 | 131580110 | 131580763 | - | 1.34 | -674 | 100512816 | ATE1 | 131412628 | 131579762 |
| NC_010447.5 | 16618038 | 16618326 | + | 0.46 | -948 | 102158891 | ATF1 | 16619130 | 16681391 |
| NC_010457.5 | 81075953 | 81076261 | - | 1.05 | 441 | 100513441 | ATF2 | 80984969 | 81076548 |
| NC_010448.4 | 54942973 | 54943218 | + | -2.12 | -2285 | 100523675 | ATF5 | 54945381 | 54950142 |
| NC_010447.5 | 18837411 | 18837645 | - | -1.71 | 891 | 100518609 | ATF7 | 18726329 | 18838419 |
| NC_010444.4 | 119964955 | 119965186 | - | -1.71 | 631 | 100462745 | ATG12 | 119948443 | 119965702 |
| NC_010443.5 | 184747993 | 184748496 | - | 1.73 | -4492 | 100155666 | ATG14 | 184701020 | 184743752 |
| NC_010444.4 | 8361216 | 8361456 | + | -1.93 | -556 | 100512265 | ATL3 | 8361892 | 8408919 |
| NC_010456.5 | 71401595 | 71401883 | - | 1.88 | 740 | 100624800 | ATOH7 | 71398939 | 71402479 |
| NC_010450.4 | 37412322 | 37412669 | + | 1.56 | 4818 | 100520087 | ATP10D | 37407677 | 37531707 |
| NC_010455.5 | 120728906 | 120729194 | + | 1.20 | 1388 | 100624673 | ATP11B | 120727662 | 120873907 |
| NC_010461.5 | 114570900 | 114571131 | - | -1.35 | 4642 | 100523658 | ATP11C | 114394436 | 114575658 |
| NC_010455.5 | 82681509 | 82681758 | + | -0.44 | 1191 | 100514493 | ATP1B3 | 82680442 | 82727052 |
| NC_010451.4 | 64335858 | 64336158 | + | 2.46 | -460 | 100623420 | ATP2B4 | 64336468 | 64445669 |
| NC_010448.4 | 45057578 | 45058009 | - | 1.10 | 2 | 397552 | ATP4A | 44984015 | 45057796 |
| NC_010445.4 | 6395938 | 6396351 | - | 2.63 | 706 | 100037979 | ATP5J2 | 6389338 | 6396851 |
| NC_010443.5 | 180068746 | 180069034 | + | 2.46 | -267 | 100157404 | ATP5S | 180069157 | 180081322 |
| NC_010443.5 | 180069744 | 180070110 | + | 3.22 | 770 | 100157404 | ATP5S | 180069157 | 180081322 |
| NC_010443.5 | 255151933 | 255152245 | + | 3.78 | 180 | 100154379 | ATP6V1G1 | 255151909 | 255159299 |
| NC_010443.5 | 121700274 | 121700562 | + | 1.46 | 2656 | 100154720 | ATP8B4 | 121697762 | 121914633 |
| NC_010455.5 | 31163896 | 31164184 | + | 1.78 | 4191 | 100523399 | ATRIP | 31159849 | 31178716 |
| NC_010447.5 | 37978106 | 37978562 | + | -2.58 | -378 | 100524374 | ATXN7L3B | 37978712 | 37982432 |
| NC_010456.5 | 2542969 | 2543200 | - | -0.86 | 3244 | 100155020 | AUH | 2398456 | 2546329 |
| NC_010456.5 | 2545300 | 2545568 | - | -1.35 | 895 | 100155020 | AUH | 2398456 | 2546329 |
| NC_010448.4 | 63657156 | 63657470 | - | 3.78 | 216 | 110261341 | AURKAIP1 | 63656120 | 63657529 |
| NC_010445.4 | 13561533 | 13561846 | + | -0.12 | -3749 | 100515476 | AUTS2 | 13565439 | 14794365 |
| NC_010461.5 | 56263503 | 56264038 | + | 2.73 | 688 | 100517507 | AWAT1 | 56263082 | 56273169 |

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|-------------|-----------|-----------|---|-------|-------|-----------|----------|-----------|-----------|
| NC_010454.4 | 12342780 | 12343068 | - | 2.20 | -44 | 100739604 | AXIN2 | 12311293 | 12342880 |
| NC_010455.5 | 100815827 | 100816115 | - | 1.20 | -4622 | 397634 | B3GALNT1 | 100772892 | 100811349 |
| NC_010452.4 | 609474 | 609705 | + | -1.44 | -3874 | 100525885 | B3GALT2 | 613464 | 623587 |
| NC_010445.4 | 79687948 | 79688236 | - | 0.88 | 1586 | 100524195 | B3GNT2 | 79671393 | 79689678 |
| NC_010449.5 | 28683002 | 28683233 | - | -0.35 | -2620 | 100522554 | BAG2 | 28668587 | 28680497 |
| NC_010445.4 | 5566250 | 5566481 | - | -0.54 | 1560 | 100521439 | BAIAP2L1 | 5472305 | 5567926 |
| NC_010455.5 | 34552638 | 34552926 | - | 0.88 | 727 | 100154798 | BAP1 | 34544570 | 34553509 |
| NC_010448.4 | 54221706 | 54221994 | + | 3.20 | -491 | 396633 | BAX | 54222341 | 54228150 |
| NC_010446.5 | 105992837 | 105993136 | + | 0.33 | 428 | 100154006 | BCAS2 | 105992558 | 106003160 |
| NC_010446.5 | 106676394 | 106676770 | + | -1.00 | 3027 | 100517031 | BCL2L15 | 106673555 | 106683103 |
| NC_010451.4 | 39872065 | 39872559 | + | 1.56 | 281 | 100517547 | BCO2 | 39872031 | 39916491 |
| NC_010458.4 | 47801847 | 47802213 | + | -1.41 | 757 | 100517687 | BDP1 | 47801273 | 47909513 |
| NC_010454.4 | 20042039 | 20042327 | + | 2.46 | 269 | 733576 | BECN1 | 20041914 | 20054249 |
| NC_010447.5 | 42142380 | 42142700 | - | 3.68 | 1127 | 100511132 | BICD1 | 41897611 | 42143667 |
| NC_010456.5 | 6923283 | 6923635 | - | 0.14 | 3491 | 100153227 | BIN3 | 6874281 | 6926950 |
| NC_010446.5 | 81639425 | 81639713 | - | 1.46 | 219 | 100622972 | BLZF1 | 81597312 | 81639788 |
| NC_010443.5 | 183418994 | 183419742 | - | 2.18 | 3520 | 100113425 | BMP4 | 183415989 | 183422888 |
| NC_010457.5 | 105972786 | 105973420 | + | -0.05 | 1526 | 100127483 | BMPR2 | 105971577 | 106132496 |
| NC_010444.4 | 58684479 | 58684802 | + | 1.88 | 132 | 100620218 | BORCS8 | 58684508 | 58696586 |
| NC_010445.4 | 1908723 | 1908954 | + | -1.12 | 3190 | 100623177 | BRAT1 | 1905648 | 1918229 |
| NC_010449.5 | 25149363 | 25149668 | + | -1.12 | -2791 | 100141307 | BRD2 | 25152307 | 25162576 |
| NC_010444.4 | 140202092 | 140202380 | - | 1.88 | 11 | 100518182 | BRD8 | 140182195 | 140202247 |
| NC_010454.4 | 36498103 | 36498518 | + | 1.88 | 172 | 100525359 | BRIP1 | 36498138 | 36639847 |
| NC_010455.5 | 66018501 | 66018789 | + | 1.20 | -2403 | 100155061 | BRPF1 | 66021048 | 66037446 |
| NC_010455.5 | 202896279 | 202896652 | - | 2.46 | 79 | 100738890 | BRWD1 | 202776040 | 202896545 |
| NC_010444.4 | 9052787 | 9053086 | + | 1.46 | 205 | 100144883 | BSCL2 | 9052731 | 9064890 |
| NC_010456.5 | 103531115 | 103531422 | + | 2.05 | 521 | 100156116 | BTAF1 | 103530747 | 103641082 |
| NC_010456.5 | 103530581 | 103531045 | + | 1.46 | 66 | 100156116 | BTAF1 | 103530747 | 103641082 |
| NC_010449.5 | 51878015 | 51878605 | + | -0.54 | 864 | 100154013 | BTBD1 | 51877446 | 51925886 |
| NC_010459.5 | 20846741 | 20847053 | + | -0.61 | 2114 | 100156598 | BTBD3 | 20844783 | 20878217 |
| NC_010448.4 | 160135299 | 160135587 | - | 2.85 | 763 | 100736651 | BTF3L4 | 160109492 | 160136206 |
| NC_010451.4 | 64035039 | 64035327 | + | 1.46 | 1330 | 100048932 | BTG2 | 64033853 | 64037795 |
| NC_010451.4 | 64036938 | 64037226 | + | 1.88 | 3229 | 100048932 | BTG2 | 64033853 | 64037795 |
| NC_010451.4 | 39284195 | 39284483 | - | 1.05 | -3012 | 100514308 | BTG4 | 39253116 | 39281327 |

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|-------------|-----------|-----------|---|-------|-------|-----------|--------------|-----------|-----------|
| NC_010451.4 | 85888300 | 85888598 | + | 0.88 | 616 | 100514864 | BZW2 | 85887833 | 85947410 |
| NC_010452.4 | 32429779 | 32430067 | + | 0.61 | -1819 | 100522632 | C10H9orf24 | 32431742 | 32435622 |
| NC_010454.4 | 50728648 | 50729117 | - | 2.78 | -114 | 100521293 | C12H17orf100 | 50644783 | 50728768 |
| NC_010455.5 | 182409282 | 182409513 | - | 0.65 | -335 | 100736918 | C13H21orf91 | 182374587 | 182409062 |
| NC_010455.5 | 182407706 | 182407938 | - | -0.12 | 1240 | 100736918 | C13H21orf91 | 182374587 | 182409062 |
| NC_010455.5 | 182412017 | 182412362 | - | 3.27 | -3127 | 100736918 | C13H21orf91 | 182374587 | 182409062 |
| NC_010455.5 | 141073247 | 141073535 | - | 2.46 | -4655 | 100511595 | C13H3orf30 | 141064655 | 141068736 |
| NC_010455.5 | 141066139 | 141066458 | - | 2.78 | 2437 | 100511595 | C13H3orf30 | 141064655 | 141068736 |
| NC_010455.5 | 84635653 | 84635941 | + | 3.27 | 1081 | 100517858 | C13H3orf58 | 84634716 | 84656112 |
| NC_010456.5 | 13890552 | 13891089 | + | 2.78 | 474 | 100152195 | C14H8orf74 | 13890346 | 13916783 |
| NC_010458.4 | 17848349 | 17848637 | + | 2.46 | 221 | 100627703 | C16H5orf22 | 17848272 | 17868151 |
| NC_010458.4 | 17849616 | 17849904 | + | 3.46 | 1488 | 100627703 | C16H5orf22 | 17848272 | 17868151 |
| NC_010459.5 | 14610759 | 14611078 | + | 1.88 | -1763 | 100739819 | C17H20orf196 | 14612682 | 14706082 |
| NC_010443.5 | 175147064 | 175147352 | + | 2.05 | 1290 | 100736797 | C1H14orf28 | 175145918 | 175156597 |
| NC_010443.5 | 223157386 | 223157617 | + | 1.46 | 3822 | 100514445 | C1H9orf135 | 223153679 | 223315883 |
| NC_010448.4 | 80584101 | 80584389 | + | 2.46 | -2035 | 445461 | C1QA | 80586280 | 80589213 |
| NC_010451.4 | 46321741 | 46322029 | + | 1.20 | 124 | 100518141 | C2CD2L | 46321761 | 46331078 |
| NC_010444.4 | 136299260 | 136299732 | - | 0.05 | -371 | 100511071 | C2H5orf15 | 136286507 | 136299125 |
| NC_010444.4 | 137039172 | 137039403 | + | 2.14 | 1316 | 100627041 | C2H5orf24 | 137037971 | 137049449 |
| NC_010444.4 | 108734381 | 108734848 | + | 0.73 | -4217 | 100625150 | C2H5orf30 | 108738832 | 108753016 |
| NC_010449.5 | 24068237 | 24068599 | + | 2.46 | 399 | 445467 | C4A | 24068019 | 24083060 |
| NC_010451.4 | 67731133 | 67731364 | + | 0.14 | 140 | 100520761 | C4BPA | 67731108 | 67774369 |
| NC_010446.5 | 51468437 | 51468750 | + | -0.97 | -560 | 100522371 | C4H8orf59 | 51469154 | 51479506 |
| NC_010447.5 | 18515336 | 18515624 | + | 0.56 | -1467 | 100516439 | C5H12orf10 | 18516947 | 18526069 |
| NC_010447.5 | 79575912 | 79576200 | - | 3.46 | -58 | 100623156 | C5H12orf45 | 79562697 | 79575998 |
| NC_010447.5 | 28820272 | 28820503 | - | -2.71 | -1251 | 100737998 | C5H12orf56 | 28716366 | 28819136 |
| NC_010448.4 | 155569826 | 155570057 | + | -2.44 | 2945 | 100512236 | C6H1orf168 | 155566996 | 155684814 |
| NC_010449.5 | 76033556 | 76034067 | + | -0.60 | 61 | 100626253 | C7H14orf93 | 76033750 | 76061877 |
| NC_010449.5 | 58388375 | 58388682 | - | 4.27 | 1588 | 100154113 | C7H15orf39 | 58380602 | 58390117 |
| NC_010446.5 | 98829952 | 98830247 | - | 1.98 | -1165 | 100153371 | CA14 | 98821577 | 98828934 |
| NC_010448.4 | 1495507 | 1495947 | + | 2.46 | -60 | 110260889 | CA5A | 1495787 | 1539389 |
| NC_010456.5 | 49787712 | 49788193 | - | 2.05 | -239 | 100157110 | CABIN1 | 49688101 | 49787713 |
| NC_010444.4 | 66103178 | 66103474 | - | 0.29 | -1252 | 100381266 | CALR | 66098263 | 66102074 |
| NC_010444.4 | 66100862 | 66101150 | - | 2.46 | 1068 | 100381266 | CALR | 66098263 | 66102074 |

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|-------------|-----------|-----------|---|-------|-------|-----------|----------|-----------|-----------|
| NC_010460.4 | 19874757 | 19875045 | - | 2.78 | 903 | 397301 | CALU | 19841718 | 19875804 |
| NC_010450.4 | 108916229 | 108916617 | + | 0.61 | 404 | 397674 | CAMK2D | 108916019 | 109221317 |
| NC_010447.5 | 31656720 | 31657008 | + | 3.78 | -644 | 100514460 | CAND1 | 31657508 | 31700163 |
| NC_010457.5 | 139556153 | 139556441 | + | 2.20 | -1347 | 724069 | CAPN10 | 139557644 | 139568764 |
| NC_010455.5 | 2448362 | 2449120 | + | 3.16 | -3644 | 100037936 | CAPN7 | 2452385 | 2503575 |
| NC_010447.5 | 43041034 | 43041322 | + | 3.46 | -1732 | 100624034 | CAPRIN2 | 43042910 | 43087644 |
| NC_010446.5 | 107819474 | 107819804 | - | 0.24 | 2167 | 100037957 | CAPZA1 | 107769570 | 107821806 |
| NC_010457.5 | 106410263 | 106410551 | + | 1.68 | 162 | 100627358 | CARF | 106410245 | 106466716 |
| NC_010457.5 | 106409897 | 106410157 | + | -1.00 | -218 | 100627358 | CARF | 106410245 | 106466716 |
| NC_010444.4 | 2163642 | 2163936 | - | 2.05 | -419 | 100516312 | CARS | 2119579 | 2163370 |
| NC_010453.5 | 77269614 | 77270089 | - | 3.05 | 84 | 100515851 | CARS2 | 77231866 | 77269936 |
| NC_010451.4 | 74276131 | 74276473 | + | 0.78 | -231 | 100521674 | CASD1 | 74276533 | 74347608 |
| NC_010443.5 | 57833478 | 57833948 | + | 2.14 | -924 | 100523759 | CASP8AP2 | 57834637 | 57864837 |
| NC_010455.5 | 153481200 | 153481488 | + | 1.46 | -398 | 100621690 | CBLB | 153481742 | 153700089 |
| NC_010451.4 | 107455968 | 107456256 | + | 1.14 | -533 | 100623482 | CBLL1 | 107456645 | 107474615 |
| NC_010459.5 | 56681693 | 56681988 | - | 3.05 | 1420 | 100141408 | CBLN4 | 56674872 | 56683261 |
| NC_010455.5 | 206232104 | 206232392 | - | 2.20 | -1979 | 110256498 | CBS | 206205942 | 206230269 |
| NC_010447.5 | 19482752 | 19483026 | - | -1.35 | 1626 | 100519426 | CBX5 | 19446083 | 19484515 |
| NC_010444.4 | 65252601 | 65252889 | - | 3.05 | -264 | 100511068 | CC2D1A | 65235757 | 65252481 |
| NC_010443.5 | 153928947 | 153929255 | - | 0.46 | 3995 | 106506845 | CCDC102B | 153687961 | 153933096 |
| NC_010451.4 | 102919340 | 102919626 | - | -0.35 | 275 | 100737427 | CCDC146 | 102784299 | 102919758 |
| NC_010451.4 | 52146489 | 52146832 | + | 1.14 | 350 | 100525001 | CCDC15 | 52146310 | 52217679 |
| NC_010457.5 | 100538854 | 100539187 | + | 3.27 | -372 | 100154260 | CCDC150 | 100539393 | 100634578 |
| NC_010457.5 | 76005310 | 76005598 | - | 1.05 | 1652 | 100520768 | CCDC173 | 75980102 | 76007106 |
| NC_010446.5 | 124009196 | 124009626 | - | 2.46 | 165 | 100518781 | CCDC18 | 123837581 | 124009576 |
| NC_010450.4 | 102259852 | 102260240 | + | 2.01 | -300 | 100415929 | CCNA2 | 102260346 | 102266274 |
| NC_010443.5 | 66499228 | 66499504 | - | -2.44 | 388 | 100153639 | CCNC | 66472622 | 66499754 |
| NC_010447.5 | 66116478 | 66116709 | - | -0.76 | -2018 | 397162 | CCND2 | 66092483 | 66114575 |
| NC_010443.5 | 128268484 | 128268892 | - | 1.68 | 846 | 106509015 | CCNDBP1 | 128253111 | 128269534 |
| NC_010450.4 | 72789190 | 72789421 | + | 1.14 | -1088 | 100523979 | CCNG2 | 72790394 | 72800553 |
| NC_010449.5 | 120487835 | 120488066 | + | -1.71 | 810 | 100157799 | CCNK | 120487140 | 120514223 |
| NC_010455.5 | 97002678 | 97002966 | - | 1.68 | 1579 | 100626293 | CCNL1 | 96986274 | 97004401 |
| NC_010457.5 | 110873208 | 110873744 | + | 3.14 | -467 | 100520645 | CCNYL1 | 110873943 | 110910929 |
| NC_010455.5 | 29399353 | 29399641 | + | 2.78 | -3438 | 414370 | CCRL2 | 29402935 | 29406541 |

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|-------------|-----------|-----------|---|-------|-------|-----------|----------|-----------|-----------|
| NC_010447.5 | 33859256 | 33859694 | + | 1.73 | 961 | 100157776 | CCT2 | 33858514 | 33873596 |
| NC_010446.5 | 93734257 | 93734612 | + | 2.46 | 467 | 100154317 | CCT3 | 93733967 | 93753340 |
| NC_010445.4 | 79924005 | 79924293 | + | 2.78 | -189 | 100521551 | CCT4 | 79924338 | 79941926 |
| NC_010445.4 | 79925009 | 79925536 | + | -0.80 | 934 | 100521551 | CCT4 | 79924338 | 79941926 |
| NC_010447.5 | 63514389 | 63514677 | - | 3.20 | 3 | 100144477 | CD163L1 | 63488678 | 63514536 |
| NC_010446.5 | 103977039 | 103977327 | - | 0.78 | -212 | 396662 | CD2 | 103963802 | 103976971 |
| NC_010445.4 | 17957399 | 17957806 | + | 1.20 | -104 | 100621208 | CD2BP2 | 17957707 | 17961804 |
| NC_010448.4 | 54444184 | 54444472 | + | 2.92 | 3589 | 100624694 | CD37 | 54440739 | 54448193 |
| NC_010451.4 | 135077713 | 135077989 | - | -0.76 | 1059 | 396922 | CD46 | 135025439 | 135078910 |
| NC_010455.5 | 151430473 | 151430857 | + | 1.92 | 1490 | 397042 | CD47 | 151429175 | 151484867 |
| NC_010443.5 | 76180489 | 76180822 | + | -0.93 | 1486 | 100511111 | CDC40 | 76179169 | 76234690 |
| NC_010448.4 | 80036011 | 80036348 | + | 1.14 | 1144 | 780428 | CDC42 | 80035035 | 80089243 |
| NC_010452.4 | 14939922 | 14940153 | - | 0.46 | 950 | 100511216 | CDC42BPA | 14649278 | 14940988 |
| NC_010446.5 | 98175566 | 98175854 | + | 1.29 | 3773 | 100156313 | CDC42SE1 | 98171937 | 98180577 |
| NC_010449.5 | 39385391 | 39385622 | + | -1.76 | 1109 | 100153900 | CDC5L | 39384397 | 39427729 |
| NC_010449.5 | 39384266 | 39384556 | + | 0.73 | 14 | 100153900 | CDC5L | 39384397 | 39427729 |
| NC_010443.5 | 159923171 | 159923402 | - | -1.12 | -360 | 100522414 | CDH20 | 159818160 | 159922926 |
| NC_010453.5 | 4055326 | 4055637 | + | -0.71 | 1039 | 100739805 | CDK8 | 4054442 | 4161501 |
| NC_010443.5 | 268276675 | 268277076 | + | 4.27 | -207 | 100307051 | CDK9 | 268277083 | 268280493 |
| NC_010445.4 | 101086131 | 101086419 | + | 2.78 | -881 | 100738632 | CDKL4 | 101087156 | 101138839 |
| NC_010449.5 | 32352759 | 32352990 | + | -1.12 | -1901 | 100152215 | CDKN1A | 32354776 | 32363771 |
| NC_010457.5 | 44885916 | 44886213 | + | 2.68 | 442 | 100513762 | CDKN2AIP | 44885622 | 44890504 |
| NC_010450.4 | 134039600 | 134039888 | - | 0.46 | 1031 | 733582 | CDS1 | 133959250 | 134040775 |
| NC_010449.5 | 75924239 | 75924527 | + | 1.88 | -2269 | 100157564 | CEBPE | 75926652 | 75929949 |
| NC_010446.5 | 110844777 | 110845065 | - | 1.78 | 433 | 106510206 | CELSR2 | 110819422 | 110845354 |
| NC_010450.4 | 65315029 | 65315363 | - | 2.46 | 592 | 100737668 | CENPC | 65237825 | 65315788 |
| NC_010450.4 | 117889200 | 117889675 | + | 3.88 | 469 | 100626792 | CENPE | 117888968 | 117965325 |
| NC_010451.4 | 129011907 | 129012195 | - | 0.88 | 190 | 100521032 | CENPF | 128948386 | 129012241 |
| NC_010451.4 | 129010559 | 129010847 | - | 0.88 | 1538 | 100521032 | CENPF | 128948386 | 129012241 |
| NC_010458.4 | 47353387 | 47353743 | + | 2.88 | 246 | 100736772 | CENPH | 47353319 | 47378746 |
| NC_010449.5 | 43624581 | 43624889 | + | 1.68 | 1 | 100513550 | CENPQ | 43624734 | 43639907 |
| NC_010457.5 | 45851407 | 45851695 | - | 1.20 | -92 | 100515416 | CENPU | 45818562 | 45851459 |
| NC_010443.5 | 122878449 | 122878856 | + | 1.46 | 2188 | 100152345 | CEP152 | 122876464 | 122979851 |
| NC_010448.4 | 42815042 | 42815333 | - | 0.68 | 98 | 100620768 | CEP89 | 42733675 | 42815286 |

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|-------------|-----------|-----------|---|-------|-------|-----------|---------|-----------|-----------|
| NC_010455.5 | 157387992 | 157388280 | - | 1.78 | 289 | 100521822 | CEP97 | 157356248 | 157388425 |
| NC_010446.5 | 98252530 | 98252818 | + | 2.78 | 1186 | 100156737 | CERS2 | 98251488 | 98260504 |
| NC_010448.4 | 27632511 | 27632800 | + | 1.01 | 4943 | 100626873 | CES3 | 27627712 | 27637827 |
| NC_010444.4 | 97593362 | 97593747 | - | 2.27 | -234 | 574052 | CETN3 | 97574003 | 97593320 |
| NC_010448.4 | 12226486 | 12226774 | + | 3.05 | 2929 | 100144464 | CFDP1 | 12223701 | 12354180 |
| NC_010449.5 | 86105226 | 86105568 | - | 1.73 | 2489 | 100156869 | CHD2 | 85980759 | 86107886 |
| NC_010455.5 | 35949089 | 35949377 | - | 1.05 | -980 | 100151982 | CHDH | 35910688 | 35948253 |
| NC_010455.5 | 168569759 | 168570076 | - | 2.46 | -343 | 100516044 | CHMP2B | 168534950 | 168569574 |
| NC_010446.5 | 54894081 | 54894475 | - | 0.46 | 951 | 100154336 | CHMP4C | 54860481 | 54895229 |
| NC_010456.5 | 7390182 | 7390470 | + | 0.88 | 260 | 110256869 | CHMP7 | 7390066 | 7403657 |
| NC_010443.5 | 139802304 | 139802592 | - | 1.20 | 2010 | 100520288 | CHSY1 | 139730703 | 139804458 |
| NC_010449.5 | 55798207 | 55798545 | - | 1.78 | 290 | 100157484 | CIB1 | 55794834 | 55798666 |
| NC_010443.5 | 25154507 | 25154825 | + | 2.20 | -986 | 100156022 | CITED2 | 25155652 | 25158517 |
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| NC_010443.5 | 268642041 | 268642329 | - | 2.46 | -121 | 100157558 | CIZ1 | 268618972 | 268642064 |
| NC_010453.5 | 15751234 | 15751492 | + | 0.24 | -354 | 100515274 | CKAP2 | 15751717 | 15767068 |
| NC_010453.5 | 15750609 | 15750897 | + | 1.05 | -964 | 100515274 | CKAP2 | 15751717 | 15767068 |
| NC_010453.5 | 15752396 | 15752684 | + | 2.46 | 823 | 100515274 | CKAP2 | 15751717 | 15767068 |
| NC_010446.5 | 94819408 | 94819742 | - | 2.78 | 8 | 100155110 | CKS1B | 94815769 | 94819583 |
| NC_010455.5 | 19509585 | 19510008 | - | 2.14 | 781 | 100512630 | CLASP2 | 19305430 | 19510578 |
| NC_010446.5 | 129652723 | 129653274 | - | 1.92 | 2386 | 397284 | CLCA1 | 129621259 | 129655385 |
| NC_010446.5 | 111081083 | 111081371 | + | 2.27 | 575 | 100155876 | CLCC1 | 111080652 | 111101007 |
| NC_010459.5 | 481865 | 482153 | - | 1.88 | 2677 | 100156235 | CLDN23 | 483635 | 484686 |
| NC_010455.5 | 160396836 | 160397194 | + | 2.46 | -429 | 100154619 | CLDND1 | 160397444 | 160405675 |
| NC_010454.4 | 48761779 | 48762076 | - | 2.78 | -1972 | 100513375 | CLUH | 48740117 | 48759955 |
| NC_010445.4 | 128900572 | 128900803 | + | -2.12 | -2707 | 100623872 | CMPK2 | 128903395 | 128917873 |
| NC_010448.4 | 27392845 | 27393167 | - | 1.29 | -1528 | 110260935 | CMTM4 | 27319074 | 27391478 |
| NC_010446.5 | 122505450 | 122505681 | + | -1.12 | 1115 | 100049656 | CNN3 | 122504450 | 122528351 |
| NC_010445.4 | 56811538 | 56811826 | - | 0.46 | 434 | 100512161 | CNNM3 | 56792389 | 56812116 |
| NC_010450.4 | 73304649 | 73304947 | - | 2.46 | 96 | 100512848 | CNOT6L | 73191721 | 73304894 |
| NC_010449.5 | 68598678 | 68598966 | - | 3.05 | -3680 | 100624179 | COCH | 68580124 | 68595142 |
| NC_010445.4 | 22740849 | 22741137 | + | 1.46 | 568 | 100627695 | COG7 | 22740425 | 22826589 |
| NC_010446.5 | 20143517 | 20143805 | - | 3.37 | 79 | 100622782 | COLEC10 | 19692990 | 20143740 |
| NC_010445.4 | 131257798 | 131258086 | - | 2.20 | -3387 | 100736753 | COLEC11 | 131226941 | 131254555 |

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|-------------|-----------|-----------|---|-------|-------|-----------|---------|-----------|-----------|
| NC_010445.4 | 79913787 | 79914075 | - | 2.20 | 38 | 100521368 | COMMD1 | 79770315 | 79913969 |
| NC_010444.4 | 58931151 | 58931611 | + | 2.78 | 452 | 100525632 | COPE | 58930929 | 58948466 |
| NC_010454.4 | 61002323 | 61002611 | + | 1.20 | 1905 | 100512312 | COPS3 | 61000562 | 61023916 |
| NC_010446.5 | 67740499 | 67740765 | + | -1.76 | 104 | 100125955 | COPS5 | 67740528 | 67750351 |
| NC_010447.5 | 19522805 | 19523093 | + | 2.05 | 382 | 100156765 | COPZ1 | 19522567 | 19542373 |
| NC_010457.5 | 101339095 | 101339357 | + | -0.95 | 1214 | 100152647 | COQ10B | 101338012 | 101354714 |
| NC_010443.5 | 268756367 | 268756752 | + | -1.93 | -149 | 100156776 | COQ4 | 268756709 | 268768355 |
| NC_010443.5 | 240001303 | 240001534 | - | -1.27 | -454 | 100511910 | CORO2A | 239947299 | 240000964 |
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| NC_010450.4 | 10403558 | 10403873 | + | 1.46 | 18 | 100462674 | CPEB2 | 10403697 | 10472141 |
| NC_010456.5 | 103838550 | 103838857 | - | 2.46 | -1808 | 100152117 | CPEB3 | 103675333 | 103836895 |
| NC_010456.5 | 103838133 | 103838421 | - | 1.88 | -1382 | 100152117 | CPEB3 | 103675333 | 103836895 |
| NC_010447.5 | 33263987 | 33264281 | - | 1.78 | 228 | 100628221 | CPM | 33170094 | 33264362 |
| NC_010455.5 | 131340827 | 131341115 | - | 1.05 | -3250 | 100627569 | CPN2 | 131327508 | 131337721 |
| NC_010457.5 | 110164517 | 110164805 | + | 0.88 | -3951 | 100155330 | CPO | 110168612 | 110194156 |
| NC_010445.4 | 30363195 | 30363605 | + | -0.02 | 675 | 100627178 | CPPED1 | 30362725 | 30484250 |
| NC_010457.5 | 113213349 | 113213580 | + | -1.71 | 3426 | 100157716 | CPS1 | 113210038 | 113339086 |
| NC_010457.5 | 113209203 | 113209665 | + | 0.82 | -604 | 100157716 | CPS1 | 113210038 | 113339086 |
| NC_010445.4 | 6374793 | 6375081 | + | 2.46 | 575 | 100518830 | CPSF4 | 6374362 | 6388662 |
| NC_010447.5 | 33528079 | 33528310 | + | 0.63 | 2526 | 100152191 | CPSF6 | 33525668 | 33559941 |
| NC_010455.5 | 59759630 | 59759918 | - | 3.20 | -1998 | 100737786 | CRBN | 59733503 | 59757776 |
| NC_010445.4 | 16619263 | 16619661 | - | 0.46 | 2543 | 100517396 | CRCP | 16584304 | 16622005 |
| NC_010458.4 | 51212928 | 51213358 | - | 3.63 | -3194 | 100523409 | CREBRF | 51146015 | 51209949 |
| NC_010445.4 | 52914216 | 52914619 | + | -1.08 | -4057 | 100517088 | CREG2 | 52918475 | 52978020 |
| NC_010445.4 | 93926042 | 93926363 | - | 1.05 | -286 | 100524556 | CRIPT | 93913579 | 93925916 |
| NC_010445.4 | 93929789 | 93930062 | - | 0.05 | -4009 | 100524556 | CRIPT | 93913579 | 93925916 |
| NC_010459.5 | 14860723 | 14861241 | + | 1.46 | 663 | 100153088 | CRLS1 | 14860319 | 14892436 |
| NC_010449.5 | 53146895 | 53147183 | + | 0.88 | 722 | 100621206 | CRTC3 | 53146317 | 53255985 |
| NC_010444.4 | 16624158 | 16624389 | - | -0.54 | -3937 | 100517750 | CRY2 | 16587101 | 16620336 |
| NC_010445.4 | 24814063 | 24814351 | + | 2.88 | -803 | 100525333 | CRYM | 24815010 | 24835837 |
| NC_010448.4 | 138434442 | 138434829 | + | 0.61 | -324 | 733653 | CRYZ | 138434960 | 138461042 |
| NC_010446.5 | 24852275 | 24852506 | + | -0.35 | -2929 | 100621741 | CSMD3 | 24855320 | 25871456 |
| NC_010443.5 | 107689152 | 107689440 | + | 2.29 | -754 | 100157196 | CSNK1G1 | 107690050 | 107884054 |
| NC_010444.4 | 127017898 | 127018241 | + | 2.29 | 1041 | 100511866 | CSNK1G3 | 127017028 | 127129547 |

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|-------------|-----------|-----------|---|-------|-------|-----------|---------|-----------|-----------|
| NC_010448.4 | 129175031 | 129175339 | + | -2.67 | 1786 | 100523254 | CTBS | 129173399 | 129207868 |
| NC_010443.5 | 145811691 | 145812037 | - | 4.05 | -191 | 100158188 | CTDP1 | 145769771 | 145811673 |
| NC_010443.5 | 127124615 | 127124970 | - | 0.36 | 954 | 102162809 | CTDSPL2 | 127029445 | 127125747 |
| NC_010444.4 | 48728283 | 48728659 | - | -1.02 | 1009 | 100627268 | CTR9 | 48700629 | 48729480 |
| NC_010457.5 | 126285661 | 126285949 | - | 2.46 | 1343 | 100511787 | CUL3 | 126191605 | 126287148 |
| NC_010448.4 | 34120836 | 34121176 | - | 3.27 | -513 | 100624570 | CYLD | 34058091 | 34120493 |
| NC_010456.5 | 106666975 | 106667276 | + | -0.86 | 680 | 403111 | CYP2C42 | 106666445 | 106701809 |
| NC_010449.5 | 41424896 | 41425250 | - | -2.71 | 781 | 100113410 | CYP39A1 | 41345011 | 41425854 |
| NC_010449.5 | 35128129 | 35128417 | + | 1.88 | 1028 | 100155713 | DAAM2 | 35127245 | 35285933 |
| NC_010455.5 | 78969045 | 78969371 | - | -0.24 | 1042 | 106505697 | DBR1 | 78958301 | 78970250 |
| NC_010446.5 | 117884427 | 117884735 | + | 1.78 | -172 | 100156530 | DBT | 117884753 | 117924006 |
| NC_010454.4 | 18344428 | 18344719 | + | 1.36 | 543 | 100521290 | DCAKD | 18344030 | 18362516 |
| NC_010452.4 | 46815102 | 46815333 | + | -0.35 | -4798 | 100512855 | DCLRE1C | 46820016 | 46863848 |
| NC_010444.4 | 116803910 | 116804141 | - | -1.67 | 667 | 100516785 | DCP2 | 116736800 | 116804693 |
| NC_010444.4 | 116803571 | 116803802 | - | 1.46 | 1006 | 100516785 | DCP2 | 116736800 | 116804693 |
| NC_010444.4 | 151712861 | 151713411 | - | 0.32 | 787 | 100626043 | DCTN4 | 151681003 | 151713923 |
| NC_010449.5 | 23367425 | 23367656 | + | -0.86 | -3817 | 100144462 | DDR1 | 23371358 | 23391579 |
| NC_010445.4 | 121855646 | 121856013 | - | 4.05 | 837 | 100627404 | DDX1 | 121818400 | 121856667 |
| NC_010447.5 | 67364509 | 67364797 | + | 3.46 | 855 | 100515028 | DDX11 | 67363798 | 67395739 |
| NC_010447.5 | 9487086 | 9487545 | + | 1.46 | 1523 | 100514347 | DDX17 | 9485792 | 9505157 |
| NC_010456.5 | 72039970 | 72040460 | + | 2.10 | 230 | 100153111 | DDX21 | 72039985 | 72063778 |
| NC_010444.4 | 64840467 | 64840794 | + | 3.05 | 4590 | 100515361 | DDX39A | 64836040 | 64844996 |
| NC_010454.4 | 14573819 | 14574050 | + | -0.35 | 1203 | 102158045 | DDX5 | 14572731 | 14580740 |
| NC_010456.5 | 21083906 | 21084194 | + | 4.05 | 849 | 100158037 | DDX60 | 21083201 | 21157001 |
| NC_010446.5 | 89313089 | 89313377 | + | 2.46 | 1925 | 100156474 | DEDD | 89311308 | 89323692 |
| NC_010448.4 | 49711808 | 49712180 | + | 1.10 | 1046 | 100516271 | DEDD2 | 49710948 | 49730457 |
| NC_010443.5 | 203599991 | 203600334 | - | 1.78 | 1135 | 100154094 | DENND4C | 203449832 | 203601298 |
| NC_010447.5 | 42643371 | 42643659 | + | 2.05 | 838 | 102165384 | DENND5B | 42642677 | 42870980 |
| NC_010448.4 | 144157251 | 144157984 | + | 1.78 | 48 | 110261209 | DEPDC1 | 144157569 | 144183977 |
| NC_010447.5 | 83877353 | 83877943 | + | 1.00 | -1070 | 100511197 | DEPDC4 | 83878718 | 83899408 |
| NC_010444.4 | 27929026 | 27929314 | - | 2.20 | -311 | 100621764 | DEPDC7 | 27909282 | 27928859 |
| NC_010446.5 | 19179660 | 19180251 | - | 2.20 | 175 | 100157658 | DEPTOR | 18976732 | 19180131 |
| NC_010446.5 | 16309820 | 16310108 | + | -0.12 | -2672 | 100626802 | DERL1 | 16312636 | 16341405 |
| NC_010457.5 | 84159795 | 84160136 | + | 3.31 | 2101 | 100518993 | DFNB59 | 84157864 | 84165763 |

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|-------------|-----------|-----------|---|-------|-------|-----------|---------|-----------|-----------|
| NC_010456.5 | 51657491 | 51657865 | - | 3.27 | -327 | 110256627 | DGCR6L | 51644840 | 51657351 |
| NC_010453.5 | 24973995 | 24974301 | - | 2.20 | -3220 | 100157742 | DGKH | 24772396 | 24970928 |
| NC_010455.5 | 30601777 | 30602065 | + | 3.05 | -118 | 100518989 | DHX30 | 30602039 | 30632506 |
| NC_010455.5 | 94349372 | 94349603 | - | -1.86 | 845 | 100626674 | DHX36 | 94298790 | 94350333 |
| NC_010451.4 | 124142304 | 124142924 | + | 1.78 | 646 | 100514066 | DHX9 | 124141968 | 124183838 |
| NC_010461.5 | 78603832 | 78604063 | + | -2.44 | 1562 | 100155257 | DIAPH2 | 78602385 | 79520441 |
| NC_010453.5 | 32994627 | 32994915 | - | 3.78 | 83 | 100737986 | DIAPH3 | 32492735 | 32994854 |
| NC_010455.5 | 137737106 | 137737394 | - | 3.05 | 1864 | 100519567 | DIRC2 | 137633471 | 137739114 |
| NC_010453.5 | 45075701 | 45076028 | - | 2.78 | 108 | 100521470 | DIS3 | 45046040 | 45075973 |
| NC_010443.5 | 130960526 | 130961111 | - | 2.20 | 1961 | 100156025 | DISP2 | 130931909 | 130962780 |
| NC_010451.4 | 107642728 | 107642967 | + | 0.46 | 718 | 397129 | DLD | 107642129 | 107668443 |
| NC_010443.5 | 184550487 | 184550718 | - | 0.46 | -574 | 100511173 | DLGAP5 | 184500791 | 184550028 |
| NC_010443.5 | 184548789 | 184549433 | - | 2.66 | 917 | 100511173 | DLGAP5 | 184500791 | 184550028 |
| NC_010445.4 | 37918409 | 37918948 | - | 1.10 | 425 | 100624182 | DNAJA3 | 37883233 | 37919104 |
| NC_010444.4 | 64762328 | 64762623 | + | 1.88 | 803 | 396741 | DNAJB1 | 64761672 | 64764482 |
| NC_010456.5 | 75188833 | 75189418 | - | 1.46 | 983 | 100156234 | DNAJB12 | 75169076 | 75190109 |
| NC_010448.4 | 135265067 | 135265355 | - | 2.46 | -4886 | 100525703 | DNAJB4 | 135243927 | 135260325 |
| NC_010443.5 | 235789924 | 235790237 | + | -1.54 | -3302 | 100525553 | DNAJB5 | 235793383 | 235799385 |
| NC_010452.4 | 52864588 | 52864874 | + | -0.95 | 1918 | 100519794 | DNAJC1 | 52862813 | 53060747 |
| NC_010452.4 | 52863689 | 52863984 | + | 1.95 | 1023 | 100519794 | DNAJC1 | 52862813 | 53060747 |
| NC_010455.5 | 118912988 | 118913276 | - | 1.88 | 138 | 100154656 | DNAJC19 | 118907299 | 118913270 |
| NC_010445.4 | 38646562 | 38646987 | - | 0.88 | 77 | 397051 | DNASE1 | 38590045 | 38646852 |
| NC_010451.4 | 114261514 | 114261802 | + | 2.27 | -1161 | 100622420 | DNM3 | 114262819 | 114607232 |
| NC_010446.5 | 123394991 | 123395279 | + | 2.05 | 364 | 100157622 | DNTTIP2 | 123394771 | 123408460 |
| NC_010456.5 | 6180229 | 6180517 | - | 2.46 | 522 | 100152025 | DOK2 | 6176487 | 6180895 |
| NC_010443.5 | 153396197 | 153396498 | - | 1.61 | -2915 | 100517871 | DOK6 | 152990887 | 153393432 |
| NC_010446.5 | 94662204 | 94662589 | + | 2.22 | 828 | 100153065 | DPM3 | 94661568 | 94662223 |
| NC_010444.4 | 5946264 | 5946596 | - | 1.46 | 1589 | 100519350 | DPP3 | 5907251 | 5948019 |
| NC_010457.5 | 68742943 | 68743231 | - | 1.78 | -126 | 397492 | DPP4 | 68661764 | 68742961 |
| NC_010446.5 | 123835000 | 123835351 | - | 1.05 | 699 | 100152776 | DR1 | 123815088 | 123835875 |
| NC_010448.4 | 115401517 | 115401934 | + | 1.14 | 1502 | 100625833 | DSG2 | 115400223 | 115453763 |
| NC_010457.5 | 88549388 | 88549975 | + | 1.56 | 431 | 100523472 | DUSP19 | 88549250 | 88574978 |
| NC_010456.5 | 120906460 | 120906748 | + | 3.20 | 264 | 100157144 | DUSP5 | 120906340 | 120919398 |
| NC_010455.5 | 122076607 | 122076995 | + | 1.27 | 947 | 100621038 | DVL3 | 122075854 | 122092975 |

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|-------------|-----------|-----------|---|-------|-------|-----------|-----------|-----------|-----------|
| NC_010451.4 | 75451391 | 75451625 | + | -0.35 | 4412 | 100523985 | DYNC1I1 | 75447096 | 75760522 |
| NC_010457.5 | 77803281 | 77803569 | + | 0.73 | -176 | 100154566 | DYNC1I2 | 77803601 | 77859559 |
| NC_010457.5 | 77804528 | 77805251 | + | 1.46 | 1288 | 100154566 | DYNC1I2 | 77803601 | 77859559 |
| NC_010448.4 | 7661052 | 7661340 | - | 2.68 | 184 | 102165562 | DYNLRB2 | 7650444 | 7661380 |
| NC_010457.5 | 109972902 | 109973242 | - | 2.20 | 3316 | 100517128 | DYTN | 109918321 | 109976388 |
| NC_010453.5 | 65205787 | 65206018 | - | -0.44 | -1608 | 100519383 | DZIP1 | 65147003 | 65204294 |
| NC_010455.5 | 2655595 | 2655883 | + | -0.86 | 910 | 100517678 | EAF1 | 2654829 | 2671140 |
| NC_010445.4 | 22655604 | 22655911 | + | -0.12 | 342 | 100523812 | EARS2 | 22655415 | 22684246 |
| NC_010461.5 | 55771121 | 55771429 | + | 1.78 | 317 | 100518887 | EDA | 55770958 | 56103296 |
| NC_010456.5 | 135046779 | 135047067 | + | 0.88 | 4841 | 100522106 | EDRF1 | 135042082 | 135085552 |
| NC_010447.5 | 90132622 | 90132910 | + | 1.78 | 1059 | 100153403 | EEA1 | 90131707 | 90257014 |
| NC_010447.5 | 90131503 | 90131903 | + | 3.05 | -4 | 100153403 | EEA1 | 90131707 | 90257014 |
| NC_010456.5 | 134152136 | 134152367 | - | -1.71 | 2414 | 100521159 | EEF1AKMT2 | 134134899 | 134154666 |
| NC_010448.4 | 164777680 | 164778077 | + | 2.05 | -97 | 100526227 | EFCAB14 | 164777976 | 164821371 |
| NC_010444.4 | 6454841 | 6455129 | + | 3.05 | -170 | 100526031 | EFEMP2 | 6455155 | 6463493 |
| NC_010446.5 | 94670055 | 94670551 | - | 3.27 | 2179 | 100144501 | EFNA1 | 94666457 | 94672482 |
| NC_010453.5 | 74233920 | 74234208 | - | 3.46 | -1296 | 100135673 | EFNB2 | 74188337 | 74232768 |
| NC_010446.5 | 9136602 | 9136964 | - | 1.27 | 469 | 100627646 | EFR3A | 9053445 | 9137252 |
| NC_010456.5 | 59114785 | 59115119 | + | 2.20 | 1416 | 100153461 | EGLN1 | 59113536 | 59168421 |
| NC_010456.5 | 66289232 | 66289549 | - | 1.63 | 1917 | 100038004 | EGR2 | 66280665 | 66291308 |
| NC_010445.4 | 79256675 | 79256978 | - | -2.86 | 933 | 100520668 | EHBP1 | 78907315 | 79257760 |
| NC_010443.5 | 131355929 | 131356160 | - | -2.93 | -819 | 100621160 | EIF2AK4 | 131244818 | 131355225 |
| NC_010456.5 | 129006066 | 129006297 | - | -0.12 | 986 | 100156570 | EIF3A | 128967645 | 129007168 |
| NC_010456.5 | 129005004 | 129005292 | - | 2.27 | 2020 | 100156570 | EIF3A | 128967645 | 129007168 |
| NC_010447.5 | 11213430 | 11213859 | + | 3.63 | 332 | 100512835 | EIF3D | 11213312 | 11229158 |
| NC_010446.5 | 29288810 | 29289102 | + | -2.12 | 78 | 100156671 | EIF3E | 29288878 | 29343593 |
| NC_010448.4 | 47476302 | 47476590 | + | 1.46 | 258 | 100517098 | EIF3K | 47476188 | 47488933 |
| NC_010444.4 | 28281906 | 28282194 | - | 0.73 | 762 | 100513781 | EIF3M | 28258399 | 28282812 |
| NC_010455.5 | 124585128 | 124585359 | + | -1.93 | 2421 | 100101928 | EIF4A2 | 124582822 | 124589296 |
| NC_010455.5 | 124582323 | 124583035 | + | -0.27 | -143 | 100101928 | EIF4A2 | 124582822 | 124589296 |
| NC_010445.4 | 11322753 | 11323229 | + | 1.29 | 1505 | 100627717 | EIF4H | 11321486 | 11348473 |
| NC_010455.5 | 109527949 | 109528237 | - | 3.20 | 2357 | 106505742 | EIF5A2 | 109510815 | 109530450 |
| NC_010444.4 | 70134954 | 70135242 | - | 1.46 | -750 | 100515074 | ELAVL3 | 70114475 | 70134348 |
| NC_010450.4 | 87855835 | 87856173 | + | 2.88 | 2977 | 100514064 | ELF2 | 87853027 | 87878847 |

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|----------------|-----------|-----------|---|-------|-------|-----------|--------|-----------|-----------|
| NC_010444.4 | 102590802 | 102591090 | - | 0.29 | 470 | 100523777 | ELL2 | 102518605 | 102591416 |
| NC_010446.5 | 61970093 | 61970381 | + | 1.29 | -866 | 100153381 | ELOC | 61971103 | 61989392 |
| NC_010450.4 | 112038919 | 112039207 | + | 4.27 | 393 | 100312970 | ELOVL6 | 112038670 | 112190075 |
| NC_010458.4 | 39678231 | 39678462 | - | -1.93 | 1395 | 100524592 | ELOVL7 | 39588122 | 39679742 |
| NC_010444.4 | 29229420 | 29229651 | - | -2.67 | 556 | 100514702 | ELP4 | 29119345 | 29230092 |
| NC_010449.5 | 110702497 | 110702815 | - | -0.54 | 2796 | 100153276 | EML5 | 110511937 | 110705452 |
| NC_010452.4 | 13498876 | 13499180 | - | 3.05 | 2911 | 100525245 | ENAH | 13439772 | 13501939 |
| NC_010453.5 | 23234648 | 23234888 | + | -1.12 | 4 | 100525605 | ENOX1 | 23234764 | 23894763 |
| NC_010446.5 | 28199106 | 28199445 | - | -0.12 | 4273 | 100153859 | ENY2 | 28193634 | 28203549 |
| NC_010446.5 | 28203223 | 28203568 | - | 1.68 | 153 | 100153859 | ENY2 | 28193634 | 28203549 |
| NC_010447.5 | 7395797 | 7396085 | - | 2.05 | -1426 | 100156226 | EP300 | 7311165 | 7394515 |
| NC_010447.5 | 7392135 | 7392697 | - | 1.00 | 2099 | 100156226 | EP300 | 7311165 | 7394515 |
| NC_010457.5 | 3524676 | 3525119 | - | 1.27 | 1325 | 100518870 | EPC2 | 3417446 | 3526223 |
| NC_010445.4 | 93183781 | 93184221 | - | 0.29 | 1220 | 403163 | EPCAM | 93169800 | 93185221 |
| NC_010443.5 | 95615262 | 95615539 | - | -1.12 | 1393 | 100518639 | EPG5 | 95493779 | 95616794 |
| NC_010448.4 | 75278108 | 75278396 | - | 2.05 | 1112 | 100522873 | EPHA2 | 75251465 | 75279364 |
| NC_010453.5 | 24121019 | 24121250 | + | -1.12 | 4143 | 100625050 | EPSTI1 | 24116991 | 24216219 |
| NC_010454.4 | 45082819 | 45083107 | + | 1.46 | 32 | 100518578 | ERAL1 | 45082931 | 45088674 |
| NC_010454.4 | 45085437 | 45085725 | + | 4.05 | 2650 | 100518578 | ERAL1 | 45082931 | 45088674 |
| NC_010447.5 | 21474602 | 21474892 | + | 1.88 | 529 | 100525045 | ERBB3 | 21474218 | 21495040 |
| NC_010449.5 | 93083393 | 93083765 | - | 1.78 | 371 | 100152505 | ERH | 93068254 | 93083950 |
| NC_010448.4 | 106787435 | 106788089 | - | 2.46 | 1683 | 100524501 | ESCO1 | 106697975 | 106789445 |
| NC_010446.5 | 42061530 | 42061818 | - | 1.46 | 32 | 100512961 | ESRP1 | 41993944 | 42061706 |
| NC_010447.5 | 21518868 | 21519156 | + | 2.05 | 1056 | 100519485 | ESYT1 | 21517956 | 21535320 |
| NC_010447.5 | 60775124 | 60775407 | - | -2.12 | 1525 | 100157726 | ETV6 | 60523530 | 60776791 |
| NC_010447.5 | 60777258 | 60777757 | - | 1.05 | -716 | 100157726 | ETV6 | 60523530 | 60776791 |
| NC_010446.5 | 124408579 | 124408867 | + | 1.78 | 4208 | 100519143 | EVI5 | 124404515 | 124600580 |
| NC_010456.5 | 46408523 | 46408811 | + | 1.78 | 31 | 100156911 | EWSR1 | 46408636 | 46439357 |
| NC_010443.5 | 270748651 | 270749047 | + | 1.27 | 315 | 100523112 | EXOSC2 | 270748534 | 270757717 |
| NC_010446.5 | 20649202 | 20649440 | + | -1.54 | 4319 | 100157655 | EXT1 | 20645002 | 20935769 |
| NC_010459.5 | 9075754 | 9075985 | - | -1.67 | -2317 | 110257404 | F11 | 9045990 | 9073552 |
| NW_018085100.1 | 2586336 | 2586686 | + | 1.61 | 4568 | 100627330 | F13B | 2581943 | 2614678 |
| NC_010450.4 | 104465466 | 104465697 | + | -2.12 | 1239 | 595106 | FABP2 | 104464342 | 104468059 |
| NC_010448.4 | 161206505 | 161206793 | + | 2.14 | 1296 | 100518974 | FAF1 | 161205353 | 161603727 |

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|-------------|-----------|-----------|---|-------|-------|-----------|----------|-----------|-----------|
| NC_010458.4 | 69123335 | 69123623 | + | 2.27 | 1734 | 100511051 | FAM114A2 | 69121745 | 69159398 |
| NC_010451.4 | 91821251 | 91821634 | - | 1.68 | 186 | 100620255 | FAM126A | 91729044 | 91821629 |
| NC_010461.5 | 76150010 | 76150241 | + | 1.14 | -113 | 100519754 | FAM133A | 76150239 | 76181971 |
| NC_010444.4 | 89112862 | 89113281 | + | -3.22 | 3693 | 100511985 | FAM151B | 89109378 | 89144270 |
| NC_010455.5 | 138148780 | 138149011 | - | -0.93 | 2816 | 100627352 | FAM162A | 138115499 | 138151712 |
| NC_010444.4 | 100893880 | 100894168 | - | 0.14 | -436 | 100521436 | FAM172A | 100477770 | 100893588 |
| NC_010443.5 | 144783191 | 144783423 | - | -0.95 | 4784 | 110261534 | FAM189A1 | 144316119 | 144788091 |
| NC_010458.4 | 53935322 | 53935553 | + | -2.12 | -4049 | 100511664 | FAM196B | 53939487 | 54057671 |
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| NC_010450.4 | 10990741 | 10991029 | + | -0.54 | -263 | 102160065 | FAM200B | 10991148 | 11004815 |
| NC_010455.5 | 207557618 | 207557906 | + | 1.05 | -3118 | 100623984 | FAM207A | 207560880 | 207588502 |
| NC_010455.5 | 29570931 | 29571260 | + | 2.68 | 1039 | 106505592 | FAM240A | 29570056 | 29574895 |
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| NC_010443.5 | 82086672 | 82086960 | + | 1.05 | 869 | 100158219 | FAM26F | 82085947 | 82087897 |
| NC_010455.5 | 204746650 | 204746983 | + | 2.68 | -2336 | 100517916 | FAM3B | 204749153 | 204796792 |
| NC_010448.4 | 84308580 | 84308871 | - | 2.20 | 2231 | 100511570 | FAM46B | 84303495 | 84310957 |
| NC_010445.4 | 120968329 | 120968617 | + | 3.78 | 457 | 100518011 | FAM49A | 120968016 | 121069372 |
| NC_010451.4 | 27813566 | 27813854 | - | 3.46 | -292 | 100517546 | FAM76B | 27790139 | 27813418 |
| NC_010445.4 | 122717533 | 122717764 | - | -0.44 | 3308 | 100518964 | FAM84A | 122716029 | 122720957 |
| NC_010446.5 | 13446921 | 13447296 | + | 3.05 | 1825 | 100623936 | FAM84B | 13445283 | 13451329 |
| NC_010443.5 | 132819123 | 132819411 | - | 1.73 | 24 | 100522915 | FAM98B | 132786198 | 132819291 |
| NC_010452.4 | 26796856 | 26797358 | + | 2.29 | 255 | 102158362 | FANCC | 26796852 | 27055271 |
| NC_010452.4 | 26795694 | 26795925 | + | -1.54 | -1042 | 102158362 | FANCC | 26796852 | 27055271 |
| NC_010452.4 | 27584019 | 27584250 | + | -1.35 | -4474 | 397038 | FBP1 | 27588609 | 27622225 |
| NC_010445.4 | 17744123 | 17744411 | - | 1.61 | -456 | 102159616 | FBRS | 17731276 | 17743811 |
| NC_010444.4 | 113478500 | 113478801 | - | -2.44 | 1913 | 100513341 | FBXL17 | 112989134 | 113480564 |
| NC_010443.5 | 65934615 | 65934903 | - | 2.31 | 944 | 100156082 | FBXL4 | 65872119 | 65935703 |
| NC_010443.5 | 65937570 | 65937822 | - | -1.35 | -1993 | 100156082 | FBXL4 | 65872119 | 65935703 |
| NC_010443.5 | 65936340 | 65936796 | - | 2.27 | -865 | 100156082 | FBXL4 | 65872119 | 65935703 |
| NC_010443.5 | 65935654 | 65936039 | - | 0.36 | -143 | 100156082 | FBXL4 | 65872119 | 65935703 |
| NC_010445.4 | 92697858 | 92698146 | + | 1.46 | 1600 | 100624629 | FBXO11 | 92696402 | 92792623 |
| NC_010443.5 | 149856644 | 149856946 | + | 1.05 | 763 | 100516237 | FBXO15 | 149856032 | 149897309 |
| NC_010443.5 | 184667465 | 184667753 | + | 1.46 | 1749 | 100511360 | FBXO34 | 184665860 | 184689953 |
| NC_010458.4 | 26708115 | 26708489 | + | 0.78 | 832 | 100522958 | FBXO4 | 26707470 | 26723765 |

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|----------------|-----------|-----------|---|-------|-------|-----------|---------|-----------|-----------|
| NC_010444.4 | 82100934 | 82101165 | + | -1.12 | -245 | 100514094 | FCHO2 | 82101295 | 82248410 |
| NC_010459.5 | 15137893 | 15138242 | - | 2.68 | -534 | 100157961 | FERMT1 | 15080585 | 15137533 |
| NC_010443.5 | 182608746 | 182609024 | - | -1.27 | -1995 | 100517989 | FERMT2 | 182519681 | 182606890 |
| NC_010453.5 | 70858022 | 70858253 | - | 0.14 | 1279 | 100156844 | FGF14 | 70251374 | 70859417 |
| NC_010445.4 | 49417757 | 49418051 | + | 2.46 | 2173 | 100513532 | FHL2 | 49415731 | 49448459 |
| NC_010444.4 | 33327124 | 33327355 | - | 1.05 | 4512 | 100620302 | FIBIN | 33328250 | 33331752 |
| NC_010444.4 | 33331731 | 33332039 | - | 2.27 | -133 | 100620302 | FIBIN | 33328250 | 33331752 |
| NC_010444.4 | 6440296 | 6440584 | + | 1.05 | -43 | 100525557 | FIBP | 6440483 | 6445927 |
| NC_010443.5 | 75694291 | 75694689 | + | 2.31 | 301 | 100511669 | FIG4 | 75694189 | 75792976 |
| NC_010449.5 | 31548139 | 31548427 | - | 1.78 | 1707 | 100155423 | FKBP5 | 31441765 | 31549990 |
| NC_010457.5 | 84182310 | 84182857 | - | 1.20 | 286 | 100144630 | FKBP7 | 84168483 | 84182870 |
| NC_010459.5 | 22953938 | 22954379 | - | 2.63 | 1117 | 100158214 | FLRT3 | 22940491 | 22955276 |
| NC_010453.5 | 5427323 | 5427611 | - | 3.20 | 2631 | 100515445 | FLT3 | 5370475 | 5430098 |
| NC_010446.5 | 123775814 | 123776045 | - | -0.35 | 3710 | 100157977 | FNBP1L | 123675062 | 123779640 |
| NC_010445.4 | 110841152 | 110841440 | - | 2.05 | 1420 | 100623777 | FOSL2 | 110820403 | 110842716 |
| NC_010449.5 | 62475653 | 62475975 | + | 2.78 | 4581 | 100156502 | FOXA1 | 62471233 | 62479638 |
| NC_010459.5 | 30002484 | 30003029 | - | 0.73 | -1945 | 100513828 | FOXA2 | 29997397 | 30000811 |
| NC_010454.4 | 5308035 | 5308335 | + | 3.78 | 815 | 100623071 | FOXJ1 | 5307370 | 5312117 |
| NC_010447.5 | 63062643 | 63062931 | + | 1.20 | 809 | 100625827 | FOXJ2 | 63061978 | 63087689 |
| NC_010461.5 | 42609374 | 42609662 | + | 2.46 | -42 | 100431100 | FTSJ1 | 42609560 | 42620157 |
| NC_010448.4 | 135282298 | 135283081 | + | -1.80 | 1215 | 100525995 | FUBP1 | 135281474 | 135318715 |
| NW_018085072.1 | 117172 | 117421 | - | 0.46 | -920 | 100625870 | FUT10 | 34820 | 116376 |
| NC_010451.4 | 20721048 | 20721336 | - | 3.46 | 268 | 100520319 | FZD4 | 20714995 | 20721460 |
| NC_010446.5 | 33846803 | 33847150 | - | 3.37 | -2420 | 100157360 | FZD6 | 33811159 | 33844556 |
| NC_010452.4 | 58093033 | 58093321 | - | 0.88 | 3613 | 110255708 | FZD8 | 58093980 | 58096790 |
| NC_010452.4 | 58096734 | 58097022 | - | 2.46 | -88 | 110255708 | FZD8 | 58093980 | 58096790 |
| NC_010443.5 | 121413557 | 121413871 | + | 2.68 | 3438 | 100157164 | GABPB1 | 121410276 | 121488165 |
| NC_010443.5 | 121413972 | 121414260 | + | 1.46 | 3840 | 100157164 | GABPB1 | 121410276 | 121488165 |
| NC_010456.5 | 60139069 | 60139665 | - | 1.53 | 1814 | 100153028 | GALNT2 | 59961279 | 60141181 |
| NC_010455.5 | 144457909 | 144458197 | - | 2.05 | 83 | 100623423 | GAP43 | 144364314 | 144458136 |
| NC_010456.5 | 14886358 | 14886593 | + | -1.12 | 2822 | 397555 | GATA4 | 14883653 | 14938156 |
| NC_010456.5 | 14887702 | 14888017 | + | 1.46 | 4206 | 397555 | GATA4 | 14883653 | 14938156 |
| NC_010459.5 | 46705495 | 46705783 | + | 2.78 | -3621 | 100625236 | GDAP1L1 | 46709260 | 46733275 |
| NC_010447.5 | 21189854 | 21190193 | + | 2.05 | -1364 | 397254 | GDF11 | 21191388 | 21199024 |

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|-------------|-----------|-----------|---|-------|-------|-----------|----------|-----------|-----------|
| NC_010452.4 | 65163907 | 65164237 | + | -1.86 | 3372 | 414427 | GDI2 | 65160700 | 65196447 |
| NC_010458.4 | 68279187 | 68279475 | + | 1.78 | 110 | 100524914 | GEMIN5 | 68279221 | 68330029 |
| NC_010458.4 | 68280168 | 68280456 | + | 2.46 | 1091 | 100524914 | GEMIN5 | 68279221 | 68330029 |
| NC_010445.4 | 73030200 | 73030488 | + | 2.78 | 1594 | 397209 | GFPT1 | 73028750 | 73086191 |
| NC_010445.4 | 73028316 | 73028604 | + | -0.12 | -290 | 397209 | GFPT1 | 73028750 | 73086191 |
| NC_010445.4 | 59202296 | 59202584 | + | 1.46 | 77 | 100620337 | GGCX | 59202363 | 59219807 |
| NC_010448.4 | 20163184 | 20163501 | + | -1.03 | 1078 | 100512472 | GINS3 | 20162264 | 20170385 |
| NC_010448.4 | 20158492 | 20158723 | + | -2.18 | -3656 | 100512472 | GINS3 | 20162264 | 20170385 |
| NC_010446.5 | 99722477 | 99722765 | - | 3.78 | 2322 | 100736742 | GJA8 | 99721754 | 99724943 |
| NC_010457.5 | 30581075 | 30581306 | - | -1.71 | -918 | 100520334 | GLI2 | 30312543 | 30580272 |
| NC_010447.5 | 38683541 | 38683838 | + | -2.12 | 3206 | 100737573 | GLIPR1L2 | 38680483 | 38710487 |
| NC_010457.5 | 95514822 | 95515335 | + | 2.05 | 1664 | 399525 | GLS | 95513414 | 95606029 |
| NC_010456.5 | 88006022 | 88006356 | - | 0.24 | -814 | 100157162 | GLUD1 | 87968850 | 88005375 |
| NC_010445.4 | 72619897 | 72620380 | - | -0.41 | -442 | 100511872 | GMCL1 | 72570426 | 72619696 |
| NC_010448.4 | 85657117 | 85657348 | + | -0.12 | -886 | 110261126 | GMEB1 | 85658119 | 85701211 |
| NC_010449.5 | 19585475 | 19585763 | + | 2.46 | -358 | 100515035 | GMNN | 19585977 | 19595346 |
| NC_010449.5 | 19585962 | 19586250 | + | 1.46 | 129 | 100515035 | GMNN | 19585977 | 19595346 |
| NC_010451.4 | 100270065 | 100270482 | - | 2.46 | 2000 | 100144419 | GNAI1 | 100187878 | 100272274 |
| NC_010446.5 | 110578940 | 110579228 | - | 1.46 | 247 | 100144421 | GNAI3 | 110527363 | 110579331 |
| NC_010455.5 | 32672125 | 32672413 | + | 2.20 | 892 | 100157237 | GNAT1 | 32671377 | 32678394 |
| NC_010448.4 | 63952518 | 63952806 | - | 2.46 | -66 | 110261346 | GNB1 | 63867155 | 63952596 |
| NC_010448.4 | 129248853 | 129249084 | + | -1.35 | 1644 | 102166994 | GNG5 | 129247324 | 129254973 |
| NC_010456.5 | 59239878 | 59240350 | - | 3.27 | 189 | 100156253 | GNPAT | 59203519 | 59240303 |
| NC_010456.5 | 22689299 | 22689587 | + | 1.14 | 103 | 100155657 | GOLGA3 | 22689340 | 22738544 |
| NC_010455.5 | 138750237 | 138750468 | + | -2.08 | -4450 | 100620515 | GOLGB1 | 138754803 | 138847254 |
| NC_010455.5 | 106892060 | 106892348 | - | -0.27 | 3005 | 100517915 | GOLIM4 | 106814825 | 106895209 |
| NC_010455.5 | 106892453 | 106892747 | - | -1.60 | 2609 | 100517915 | GOLIM4 | 106814825 | 106895209 |
| NC_010447.5 | 51952286 | 51952544 | - | -2.93 | 899 | 100154676 | GOLT1B | 51939480 | 51953314 |
| NC_010443.5 | 44238910 | 44239198 | + | 0.14 | -310 | 100520524 | GOPC | 44239364 | 44285886 |
| NC_010449.5 | 99326313 | 99326544 | + | -2.95 | 844 | 100153141 | GPATCH2L | 99325584 | 99376291 |
| NC_010458.4 | 36218610 | 36218841 | + | -0.54 | 1490 | 100521344 | GPBP1 | 36217235 | 36298003 |
| NC_010458.4 | 36218854 | 36219318 | + | 2.70 | 1851 | 100521344 | GPBP1 | 36217235 | 36298003 |
| NC_010447.5 | 16007689 | 16008035 | + | 1.29 | -317 | 100153250 | GPD1 | 16008179 | 16021676 |
| NC_010457.5 | 80461273 | 80461663 | - | 1.29 | 603 | 100511231 | GPR155 | 80417247 | 80462071 |

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|-------------|-----------|-----------|---|-------|-------|-----------|---------|-----------|-----------|
| NC_010445.4 | 49539644 | 49539875 | - | -1.71 | -3723 | 100736943 | GPR45 | 49531595 | 49536036 |
| NC_010443.5 | 63973445 | 63973882 | - | 3.27 | 751 | 100152431 | GPR63 | 63911304 | 63974415 |
| NC_010445.4 | 87339995 | 87340226 | + | -1.71 | -1509 | 100517153 | GPR75 | 87341620 | 87350664 |
| NC_010447.5 | 59537752 | 59538044 | + | -0.12 | 2985 | 100739328 | GPRC5D | 59534913 | 59545417 |
| NC_010446.5 | 111164762 | 111165050 | - | 1.73 | 996 | 100518248 | GPSM2 | 111100912 | 111165902 |
| NC_010446.5 | 111161073 | 111161362 | - | 1.46 | 4684 | 100518248 | GPSM2 | 111100912 | 111165902 |
| NC_010446.5 | 111164338 | 111164626 | - | 2.20 | 1420 | 100518248 | GPSM2 | 111100912 | 111165902 |
| NC_010455.5 | 31921078 | 31921414 | - | 2.20 | -3909 | 397403 | GPX1 | 31916269 | 31917337 |
| NC_010455.5 | 146043877 | 146044173 | - | -0.95 | 21 | 100513240 | GRAMD1C | 145997738 | 146044046 |
| NC_010454.4 | 5940876 | 5941255 | + | 2.20 | 342 | 100192436 | GRB2 | 5940723 | 6009095 |
| NC_010456.5 | 87227128 | 87227416 | - | 2.20 | -228 | 100153116 | GRID1 | 86539896 | 87227044 |
| NC_010443.5 | 68050505 | 68050793 | + | 2.20 | -2389 | 100516526 | GRIK2 | 68053038 | 68679088 |
| NC_010450.4 | 67608206 | 67608437 | - | 0.14 | -899 | 100516986 | GRSF1 | 67586935 | 67607422 |
| NC_010449.5 | 46657693 | 46657990 | - | 1.46 | -1350 | 100152951 | GSTA4 | 46635903 | 46656491 |
| NC_010449.5 | 46656361 | 46656696 | - | 2.88 | -37 | 100152951 | GSTA4 | 46635903 | 46656491 |
| NC_010443.5 | 112371554 | 112371878 | + | 3.27 | 424 | 100521701 | GTF2A2 | 112371292 | 112399541 |
| NC_010457.5 | 54445228 | 54445459 | + | -2.54 | 863 | 100513628 | GTF2E2 | 54444480 | 54525566 |
| NC_010444.4 | 40899049 | 40899337 | - | 2.78 | 1398 | 100525504 | GTF2H1 | 40857720 | 40900591 |
| NC_010445.4 | 19369028 | 19369260 | + | 0.46 | 747 | 100519247 | GTF3C1 | 19368397 | 19439640 |
| NC_010447.5 | 9323133 | 9323421 | - | 2.78 | -1085 | 100520611 | GTPBP1 | 9294329 | 9322192 |
| NC_010444.4 | 60355670 | 60355958 | - | 2.31 | -411 | 110259323 | GTPBP3 | 60352012 | 60355403 |
| NC_010450.4 | 35167208 | 35167866 | + | 2.31 | -78 | 100516681 | GUF1 | 35167615 | 35190450 |
| NC_010452.4 | 13941697 | 13941994 | + | 2.88 | 1907 | 396970 | H3F3A | 13939938 | 13947976 |
| NC_010455.5 | 2841097 | 2841568 | - | -0.86 | -459 | 100518218 | HACL1 | 2786007 | 2840873 |
| NC_010455.5 | 2840459 | 2840747 | - | 1.88 | 270 | 100518218 | HACL1 | 2786007 | 2840873 |
| NC_010450.4 | 114004960 | 114005478 | - | 2.10 | 291 | 397604 | HADH | 113952561 | 114005510 |
| NC_010444.4 | 60567792 | 60568080 | + | 1.88 | 361 | 100516543 | HAUS8 | 60567575 | 60593378 |
| NC_010444.4 | 142114928 | 142115471 | - | 3.05 | -7 | 397564 | HBEGF | 142102455 | 142115192 |
| NC_010445.4 | 41479531 | 41479819 | - | 0.88 | 477 | 100738328 | HBQ1 | 41478282 | 41480152 |
| NC_010443.5 | 28969279 | 28969510 | + | -0.12 | 616 | 100158211 | HBS1L | 28968778 | 29052425 |
| NC_010447.5 | 80409049 | 80409337 | - | 1.88 | 605 | 100514768 | HCFC2 | 80366826 | 80409798 |
| NC_010443.5 | 96724393 | 96724624 | - | -2.44 | 4986 | 100521177 | HDHD2 | 96682632 | 96729495 |
| NC_010456.5 | 103095283 | 103095571 | + | 3.46 | -265 | 100156944 | HECTD2 | 103095692 | 103182111 |
| NC_010456.5 | 105965783 | 105966229 | - | 1.98 | 997 | 100154547 | HELLS | 105923727 | 105967003 |

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|-------------|-----------|-----------|---|-------|-------|-----------|-----------|-----------|-----------|
| NC_010443.5 | 108207086 | 108207395 | + | 0.05 | 1055 | 100153537 | HERC1 | 108206185 | 108404149 |
| NC_010450.4 | 130666376 | 130666607 | - | 1.46 | -901 | 100626657 | HERC6 | 130594941 | 130665590 |
| NC_010455.5 | 131136041 | 131136272 | + | -1.71 | 186 | 100499567 | HES1 | 131135970 | 131137865 |
| NC_010444.4 | 83745709 | 83746046 | + | 2.20 | 614 | 396958 | HEXB | 83745263 | 83784762 |
| NC_010450.4 | 83680390 | 83680621 | - | -1.35 | -2142 | 100525059 | HHIP | 83583735 | 83678363 |
| NC_010455.5 | 151231294 | 151231734 | - | -0.68 | 3315 | 102166962 | HHLA2 | 151153982 | 151234829 |
| NC_010443.5 | 22239518 | 22239869 | + | 3.46 | -2891 | 100525369 | HIVEP2 | 22242585 | 22436940 |
| NC_010449.5 | 20998671 | 20998959 | + | -0.12 | -98 | 100157353 | HMGH4 | 20998913 | 21003138 |
| NC_010457.5 | 13768234 | 13768555 | - | 2.68 | -288 | 100624677 | HNMT | 13733412 | 13768106 |
| NC_010447.5 | 19488502 | 19488824 | + | -1.12 | 3630 | 768103 | HNRNPA1 | 19485033 | 19489559 |
| NC_010447.5 | 19486015 | 19486357 | + | -2.12 | 1153 | 768103 | HNRNPA1 | 19485033 | 19489559 |
| NC_010460.4 | 46205331 | 46205646 | + | 0.88 | 324 | 100521762 | HNRNPA2B1 | 46205164 | 46215854 |
| NC_010460.4 | 46206234 | 46206718 | + | 1.78 | 1312 | 100521762 | HNRNPA2B1 | 46205164 | 46215854 |
| NC_010457.5 | 82960144 | 82960406 | + | -1.12 | 1946 | 100516520 | HNRNPA3 | 82958329 | 82968740 |
| NC_010456.5 | 71485099 | 71485332 | + | -1.44 | -1085 | 100155513 | HNRNPH3 | 71486301 | 71498356 |
| NC_010448.4 | 47654511 | 47654799 | - | 2.20 | 1201 | 102163392 | HNRNPL | 47643561 | 47655856 |
| NC_010448.4 | 81238370 | 81238665 | - | -2.29 | 1305 | 100620404 | HNRNPR | 81203079 | 81239823 |
| NC_010448.4 | 49279610 | 49280079 | + | 3.27 | -451 | 100622274 | HNRNPUL1 | 49280296 | 49315967 |
| NC_010444.4 | 9037283 | 9037514 | + | -2.54 | 2729 | 100620658 | HNRNPUL2 | 9034669 | 9048906 |
| NC_010444.4 | 9036643 | 9036992 | + | 2.27 | 2148 | 100620658 | HNRNPUL2 | 9034669 | 9048906 |
| NC_010444.4 | 88244975 | 88245479 | - | -3.65 | 778 | 100511070 | HOMER1 | 88116664 | 88246005 |
| NC_010448.4 | 109299025 | 109299348 | + | 3.46 | -3077 | 397224 | HRH4 | 109302264 | 109318019 |
| NC_010443.5 | 40179194 | 40179560 | - | 2.85 | 931 | 100154234 | HSF2 | 40147267 | 40180308 |
| NC_010447.5 | 80527518 | 80527806 | - | 1.88 | 3354 | 397191 | HSP90B1 | 80511513 | 80531016 |
| NC_010449.5 | 88606571 | 88607277 | + | 2.09 | -216 | 100621324 | HSPA2 | 88607140 | 88609947 |
| NC_010457.5 | 101375562 | 101375825 | + | 0.46 | 1674 | 397575 | HSPE1 | 101374019 | 101376146 |
| NC_010457.5 | 101374375 | 101374721 | + | 2.05 | 529 | 397575 | HSPE1 | 101374019 | 101376146 |
| NC_010453.5 | 7759943 | 7760327 | - | 1.05 | -700 | 100048931 | HSPH1 | 7733880 | 7759435 |
| NC_010461.5 | 94051997 | 94052523 | + | 2.88 | -1155 | 100524920 | HTR2C | 94053415 | 94313352 |
| NC_010461.5 | 46443390 | 46443621 | - | 1.24 | -1678 | 100517442 | HUWE1 | 46281962 | 46441827 |
| NC_010448.4 | 14311441 | 14311672 | - | -1.86 | -3766 | 100513208 | HYDIN | 13895276 | 14307790 |
| NC_010448.4 | 14305557 | 14305845 | - | 1.68 | 2089 | 100513208 | HYDIN | 13895276 | 14307790 |
| NC_010445.4 | 42022125 | 42022368 | - | -1.08 | 340 | 100624746 | IARS | 41945846 | 42022587 |
| NC_010452.4 | 31340377 | 31340996 | - | 2.46 | 94 | 100622692 | IDNK | 31329716 | 31340781 |

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|-------------|-----------|-----------|---|-------|-------|-----------|-------------|-----------|-----------|
| NC_010444.4 | 65912756 | 65913044 | - | 1.20 | -409 | 100525209 | IER2 | 65909638 | 65912491 |
| NC_010443.5 | 96760194 | 96760575 | - | 3.05 | 3490 | 100521060 | IER3IP1 | 96740718 | 96763875 |
| NC_010448.4 | 134648041 | 134648329 | - | 1.20 | 1672 | 100525523 | IFI44 | 134634679 | 134649857 |
| NC_010448.4 | 134678684 | 134679023 | - | 2.05 | 358 | 100511267 | IFI44L | 134660230 | 134679212 |
| NC_010457.5 | 68983635 | 68984014 | - | -0.12 | 1320 | 100101927 | IFIH1 | 68930998 | 68985145 |
| NC_010456.5 | 101237408 | 101237675 | + | -1.71 | 138 | 100153038 | IFIT1 | 101237403 | 101249486 |
| NC_010455.5 | 196802094 | 196802437 | + | 3.05 | 290 | 100533555 | IFNAR2 | 196801975 | 196852640 |
| NC_010443.5 | 201278204 | 201278592 | - | 2.27 | -97 | 100153693 | IFN-DELTA-8 | 201277798 | 201278301 |
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| NC_010443.5 | 201319420 | 201319651 | - | -1.12 | -1974 | 100154075 | IFN-OMEGA-7 | 201316989 | 201317561 |
| NC_010443.5 | 137692968 | 137693256 | - | 1.46 | -3263 | 397350 | IGF1R | 137383623 | 137689849 |
| NC_010443.5 | 137692179 | 137692493 | - | 1.61 | -2487 | 397350 | IGF1R | 137383623 | 137689849 |
| NC_010451.4 | 92275193 | 92275636 | - | 1.73 | -3150 | 100621977 | IGF2BP3 | 92104786 | 92272264 |
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| NC_010449.5 | 47527972 | 47528263 | - | 0.20 | 1081 | 100153993 | IREB2 | 47481539 | 47529199 |
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| NC_010447.5 | 29597630 | 29597918 | + | 0.88 | 1440 | 100511508 | LEMD3 | 29596334 | 29672704 |
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| NC_010450.4 | 927492 | 927780 | - | 0.88 | -1136 | 100514302 | LETM1 | 898178 | 926500 |
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| NC_010445.4 | 6528561 | 6528849 | + | 1.88 | 2711 | 106508762 | LOC106508762 | 6525994 | 6539895 |
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| NC_010446.5 | 72781828 | 72782298 | - | 2.14 | 2071 | 106510078 | LOC106510078 | 72775536 | 72784134 |
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| NC_010448.4 | 165134881 | 165135334 | + | 1.14 | 425 | 100525052 | LRRC41 | 165134682 | 165156915 |
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| NC_010446.5 | 51566204 | 51566435 | - | -0.12 | 4081 | 100152599 | LRRCC1 | 51525044 | 51570401 |
| NC_010455.5 | 36885793 | 36886024 | - | -2.12 | -4322 | 106505617 | LRTM1 | 36870269 | 36881586 |

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| NC_010458.4 | 65595727 | 65596027 | - | 2.88 | 4728 | 100522906 | LSM11 | 65587502 | 65600605 |
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| NC_010457.5 | 16915819 | 16916123 | + | 1.46 | 4854 | 100511286 | MAP3K19 | 16911117 | 16976598 |
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| NC_010461.5 | 98729766 | 98730054 | + | 2.20 | 52 | 100511797 | MCTS1 | 98729858 | 98742967 |

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| NC_010449.5 | 23247362 | 23247593 | - | -1.67 | 261 | 100144453 | MDC1 | 23229508 | 23247739 |
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| NC_010454.4 | 22830058 | 22830394 | + | -0.27 | -179 | 100513621 | MED1 | 22830405 | 22872420 |
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| NC_010458.4 | 66114925 | 66115213 | + | 2.05 | 202 | 733689 | MED7 | 66114867 | 66121096 |
| NC_010454.4 | 60933959 | 60934247 | - | 2.05 | -104 | 100512681 | MED9 | 60925161 | 60933999 |
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| NC_010445.4 | 34054265 | 34054496 | - | -2.35 | 1093 | 100523174 | METTL22 | 34035901 | 34055474 |
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| NC_010449.5 | 50750785 | 50751073 | - | 0.88 | 2190 | 110261545 | MEX3B | 50747828 | 50753119 |
| NC_010443.5 | 127741749 | 127742117 | + | 2.88 | 526 | 100157390 | MFAP1 | 127741407 | 127756168 |
| NC_010454.4 | 4798702 | 4798974 | - | -1.86 | 1126 | 100622284 | MFSD11 | 4774675 | 4799964 |
| NC_010457.5 | 95016571 | 95016883 | + | 2.78 | 1446 | 100037960 | MFSD6 | 95015281 | 95102228 |
| NC_010460.4 | 7862597 | 7862876 | - | -0.86 | 977 | 100623494 | MGAM2 | 7767831 | 7863714 |
| NC_010450.4 | 87389209 | 87389582 | - | 1.68 | 841 | 100622296 | MGST2 | 87318180 | 87390237 |
| NC_010456.5 | 75444444 | 75445007 | - | 3.22 | 902 | 100155980 | MICU1 | 75203731 | 75445628 |
| NC_010448.4 | 135511069 | 135511300 | - | -0.54 | 1353 | 100625285 | MIGA1 | 135423411 | 135512538 |
| NC_010448.4 | 135511787 | 135512075 | - | 0.29 | 607 | 100625285 | MIGA1 | 135423411 | 135512538 |
| NC_010443.5 | 113257189 | 113257420 | - | -1.93 | 1456 | 102161333 | MINDY2 | 113171047 | 113258761 |
| NC_010452.4 | 45979369 | 45980364 | + | 1.84 | -223 | 100525772 | MINDY3 | 45980090 | 46062700 |
| NC_010448.4 | 78008917 | 78009168 | + | 0.29 | -2443 | 100623381 | MINOS1 | 78011486 | 78045919 |
| NC_010456.5 | 99575146 | 99575389 | + | -0.54 | 841 | 100152243 | MINPP1 | 99574426 | 99628388 |
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| NC_010459.5 | 19362661 | 19362892 | - | 0.46 | 230 | 100157552 | MKKS | 19341024 | 19363007 |
| NC_010448.4 | 164887519 | 164887972 | + | 1.05 | 25 | 100233194 | MKMK1 | 164887720 | 164933526 |
| NC_010455.5 | 68546326 | 68546614 | + | 1.05 | -12 | 100626891 | MKRN2 | 68546482 | 68584341 |
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| NC_010455.5 | 95023320 | 95023551 | + | -0.54 | 1276 | 100511536 | MME | 95022159 | 95122977 |
| NC_010451.4 | 33486077 | 33486393 | - | 2.46 | -2605 | 100101475 | MMP12 | 33473625 | 33483630 |
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| NC_010450.4 | 75754500 | 75754788 | - | 1.20 | 1167 | 100517105 | MND1 | 75689845 | 75755811 |
| NC_010445.4 | 68853227 | 68853670 | + | -0.80 | 979 | 100738341 | MOB1A | 68852469 | 68876706 |
| NC_010457.5 | 101391712 | 101391949 | + | -1.71 | 917 | 613127 | MOBKL3 | 101390913 | 101420282 |
| NC_010457.5 | 101391316 | 101391604 | + | 1.46 | 547 | 613127 | MOBKL3 | 101390913 | 101420282 |
| NW_018084979.1 | 1081257 | 1081549 | - | 0.88 | 282 | 100520316 | MOK | 1046000 | 1081685 |
| NC_010448.4 | 10725686 | 10725974 | - | 3.78 | -541 | 100520385 | MON1B | 10713721 | 10725289 |
| NC_010447.5 | 27127191 | 27127877 | + | -1.53 | 1413 | 100154568 | MON2 | 27126121 | 27246725 |
| NC_010461.5 | 110783583 | 110784094 | - | 2.46 | 2484 | 100359355 | MOSPD1 | 110693538 | 110786323 |
| NC_010454.4 | 52878823 | 52879111 | + | 0.98 | 43 | 733696 | MPDU1 | 52878924 | 52882854 |
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| NC_010455.5 | 79139442 | 79139741 | + | 1.46 | -141 | 100621398 | MRAS | 79139733 | 79211139 |
| NC_010454.4 | 47086883 | 47087171 | - | 2.20 | 366 | 100522640 | MRM3 | 47077812 | 47087393 |
| NC_010448.4 | 157736083 | 157736371 | - | 1.78 | -1921 | 100513545 | MROH7 | 157657492 | 157734306 |
| NC_010459.5 | 40308098 | 40308444 | - | 1.78 | -4372 | 100736939 | MROH8 | 40289934 | 40303899 |
| NC_010446.5 | 18609426 | 18609714 | + | 1.88 | 651 | 100153348 | MRPL13 | 18608919 | 18671523 |
| NC_010458.4 | 68277407 | 68277749 | - | 1.14 | 102 | 100739015 | MRPL22 | 68229725 | 68277680 |
| NC_010458.4 | 68276835 | 68277140 | - | -1.86 | 692 | 100739015 | MRPL22 | 68229725 | 68277680 |
| NC_010454.4 | 26669366 | 26669941 | - | 2.46 | 467 | 100737651 | MRPL27 | 26663884 | 26670121 |
| NC_010445.4 | 58571386 | 58571674 | - | 1.20 | 3580 | 100517705 | MRPL35 | 58559523 | 58575110 |
| NC_010456.5 | 112069984 | 112070570 | - | 0.88 | -51 | 100152229 | MRPL43 | 112068678 | 112070226 |
| NC_010454.4 | 23766020 | 23766662 | - | 0.14 | 135 | 100628029 | MRPL45 | 23751921 | 23766476 |
| NC_010444.4 | 74927279 | 74927567 | - | 2.20 | 773 | 100521888 | MRPL54 | 74925064 | 74928196 |
| NC_010443.5 | 191317697 | 191317985 | - | 3.78 | 4110 | 414415 | MRPS11 | 191310547 | 191321951 |
| NC_010455.5 | 80208017 | 80208248 | + | -0.76 | -230 | 100158122 | MRPS22 | 80208363 | 80232107 |
| NC_010454.4 | 34129771 | 34130167 | - | 2.78 | -395 | 100511221 | MRPS23 | 34123679 | 34129574 |
| NC_010446.5 | 56607355 | 56607586 | + | -0.71 | -195 | 100152709 | MRPS28 | 56607666 | 56706918 |
| NC_010460.4 | 8883879 | 8884233 | + | 1.20 | 591 | 100624933 | MRPS33 | 8883465 | 8894473 |
| NC_010444.4 | 11192774 | 11193031 | - | -0.35 | 826 | 100627859 | MS4A12 | 11177406 | 11193729 |
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| NC_010444.4 | 89251015 | 89251330 | + | 2.05 | -4474 | 100512158 | MSH3 | 89255647 | 89456102 |
| NC_010455.5 | 77178605 | 77179035 | - | 2.20 | 2590 | 100155763 | MSL2 | 77147823 | 77181410 |
| NC_010446.5 | 124124583 | 124125025 | - | 0.42 | -366 | 100156808 | MTF2 | 124051586 | 124124438 |
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| NC_010459.5 | 5505628 | 5505924 | - | 1.88 | 1436 | 100153650 | MTUS1 | 5331668 | 5507212 |
| NC_010448.4 | 166004683 | 166005017 | + | 3.05 | 1220 | 100513867 | MUTYH | 166003630 | 166012191 |
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| NC_010445.4 | 72543547 | 72543778 | - | -1.08 | 1639 | 100625349 | MXD1 | 72517829 | 72545302 |
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| NC_010446.5 | 12461920 | 12462324 | - | 0.20 | -1762 | 448810 | MYC | 12455141 | 12460360 |
| NC_010455.5 | 22975543 | 22975999 | + | 1.78 | -1180 | 396646 | MYD88 | 22976951 | 22979568 |
| NC_010455.5 | 29739465 | 29739759 | - | 1.16 | -3996 | 100515755 | MYL3 | 29730271 | 29735616 |
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| NC_010450.4 | 87691301 | 87691649 | - | 0.88 | -162 | 100513554 | NAA15 | 87608439 | 87691313 |
| NC_010452.4 | 29319021 | 29319256 | - | -3.12 | 3570 | 100517363 | NAA35 | 29221531 | 29322709 |
| NC_010447.5 | 21625973 | 21626261 | + | -0.12 | 1401 | 100154321 | NABP2 | 21624716 | 21631716 |
| NC_010445.4 | 71513541 | 71513829 | - | 0.88 | -696 | 100523729 | NAGK | 71496191 | 71512989 |
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| NC_010456.5 | 128964086 | 128964317 | + | -0.12 | 1890 | 100157783 | NANOS1 | 128962311 | 128964207 |
| NC_010443.5 | 106933629 | 106934202 | - | 0.29 | -810 | 100513328 | NARS | 106911267 | 106933105 |
| NC_010451.4 | 13011304 | 13011535 | - | 1.05 | -522 | 100514245 | NARS2 | 12869347 | 13010897 |
| NC_010444.4 | 26827168 | 26827456 | - | 2.27 | -252 | 100511365 | NAT10 | 26786172 | 26827060 |
| NC_010457.5 | 106515888 | 106516119 | + | -2.35 | -278 | 100514254 | NBEAL1 | 106516282 | 106686685 |
| NC_010454.4 | 19788301 | 19788781 | - | 2.05 | 467 | 100625110 | NBR1 | 19755733 | 19789008 |
| NC_010455.5 | 133173389 | 133173677 | + | 2.46 | -3676 | 100156513 | NCBP2 | 133177209 | 133192935 |
| NC_010448.4 | 91748297 | 91748975 | + | 2.75 | 744 | 110261145 | NCDN | 91747892 | 91756812 |
| NC_010457.5 | 88526878 | 88527109 | - | -0.86 | 1423 | 100158033 | NCKAP1 | 88425861 | 88528417 |
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| NC_010445.4 | 114136298 | 114136586 | - | 0.46 | 986 | 574068 | NCOA1 | 113997218 | 114137428 |
| NC_010443.5 | 142412999 | 142413287 | + | 3.05 | 455 | 100144475 | NDN | 142412688 | 142413665 |

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| NC_010444.4 | 151457603 | 151457942 | + | 3.27 | -4548 | 110259541 | NDST1 | 151462321 | 151525909 |
| NC_010457.5 | 139031482 | 139031770 | - | 3.78 | 266 | 100521478 | NDUFA10 | 138999174 | 139031892 |
| NC_010459.5 | 22480865 | 22481251 | + | 2.05 | 713 | 100520522 | NDUFAF5 | 22480345 | 22508804 |
| NC_010455.5 | 139730035 | 139730578 | - | 0.24 | 185 | 100624335 | NDUFB4 | 139724145 | 139730492 |
| NC_010450.4 | 87695818 | 87696049 | + | 0.46 | 660 | 100037985 | NDUFC1 | 87695273 | 87700024 |
| NC_010457.5 | 109448820 | 109449051 | - | -0.80 | 2877 | 100516402 | NDUFS1 | 109413726 | 109451813 |
| NC_010458.4 | 32874340 | 32874742 | + | 1.68 | 123 | 100516161 | NDUFS4 | 32874418 | 32982661 |
| NC_010459.5 | 37177672 | 37177960 | - | 2.05 | -552 | 100620656 | NECAB3 | 37160431 | 37177264 |
| NC_010451.4 | 46892270 | 46892558 | - | 0.88 | -850 | 397247 | NECTIN1 | 46823552 | 46891564 |
| NC_010447.5 | 86731931 | 86732219 | - | 1.46 | 1437 | 100514234 | NEDD1 | 86693802 | 86733512 |
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| NC_010452.4 | 20968936 | 20969229 | + | 0.73 | 2422 | 100521742 | NEK7 | 20966660 | 21124270 |
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| NC_010448.4 | 28667580 | 28667912 | + | -1.71 | 1244 | 100739450 | NFATC3 | 28666502 | 28806423 |
| NC_010448.4 | 151228962 | 151229193 | - | -1.12 | 695 | 100523676 | NFIA | 150834002 | 151229773 |
| NC_010456.5 | 2601435 | 2601856 | - | -0.37 | 1609 | 100153822 | NFIL3 | 2588887 | 2603255 |
| NC_010448.4 | 47703788 | 47704076 | + | 1.46 | 288 | 100621111 | NFKBIB | 47703644 | 47712661 |
| NC_010455.5 | 157271245 | 157271836 | - | 2.49 | 1578 | 100520981 | NFKBIZ | 157261419 | 157273119 |
| NC_010451.4 | 56655079 | 56655367 | - | 3.78 | 833 | 100624755 | NFRKB | 56616865 | 56656056 |
| NC_010445.4 | 72982986 | 72983344 | + | 3.46 | 90 | 102165918 | NFU1 | 72983075 | 73013227 |
| NC_010458.4 | 27855359 | 27855667 | + | 1.68 | -2595 | 100524404 | NIM1K | 27858108 | 27930365 |
| NC_010454.4 | 20722412 | 20722700 | - | 2.05 | 585 | 100524706 | NKIRAS2 | 20717545 | 20723141 |
| NC_010445.4 | 41320255 | 41320543 | - | 1.78 | 603 | 100233195 | NME4 | 41306167 | 41321002 |
| NC_010444.4 | 140167269 | 140167557 | - | 2.78 | 1242 | 100621441 | NME5 | 140132871 | 140168655 |
| NC_010457.5 | 941027 | 941289 | + | -0.95 | -221 | 100621233 | NMI | 941379 | 966519 |
| NC_010443.5 | 228140966 | 228141254 | - | 3.27 | 780 | 100518171 | NMRK1 | 228113323 | 228141890 |
| NC_010445.4 | 125866276 | 125866564 | + | 2.46 | 4998 | 100512777 | NOL10 | 125861422 | 125956626 |
| NC_010454.4 | 14035887 | 14036118 | + | 0.29 | 353 | 106504086 | NOL11 | 14035649 | 14058421 |
| NC_010459.5 | 36196569 | 36196947 | - | 2.20 | 4277 | 100511968 | NOL4L | 36070836 | 36201035 |
| NC_010448.4 | 67395637 | 67395868 | - | -1.35 | 689 | 100518312 | NOL9 | 67375212 | 67396442 |
| NC_010456.5 | 113158348 | 113158636 | + | 2.46 | 3873 | 100517974 | NOLC1 | 113154619 | 113166922 |
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| NC_010449.5 | 74990474 | 74990762 | - | 2.20 | 1490 | 100154880 | NOP9 | 74985748 | 74992108 |
| NC_010448.4 | 54636272 | 54636638 | - | 0.24 | -424 | 100518311 | NOSIP | 54618977 | 54636031 |

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| NC_010445.4 | 46378810 | 46379098 | - | 2.05 | -675 | 100523176 | NPHP1 | 46316864 | 46378279 |
| NC_010455.5 | 73899850 | 73900138 | - | 1.20 | 1025 | 100521403 | NPHP3 | 73857414 | 73901019 |
| NC_010458.4 | 52780359 | 52780651 | - | 1.27 | 1266 | 100525313 | NPM1 | 52767455 | 52781771 |
| NC_010458.4 | 52780878 | 52781323 | - | 2.20 | 670 | 100525313 | NPM1 | 52767455 | 52781771 |
| NC_010456.5 | 112821655 | 112821995 | - | 0.88 | 419 | 100627227 | NPM3 | 112819390 | 112822244 |
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| NC_010446.5 | 105846484 | 105846715 | + | -1.67 | 686 | 100739349 | NRAS | 105845913 | 105853769 |
| NC_010449.5 | 19003650 | 19003881 | + | -1.27 | -4026 | 100154240 | NRSN1 | 19007792 | 19027226 |
| NC_010450.4 | 939581 | 939869 | + | 3.78 | -4675 | 100515039 | NSD2 | 944400 | 1018032 |
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| NC_010443.5 | 144474121 | 144474724 | - | 1.78 | -396 | 100620354 | NSMCE3 | 144469617 | 144474026 |
| NC_010447.5 | 80621734 | 80622022 | + | 3.46 | -3791 | 100521376 | NT5DC3 | 80625669 | 80692481 |
| NC_010445.4 | 39935487 | 39935850 | + | 2.46 | 40 | 100516255 | NTHL1 | 39935628 | 39941718 |
| NC_010460.4 | 5927841 | 5928129 | - | -0.54 | 894 | 100517250 | NUB1 | 5899566 | 5928879 |
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| NC_010444.4 | 109059252 | 109059540 | - | 3.78 | 325 | 100512459 | NUDT12 | 109044946 | 109059721 |
| NC_010456.5 | 75917609 | 75917859 | + | 1.05 | -342 | 106504089 | NUDT13 | 75918076 | 75958187 |
| NC_010453.5 | 19583696 | 19583997 | - | -0.93 | 718 | 100621855 | NUDT15 | 19572963 | 19584565 |
| NC_010448.4 | 29340234 | 29340481 | + | -2.71 | 464 | 100625681 | NUDT21 | 29339893 | 29359596 |
| NC_010460.4 | 13777490 | 13777802 | - | 2.27 | 127 | 100523151 | NUP205 | 13674301 | 13777773 |
| NC_010446.5 | 95570883 | 95571114 | + | -1.54 | -2975 | 100157113 | NUP210L | 95573974 | 95697196 |
| NC_010454.4 | 6104251 | 6104539 | - | 0.14 | -558 | 100526070 | NUP85 | 6072731 | 6103837 |
| NC_010443.5 | 44185810 | 44186098 | - | 1.27 | 270 | 100154658 | NUS1 | 44156771 | 44186224 |
| NC_010443.5 | 44183056 | 44183298 | - | -2.71 | 3047 | 100154658 | NUS1 | 44156771 | 44186224 |
| NC_010443.5 | 44184913 | 44185304 | - | -0.71 | 1115 | 100154658 | NUS1 | 44156771 | 44186224 |
| NC_010443.5 | 130065576 | 130066235 | - | 2.46 | -264 | 106509022 | NUSAP1 | 129992797 | 130065641 |
| NC_010456.5 | 38863131 | 38863419 | - | 1.20 | 4152 | 397570 | OAS1 | 38851083 | 38867427 |
| NC_010456.5 | 38846909 | 38847234 | - | 2.46 | -917 | 595128 | OAS2 | 38827667 | 38846154 |
| NC_010443.5 | 130035973 | 130036284 | + | 2.68 | -349 | 100516409 | OIP5 | 130036478 | 130054058 |

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| NC_010449.5 | 22513015 | 22513303 | + | 3.78 | -2516 | 100141414 | OLF42-3 | 22515675 | 22516659 |
| NC_010443.5 | 26803429 | 26803717 | + | 2.46 | 2902 | 100153431 | OLIG3 | 26800671 | 26801489 |
| NC_010448.4 | 153878240 | 153878813 | + | 2.27 | -3908 | 100626843 | OMA1 | 153882435 | 153950460 |
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| NC_010459.5 | 62906873 | 62907161 | + | 2.20 | 1317 | 397364 | OPRL1 | 62905700 | 62913018 |
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| NC_010448.4 | 78241753 | 78242151 | + | 3.05 | 340 | 110261108 | OTUD3 | 78241612 | 78273544 |
| NC_010458.4 | 26659180 | 26659468 | - | 1.27 | 415 | 396978 | OXCT1 | 26514497 | 26659739 |
| NC_010446.5 | 30931602 | 30931890 | - | 2.20 | -2195 | 100153332 | OXR1 | 30735844 | 30929551 |
| NC_010456.5 | 31457343 | 31457591 | - | 0.46 | 2069 | 497623 | P2RX7 | 31415188 | 31459536 |
| NC_010456.5 | 75919008 | 75919478 | - | 1.46 | -122 | 100037299 | P4HA1 | 75827207 | 75919121 |
| NC_010444.4 | 134535128 | 134535416 | - | 3.05 | -1057 | 100623801 | P4HA2 | 134502210 | 134534215 |
| NC_010447.5 | 21496886 | 21497174 | + | 2.20 | 1022 | 100737962 | PA2G4 | 21496008 | 21503297 |
| NC_010444.4 | 15381909 | 15382197 | + | 2.78 | -669 | 100512824 | PACSIN3 | 15382722 | 15389893 |
| NC_010451.4 | 44513261 | 44513603 | + | 2.46 | 318 | 100523683 | PAFAH1B2 | 44513114 | 44534312 |
| NC_010447.5 | 81386652 | 81386940 | + | 3.46 | 1395 | 100521900 | PAH | 81385401 | 81460569 |
| NC_010459.5 | 31826420 | 31826764 | - | 3.46 | -4396 | 100520054 | PANK2 | 31797604 | 31822196 |
| NC_010459.5 | 31826837 | 31827143 | - | -1.35 | -4794 | 100520054 | PANK2 | 31797604 | 31822196 |
| NC_010444.4 | 88329005 | 88329293 | + | 1.37 | 848 | 100512336 | PAPD4 | 88328301 | 88388242 |
| NC_010458.4 | 75254748 | 75255036 | - | 2.46 | 4913 | 100517864 | PAPD7 | 75217212 | 75259805 |
| NC_010449.5 | 117675492 | 117675746 | + | -0.80 | -464 | 100156323 | PAPOLA | 117676083 | 117740340 |
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| NC_010455.5 | 83668551 | 83668909 | - | 0.88 | 792 | 100516760 | PAQR9 | 83660387 | 83669522 |
| NC_010459.5 | 52192016 | 52192304 | + | 1.88 | -3200 | 100151957 | PARD6B | 52195360 | 52211504 |
| NC_010447.5 | 66439447 | 66439678 | + | -2.44 | -4030 | 100524437 | PARP11 | 66443593 | 66483630 |
| NC_010458.4 | 30306937 | 30307225 | + | 1.78 | 1418 | 100511108 | PARP8 | 30305663 | 30486416 |
| NC_010448.4 | 150604576 | 150604908 | - | 3.27 | 823 | 100524203 | PATJ | 150248714 | 150605565 |
| NC_010456.5 | 11563213 | 11563501 | - | 3.63 | 3540 | 100141310 | PBK | 11543657 | 11566897 |
| NC_010449.5 | 24226701 | 24227239 | - | 2.29 | -30 | 100144541 | PBX2 | 24221565 | 24226940 |
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| NC_010446.5 | 92036972 | 92037506 | - | 0.73 | 3485 | 100038007 | PCD1B | 92035122 | 92040724 |
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| NC_010455.5 | 133802073 | 133802361 | + | 0.61 | 1256 | 100512194 | PCYT1A | 133800961 | 133851004 |
| NC_010455.5 | 19598054 | 19598416 | + | -0.54 | 1171 | 100512811 | PDCD6IP | 19597064 | 19664047 |
| NC_010447.5 | 52734000 | 52734288 | - | 1.88 | 3627 | 396555 | PDE3A | 52413503 | 52737771 |
| NC_010450.4 | 104273187 | 104273573 | + | -1.12 | 1445 | 397616 | PDE5A | 104271935 | 104420955 |
| NC_010450.4 | 104271763 | 104272108 | + | 3.05 | 0 | 397616 | PDE5A | 104271935 | 104420955 |
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| NC_010457.5 | 46543729 | 46544020 | - | 1.14 | 2708 | 414421 | PDLIM3 | 46516178 | 46546583 |
| NC_010459.5 | 35615711 | 35616208 | - | 2.88 | 107 | 100738964 | PDRG1 | 35608805 | 35616067 |
| NC_010453.5 | 9016098 | 9016386 | + | 3.05 | 1491 | 100154396 | PDS5B | 9014751 | 9222825 |
| NC_010453.5 | 5300813 | 5301101 | + | 2.20 | -2652 | 397288 | PDX1 | 5303609 | 5309063 |
| NC_010451.4 | 46401764 | 46402052 | + | 0.88 | 470 | 100519043 | PDZD3 | 46401438 | 46406207 |
| NC_010456.5 | 127500502 | 127500733 | - | -0.71 | 1803 | 100153734 | PDZD8 | 127395842 | 127502421 |
| NC_010457.5 | 118334548 | 118334797 | - | -1.44 | 1213 | 100312978 | PECR | 118296359 | 118335886 |
| NC_010444.4 | 5959393 | 5959737 | - | 1.46 | 220 | 100519073 | PELI3 | 5950552 | 5959785 |
| NC_010454.4 | 39932119 | 39932407 | + | 1.78 | 583 | 100517306 | PEX12 | 39931680 | 39936632 |
| NC_010454.4 | 39926472 | 39926936 | + | 1.20 | -4976 | 100517306 | PEX12 | 39931680 | 39936632 |
| NC_010446.5 | 59252534 | 59252837 | + | -2.29 | 353 | 100152963 | PEX2 | 59252332 | 59270117 |
| NC_010459.5 | 55155810 | 55156163 | + | 0.88 | 214 | 100144532 | PFDN4 | 55155772 | 55168024 |
| NC_010456.5 | 22779560 | 22779791 | - | -1.35 | 1228 | 106508765 | PGAM5 | 22773135 | 22780904 |
| NC_010461.5 | 62186424 | 62186712 | + | 3.46 | -904 | 407608 | PGK1 | 62187472 | 62210321 |
| NC_010461.5 | 97738365 | 97738653 | + | 2.78 | 3107 | 396946 | PGRMC1 | 97735402 | 97743424 |
| NC_010449.5 | 9341255 | 9341597 | + | 2.37 | -2505 | 100153737 | PHACTR1 | 9343931 | 9666886 |
| NC_010443.5 | 21726323 | 21726611 | - | 1.63 | -3212 | 100524350 | PHACTR2 | 21438744 | 21723255 |
| NC_010448.4 | 85411618 | 85411946 | + | 2.46 | -211 | 100622686 | PHACTR4 | 85411993 | 85529441 |
| NC_010446.5 | 8468880 | 8469168 | - | 1.05 | -715 | 100153657 | PHF20L1 | 8394874 | 8468309 |
| NC_010443.5 | 45216284 | 45216515 | + | -2.35 | -3025 | 110260283 | PHF3 | 45219425 | 45295074 |
| NC_010445.4 | 17656390 | 17656703 | - | 1.68 | 217 | 100310801 | PHKG2 | 17640790 | 17656764 |
| NC_010443.5 | 158860341 | 158860629 | - | 1.46 | 3158 | 100154633 | PHLPP1 | 158642810 | 158863643 |
| NC_010444.4 | 340784 | 341225 | + | 2.27 | -367 | 100512701 | PHRF1 | 341372 | 371699 |
| NC_010446.5 | 106808442 | 106808948 | + | -3.71 | -231 | 100154428 | PHTF1 | 106808926 | 106885954 |

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| NC_010446.5 | 97917513 | 97917744 | + | -0.80 | -606 | 100156778 | PI4KB | 97918235 | 97949929 |
| NC_010451.4 | 19945912 | 19946172 | - | 0.46 | 1197 | 100519857 | PICALM | 19835934 | 19947239 |
| NC_010451.4 | 19944856 | 19945116 | - | -0.54 | 2253 | 100519857 | PICALM | 19835934 | 19947239 |
| NC_010451.4 | 19945282 | 19945591 | - | -1.35 | 1802 | 100519857 | PICALM | 19835934 | 19947239 |
| NC_010446.5 | 109031667 | 109031958 | - | 2.27 | 1902 | 102160142 | PIFO | 109021109 | 109033715 |
| NC_010443.5 | 116517775 | 116518063 | - | 0.78 | 1732 | 100515767 | PIGB | 116492910 | 116519651 |
| NC_010443.5 | 159318310 | 159318598 | + | 2.29 | 589 | 100522054 | PIGN | 159317865 | 159417335 |
| NC_010456.5 | 48312827 | 48313115 | - | 3.46 | 4573 | 100153506 | PISD | 48303459 | 48317544 |
| NC_010454.4 | 47784252 | 47784578 | - | 2.68 | 972 | 100623388 | PITPNA | 47739631 | 47785387 |
| NC_010445.4 | 98266449 | 98266781 | - | 3.05 | 1924 | 100516968 | PKDCC | 98258456 | 98268539 |
| NC_010446.5 | 57876418 | 57876706 | - | 2.78 | 2622 | 397408 | PKIA | 57872114 | 57879184 |
| NC_010446.5 | 127708492 | 127708760 | - | -2.67 | 649 | 100154766 | PKN2 | 127579097 | 127709275 |
| NC_010451.4 | 52302982 | 52303270 | + | 1.20 | 104 | 100525656 | PKNOX2 | 52303022 | 52608505 |
| NC_010451.4 | 128000117 | 128000385 | + | 0.17 | -147 | 100520687 | PLA2G4A | 128000398 | 128164825 |
| NC_010447.5 | 9714120 | 9714408 | + | 2.78 | 410 | 100514711 | PLA2G6 | 9713854 | 9777921 |
| NC_010443.5 | 196177336 | 196177700 | + | 2.56 | 1509 | 100511733 | PLAA | 196176009 | 196219614 |
| NC_010447.5 | 54259793 | 54260047 | + | -0.93 | 2211 | 397632 | PLCZ1 | 54257709 | 54452557 |
| NC_010446.5 | 41533965 | 41534196 | - | 0.65 | 851 | 110260255 | PLEKHF2 | 41512109 | 41534932 |
| NC_010444.4 | 76404957 | 76405245 | - | 0.88 | 69 | 100514627 | PLEKHJ1 | 76402453 | 76405170 |
| NC_010451.4 | 39950019 | 39950307 | - | 2.20 | -454 | 396570 | PLET1 | 39936355 | 39949709 |
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| NC_010445.4 | 22548090 | 22548378 | - | 1.05 | 2667 | 396953 | PLK1 | 22537814 | 22550901 |
| NC_010446.5 | 118754810 | 118755098 | - | 2.63 | -2455 | 100158146 | PLPPR4 | 118713987 | 118752499 |
| NC_010455.5 | 86867484 | 86868288 | - | 1.14 | 1683 | 100620055 | PLSCR1 | 86836288 | 86869569 |
| NC_010455.5 | 73102632 | 73102920 | - | 2.46 | -3990 | 100624579 | PLXNA1 | 73054434 | 73098786 |
| NC_010443.5 | 57129792 | 57130163 | + | -2.08 | 1877 | 106508885 | PNRC1 | 57128100 | 57132071 |
| NC_010461.5 | 68577760 | 68578016 | - | 0.46 | 2029 | 100523581 | POF1B | 68503170 | 68579917 |
| NC_010451.4 | 8906886 | 8907174 | + | 2.46 | 539 | 100626052 | POLD3 | 8906491 | 8956845 |
| NC_010447.5 | 6174899 | 6175187 | + | 1.46 | -3735 | 100525164 | POLDIP3 | 6178778 | 6201940 |
| NC_010443.5 | 179528894 | 179529182 | - | 0.05 | 853 | 100521651 | POLE2 | 179495278 | 179529891 |
| NC_010443.5 | 238193859 | 238194147 | + | 2.05 | -3656 | 100156445 | POLR1E | 238197659 | 238219475 |
| NC_010457.5 | 59479080 | 59479543 | + | 1.10 | -319 | 100737579 | POLR2D | 59479631 | 59495975 |
| NC_010447.5 | 9917218 | 9917608 | - | 0.78 | 308 | 100737214 | POLR2F | 9905359 | 9917721 |

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| NC_010456.5 | 6521399 | 6521697 | + | -0.12 | 535 | 100154035 | POLR3D | 6521013 | 6529526 |
| NC_010459.5 | 26719256 | 26719563 | + | 1.20 | 70 | 100738796 | POLR3F | 26719339 | 26737635 |
| NC_010449.5 | 100391557 | 100391850 | - | 1.46 | 460 | 100155173 | POMT2 | 100350451 | 100392164 |
| NC_010460.4 | 22885304 | 22885535 | + | -0.86 | -288 | 100192443 | POT1 | 22885708 | 22981893 |
| NC_010456.5 | 73166782 | 73167070 | - | 1.61 | 762 | 100155201 | PPA1 | 73132368 | 73167688 |
| NC_010450.4 | 116249396 | 116249684 | + | 2.05 | 9 | 100521105 | PPA2 | 116249531 | 116333847 |
| NC_010459.5 | 62537499 | 62537787 | + | 2.20 | 133 | 110257398 | PPDPF | 62537510 | 62539012 |
| NC_010450.4 | 71550840 | 71551128 | - | 2.46 | 4993 | 100511942 | PPEF2 | 71519873 | 71555977 |
| NC_010451.4 | 113730852 | 113731140 | + | 1.20 | 3139 | 100512361 | PPFIA4 | 113727857 | 113777772 |
| NC_010451.4 | 113727491 | 113727779 | + | 0.46 | -222 | 100512361 | PPFIA4 | 113727857 | 113777772 |
| NC_010457.5 | 75942601 | 75942832 | + | 1.46 | 2317 | 100155786 | PPIG | 75940399 | 75979168 |
| NC_010457.5 | 75941498 | 75941982 | + | 0.00 | 1341 | 100155786 | PPIG | 75940399 | 75979168 |
| NC_010449.5 | 32549965 | 32550253 | - | 0.05 | -2235 | 100524445 | PPIL1 | 32522736 | 32547874 |
| NC_010457.5 | 104583214 | 104583639 | - | 1.31 | 325 | 100156964 | PPIL3 | 104569138 | 104583752 |
| NC_010445.4 | 111748949 | 111749257 | + | -1.44 | 1091 | 100739632 | PPM1G | 111748012 | 111770868 |
| NC_010449.5 | 23164621 | 23164912 | - | 1.46 | 1104 | 100144450 | PPP1R10 | 23148843 | 23165871 |
| NC_010449.5 | 22634157 | 22634388 | + | -1.12 | 49 | 100141423 | PPP1R11 | 22634223 | 22636987 |
| NC_010447.5 | 101491630 | 101492255 | + | -2.18 | 1660 | 397190 | PPP1R12A | 101490282 | 101639456 |
| NC_010451.4 | 65067202 | 65067490 | - | 0.46 | 1737 | 100512360 | PPP1R15B | 65056495 | 65069083 |
| NC_010454.4 | 22689852 | 22690140 | - | 2.78 | 975 | 100736966 | PPP1R1B | 22681244 | 22690971 |
| NC_010455.5 | 132487369 | 132488282 | - | 1.19 | 1664 | 100156975 | PPP1R2 | 132460186 | 132489490 |
| NC_010444.4 | 136519094 | 136519499 | - | 3.27 | 3333 | 397656 | PPP2CA | 136497780 | 136522630 |
| NC_010451.4 | 131074369 | 131074731 | - | 0.46 | 1253 | 100101925 | PPP2R5A | 131003903 | 131075803 |
| NC_010445.4 | 85652914 | 85653145 | + | -0.93 | 2965 | 100512224 | PPP4R3B | 85650064 | 85708808 |
| NC_010451.4 | 56750179 | 56750410 | - | -2.54 | -807 | 100517360 | PRDM10 | 56657270 | 56749487 |
| NC_010447.5 | 12639527 | 12639815 | + | 1.46 | 1281 | 100155716 | PRDM4 | 12638390 | 12668890 |
| NC_010450.4 | 103193285 | 103193595 | + | 1.46 | -356 | 100522885 | PRDM5 | 103193796 | 103383955 |
| NC_010450.4 | 137615161 | 137615449 | - | 1.88 | -3916 | 100514243 | PRDM8 | 137604805 | 137611389 |
| NC_010448.4 | 165844558 | 165844846 | + | 2.20 | -2688 | 100512476 | PRDX1 | 165847390 | 165859918 |
| NC_010447.5 | 15045030 | 15045261 | - | -0.86 | 4530 | 414426 | PRKAG1 | 15033051 | 15049676 |
| NC_010450.4 | 136756249 | 136756564 | + | 2.27 | 1092 | 100512796 | PRKG2 | 136755314 | 136854589 |
| NC_010457.5 | 84156435 | 84156764 | - | 3.05 | -3 | 100155653 | PRKRA | 84134273 | 84156596 |
| NC_010457.5 | 84155453 | 84155741 | - | 4.05 | 999 | 100155653 | PRKRA | 84134273 | 84156596 |
| NC_010445.4 | 73707393 | 73707681 | - | 2.78 | 3873 | 100737690 | PROKR1 | 73689583 | 73711410 |

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| NC_010446.5 | 111345745 | 111346135 | - | 2.05 | 1565 | 100154667 | PRPF38B | 111338988 | 111347505 |
| NC_010457.5 | 60440166 | 60440540 | - | 1.68 | 125 | 100157937 | PRPF40A | 60391451 | 60440478 |
| NC_010454.4 | 24209303 | 24209711 | - | 2.78 | -775 | 100626612 | PRR15L | 24203811 | 24208732 |
| NC_010444.4 | 77649461 | 77650003 | + | 2.46 | -9 | 102159474 | PRSS57 | 77649741 | 77657627 |
| NC_010456.5 | 74769486 | 74769774 | - | 2.88 | 33 | 100153167 | PSAP | 74734185 | 74769663 |
| NC_010459.5 | 12649310 | 12649598 | + | 2.46 | -1229 | 100623956 | PSD3 | 12650683 | 13267176 |
| NC_010449.5 | 96480118 | 96480507 | + | 2.31 | 2133 | 780411 | PSEN1 | 96478179 | 96567884 |
| NC_010444.4 | 44740606 | 44741022 | + | 2.88 | 712 | 100516779 | PSMA1 | 44740102 | 44755296 |
| NC_010443.5 | 187342686 | 187342974 | + | 2.42 | 599 | 100154408 | PSMA3 | 187342231 | 187371149 |
| NC_010448.4 | 91829689 | 91829977 | - | 1.46 | 109 | 100622444 | PSMB2 | 91792055 | 91829942 |
| NC_010451.4 | 103362041 | 103362607 | + | 0.16 | -360 | 100514865 | PSMC2 | 103362684 | 103376048 |
| NC_010448.4 | 48407413 | 48407701 | + | 3.46 | 1320 | 110260986 | PSMC4 | 48406237 | 48414470 |
| NC_010457.5 | 131807840 | 131808128 | + | 4.05 | 390 | 100153828 | PSMD1 | 131807594 | 131912194 |
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| NC_010443.5 | 253090985 | 253091713 | - | 2.74 | 1292 | 768100 | PTBP3 | 252986716 | 253092641 |
| NC_010458.4 | 48604438 | 48605104 | + | 1.34 | -243 | 100519399 | PTCD2 | 48605014 | 48635954 |
| NC_010458.4 | 48601053 | 48601492 | + | 2.78 | -3741 | 100519399 | PTCD2 | 48605014 | 48635954 |
| NC_010452.4 | 38938432 | 38938845 | - | 2.46 | -1155 | 100620580 | PTCHD3 | 38927543 | 38937483 |
| NC_010456.5 | 99932520 | 99932886 | + | 1.46 | 2647 | 100156264 | PTEN | 99930056 | 100021619 |
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| NC_010458.4 | 25674454 | 25674893 | + | 2.46 | 3841 | 100625072 | PTGER4 | 25670832 | 25686556 |
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| NC_010451.4 | 102561794 | 102562039 | - | -1.71 | 2052 | 100625763 | PTPN12 | 102480914 | 102563969 |
| NC_010451.4 | 102562365 | 102562846 | - | 0.73 | 1363 | 100625763 | PTPN12 | 102480914 | 102563969 |
| NC_010449.5 | 110453855 | 110454143 | - | 2.78 | -179 | 100152076 | PTPN21 | 110374915 | 110453820 |
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| NC_010443.5 | 34695465 | 34695803 | + | -1.86 | 2262 | 100153609 | PTPRK | 34693372 | 35258699 |
| NC_010447.5 | 57260193 | 57260491 | - | 1.14 | 3053 | 100524563 | PTPRO | 57021819 | 57263395 |
| NC_010454.4 | 35932355 | 35932753 | - | 2.95 | 672 | 100519562 | PTRH2 | 35924030 | 35933226 |
| NC_010458.4 | 63109219 | 63109450 | - | -1.76 | 3005 | 397015 | PTTG1 | 63104698 | 63112340 |
| NC_010448.4 | 87686212 | 87686500 | - | 2.37 | 1127 | 100517038 | PUM1 | 87546388 | 87687483 |
| NC_010451.4 | 53028679 | 53028967 | - | 1.78 | -302 | 100512802 | PUS3 | 53018878 | 53028521 |
| NC_010447.5 | 74836332 | 74836573 | - | -0.54 | -1921 | 100155187 | PUS7L | 74805634 | 74834531 |

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| NC_010448.4 | 63593874 | 63594162 | + | 2.46 | 479 | 100524091 | PUSL1 | 63593539 | 63596921 |
| NC_010458.4 | 63409425 | 63409713 | + | 3.27 | -329 | 100518878 | PWWP2A | 63409898 | 63449997 |
| NC_010452.4 | 13845545 | 13845833 | - | 2.78 | 211 | 100524702 | PYCR2 | 13841755 | 13845900 |
| NC_010443.5 | 4880196 | 4880513 | - | 0.46 | 3031 | 492277 | QKI | 4732691 | 4883386 |
| NC_010445.4 | 102823112 | 102823400 | - | 2.20 | -166 | 397424 | QPCT | 102795199 | 102823090 |
| NC_010455.5 | 31713202 | 31713684 | - | 3.78 | 1080 | 100525663 | QRICH1 | 31663812 | 31714523 |
| NC_010447.5 | 22688317 | 22688548 | - | -2.71 | 1493 | 100627213 | R3HDM2 | 22558645 | 22689926 |
| NC_010445.4 | 112924210 | 112924541 | - | 3.05 | -187 | 100526104 | RAB10 | 112842190 | 112924188 |
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| NC_010445.4 | 112921705 | 112922209 | - | 0.10 | 2231 | 100526104 | RAB10 | 112842190 | 112924188 |
| NC_010443.5 | 163859248 | 163859650 | + | 2.46 | 1195 | 595117 | RAB11A | 163858254 | 163887741 |
| NC_010444.4 | 70893406 | 70893694 | - | 1.20 | 2619 | 100513782 | RAB11B | 70884457 | 70896169 |
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| NC_010457.5 | 48528974 | 48529205 | + | -2.35 | -2168 | 100625212 | RAB11FIP1 | 48531258 | 48561408 |
| NC_010448.4 | 99242542 | 99242830 | - | 2.46 | 1941 | 110261168 | RAB12 | 99216225 | 99244627 |
| NC_010443.5 | 261255801 | 261256097 | - | 0.78 | 964 | 595112 | RAB14 | 261228112 | 261256913 |
| NC_010456.5 | 40140059 | 40140406 | - | 3.78 | 1028 | 100151805 | RAB35 | 40124318 | 40141261 |
| NC_010455.5 | 6906192 | 6906505 | + | -2.12 | 1046 | 100144499 | RAB5A | 6905302 | 6940165 |
| NC_010454.4 | 20613978 | 20614327 | + | 0.78 | 161 | 100523862 | RAB5C | 20613991 | 20635952 |
| NC_010451.4 | 116960797 | 116961299 | + | 1.88 | 1884 | 100519968 | RABGAP1L | 116959164 | 117060057 |
| NC_010452.4 | 24866708 | 24867201 | - | 2.05 | 186 | 100511035 | RABIF | 24859382 | 24867141 |
| NC_010458.4 | 47500127 | 47500559 | + | 2.20 | 674 | 100515763 | RAD17 | 47499669 | 47529703 |
| NC_010455.5 | 65358954 | 65359242 | - | 0.61 | 408 | 100217383 | RAD18 | 65261270 | 65359506 |
| NC_010443.5 | 248450097 | 248450328 | + | -0.35 | 2221 | 100153668 | RAD23B | 248447991 | 248493651 |
| NC_010449.5 | 91592044 | 91592467 | + | 1.46 | -157 | 100519785 | RAD51B | 91592413 | 91812676 |
| NC_010454.4 | 60771027 | 60771443 | - | 2.68 | -3390 | 110256137 | RAI1 | 60751159 | 60767845 |
| NC_010448.4 | 98597442 | 98597853 | - | 2.14 | 1297 | 100519155 | RALBP1 | 98550925 | 98598945 |
| NC_010456.5 | 24316347 | 24316600 | - | -2.54 | 1550 | 397655 | RAN | 24312810 | 24318024 |
| NC_010449.5 | 10055771 | 10056002 | - | -0.76 | 1870 | 100153339 | RANBP9 | 9976094 | 10057757 |
| NC_010449.5 | 10057665 | 10057953 | - | 3.05 | -52 | 100153339 | RANBP9 | 9976094 | 10057757 |
| NC_010454.4 | 53484947 | 53485178 | + | 0.65 | 478 | 100628074 | RANGRF | 53484584 | 53486716 |
| NC_010447.5 | 32912792 | 32913059 | + | -1.71 | 2744 | 100152555 | RAP1B | 32910181 | 32961972 |
| NC_010444.4 | 133950313 | 133950552 | - | -2.27 | 986 | 100521255 | RAPGEF6 | 133708265 | 133951419 |
| NC_010450.4 | 69829083 | 69829649 | - | 1.82 | 2792 | 100525351 | RASSF6 | 69773526 | 69832158 |

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| NC_010453.5 | 19316283 | 19316515 | - | -1.35 | 1236 | 100151828 | RB1 | 19186754 | 19317635 |
| NC_010456.5 | 38085443 | 38085731 | + | 1.20 | 3545 | 100156794 | RBM19 | 38082042 | 38202548 |
| NC_010449.5 | 13122360 | 13122684 | + | -2.29 | -3996 | 100156013 | RBM24 | 13126518 | 13139504 |
| NC_010461.5 | 87574465 | 87575034 | - | 0.14 | 368 | 100516772 | RBM41 | 87512887 | 87575118 |
| NC_010455.5 | 14973733 | 14973964 | + | -2.12 | 4920 | 100739397 | RBMS3 | 14968928 | 16458470 |
| NC_010457.5 | 54724038 | 54724402 | - | 3.27 | 289 | 100514545 | RBPMS | 54538585 | 54724509 |
| NC_010447.5 | 7514961 | 7515249 | - | 1.88 | 283 | 110260638 | RBX1 | 7500492 | 7515388 |
| NW_018084979.1 | 1332584 | 1332872 | + | 2.56 | 1901 | 100155804 | RCOR1 | 1330827 | 1469644 |
| NC_010448.4 | 59293751 | 59294086 | - | 2.46 | -779 | 110261049 | RDH13 | 59274383 | 59293139 |
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| NC_010447.5 | 21168612 | 21168900 | + | 2.46 | 1855 | 100517586 | RDH5 | 21166901 | 21170913 |
| NC_010456.5 | 66962563 | 66963021 | + | 0.65 | -3276 | 100158143 | REEP3 | 66966068 | 67071200 |
| NC_010445.4 | 80910929 | 80911301 | - | 3.73 | 1118 | 100525104 | REL | 80861862 | 80912233 |
| NC_010450.4 | 29185986 | 29186274 | - | 1.20 | 4461 | 100522085 | RELL1 | 29118511 | 29190591 |
| NC_010447.5 | 46031920 | 46032234 | - | 2.10 | -514 | 100514348 | REP15 | 46029302 | 46031563 |
| NC_010447.5 | 54936859 | 54937147 | + | 1.78 | -2381 | 100153016 | RERGL | 54939384 | 54952059 |
| NC_010458.4 | 5776668 | 5777096 | - | 3.46 | -7 | 100625174 | RETREG1 | 5726501 | 5776875 |
| NC_010445.4 | 59400670 | 59400965 | + | 1.68 | -343 | 100519138 | RETSAT | 59401161 | 59416829 |
| NC_010445.4 | 25239290 | 25239578 | - | 0.78 | -472 | 100512042 | REXO5 | 25187759 | 25238962 |
| NC_010456.5 | 34641982 | 34642270 | - | 3.46 | 472 | 100153965 | RFC5 | 34630374 | 34642598 |
| NC_010454.4 | 40085815 | 40086103 | + | 1.88 | -671 | 100627054 | RFFL | 40086630 | 40151034 |
| NC_010451.4 | 118112832 | 118113110 | - | -2.12 | 1297 | 100520856 | RFWD2 | 117913504 | 118114268 |
| NC_010443.5 | 115843975 | 115844348 | + | 2.46 | -46 | 100152054 | RFX7 | 115844208 | 115871951 |
| NC_010443.5 | 13338486 | 13338717 | + | -1.12 | -2399 | 100514020 | RGS17 | 13341001 | 13442058 |
| NC_010456.5 | 46411183 | 46411471 | - | 1.31 | -110 | 100158098 | RHBDD3 | 46403146 | 46411217 |
| NC_010456.5 | 64399720 | 64399951 | - | 0.73 | 47 | 100153330 | RHOBTB1 | 64326461 | 64399883 |
| NC_010447.5 | 3974048 | 3974400 | - | -1.86 | 1800 | 100519482 | RIBC2 | 3966339 | 3976024 |
| NC_010456.5 | 29494927 | 29495215 | + | 2.05 | 111 | 100626388 | RILPL2 | 29494960 | 29522923 |
| NC_010451.4 | 105392899 | 105393280 | + | 2.29 | 236 | 100517297 | RINT1 | 105392853 | 105430198 |
| NC_010455.5 | 162330649 | 162331095 | + | 0.46 | 331 | 110256447 | RIOX2 | 162330541 | 162354420 |
| NC_010455.5 | 205152832 | 205153120 | - | 2.46 | 24 | 100518276 | RIPK4 | 205127239 | 205153000 |
| NC_010446.5 | 94119007 | 94119295 | + | 0.65 | 862 | 100155905 | RIT1 | 94118289 | 94127882 |
| NC_010446.5 | 50344900 | 50345259 | + | 1.68 | 190 | 100156087 | RMDN1 | 50344889 | 50386187 |
| NC_010444.4 | 80247762 | 80248107 | - | 1.88 | -933 | 100510951 | RMND5B | 80226047 | 80247001 |

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| NC_010453.5 | 16911744 | 16912063 | - | 2.20 | 51 | 100625239 | RNASEH2B | 16825799 | 16911955 |
| NC_010443.5 | 2146060 | 2146348 | + | 1.78 | -503 | 100157985 | RNASET2 | 2146707 | 2164768 |
| NC_010445.4 | 58162136 | 58162882 | + | -2.56 | 1422 | 100515888 | RNF103 | 58161087 | 58183750 |
| NC_010448.4 | 160910478 | 160911107 | - | 1.84 | 920 | 100736575 | RNF11 | 160875868 | 160911713 |
| NC_010455.5 | 90033992 | 90034576 | + | 0.34 | -300 | 100621829 | RNF13 | 90034584 | 90178421 |
| NC_010444.4 | 48985222 | 48985510 | + | 0.20 | -175 | 100620525 | RNF141 | 48985541 | 49028891 |
| NC_010456.5 | 47947500 | 47947788 | + | 3.05 | 1260 | 100157569 | RNF185 | 47946384 | 47979702 |
| NC_010449.5 | 75831772 | 75832325 | - | 3.14 | -593 | 100516275 | RNF212B | 75798895 | 75831455 |
| NC_010456.5 | 47360034 | 47360322 | - | 2.46 | -2987 | 100739143 | RNF215 | 47351296 | 47357191 |
| NC_010443.5 | 37909780 | 37910201 | - | 1.36 | 2131 | 100738102 | RNF217 | 37784359 | 37912122 |
| NC_010454.4 | 34694583 | 34694871 | - | 0.88 | 294 | 100517305 | RNF43 | 34631574 | 34695021 |
| NC_010444.4 | 81379421 | 81379709 | + | 2.78 | 610 | 100523538 | RNF44 | 81378955 | 81390227 |
| NC_010443.5 | 57062126 | 57062467 | - | 2.05 | -311 | 100520874 | RNGTT | 56852864 | 57061985 |
| NC_010456.5 | 100604100 | 100604388 | - | 1.78 | 648 | 100155046 | RNLS | 100312592 | 100604892 |
| NC_010448.4 | 96362008 | 96362239 | - | -0.54 | 690 | 100621823 | RNMT | 96338283 | 96362814 |
| NC_010445.4 | 125354215 | 125354661 | + | 2.05 | 1319 | 397445 | ROCK2 | 125353119 | 125493368 |
| NC_010443.5 | 227575148 | 227575379 | + | 0.20 | 1291 | 100739111 | RORB | 227573972 | 227776806 |
| NC_010443.5 | 44410986 | 44411381 | + | 1.53 | 1305 | 100156931 | ROS1 | 44409878 | 44535784 |
| NC_010443.5 | 44412101 | 44412473 | + | 2.22 | 2409 | 100156931 | ROS1 | 44409878 | 44535784 |
| NC_010447.5 | 78065985 | 78066273 | - | 1.46 | 102 | 100623899 | RPAP3 | 78023796 | 78066231 |
| NC_010443.5 | 99047676 | 99048229 | - | -0.97 | 424 | 100625001 | RPL17 | 99044511 | 99048377 |
| NC_010443.5 | 179476578 | 179476866 | - | 3.05 | 1098 | 396952 | RPL36AL | 179476638 | 179477820 |
| NC_010455.5 | 71891909 | 71892140 | + | -1.12 | -575 | 397606 | RPN1 | 71892600 | 71908772 |
| NC_010455.5 | 71891131 | 71891419 | + | 0.78 | -1325 | 397606 | RPN1 | 71892600 | 71908772 |
| NC_010456.5 | 102566364 | 102566652 | + | 1.95 | 706 | 100156540 | RPP30 | 102565802 | 102606046 |
| NC_010446.5 | 98734596 | 98734897 | - | 2.24 | -140 | 100620276 | RPRD2 | 98640925 | 98734606 |
| NC_010448.4 | 50010328 | 50010616 | - | 0.88 | -444 | 100518254 | RPS19 | 50003198 | 50010028 |
| NC_010443.5 | 203445998 | 203446254 | + | -2.35 | 1675 | 100038023 | RPS6 | 203444451 | 203447643 |
| NC_010443.5 | 203443367 | 203443736 | + | 0.85 | -899 | 100038023 | RPS6 | 203444451 | 203447643 |
| NC_010445.4 | 7572344 | 7572791 | - | -1.73 | -577 | 100624003 | RRN3 | 7537131 | 7571990 |
| NC_010446.5 | 93362778 | 93363066 | - | 1.46 | 3102 | 100152334 | RRNAD1 | 93358141 | 93366024 |
| NC_010451.4 | 12274131 | 12274419 | - | 0.68 | 3845 | 100217384 | RSF1 | 12121824 | 12278120 |
| NC_010443.5 | 116612105 | 116612698 | + | 2.78 | 66 | 100623328 | RSL24D1 | 116612335 | 116629161 |
| NC_010443.5 | 36070305 | 36070578 | - | -2.03 | -4009 | 100155208 | RSPO3 | 35985985 | 36066432 |

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| NC_010452.4 | 45079792 | 45080159 | + | -0.12 | 961 | 100524759 | RSU1 | 45079014 | 45289423 |
| NC_010446.5 | 117874600 | 117874888 | - | 2.05 | 886 | 100154102 | RTCA | 117852776 | 117875630 |
| NC_010447.5 | 12579756 | 12580100 | + | -0.44 | -365 | 733658 | RTCB | 12580293 | 12605722 |
| NC_010443.5 | 129941929 | 129942217 | - | 0.88 | 772 | 100524183 | RTF1 | 129886798 | 129942845 |
| NC_010445.4 | 68599454 | 68599742 | + | 1.61 | -541 | 100518548 | RTKN | 68600139 | 68613633 |
| NC_010445.4 | 86178097 | 86178328 | + | -2.86 | -1809 | 100170118 | RTN4 | 86180022 | 86252126 |
| NC_010444.4 | 79020722 | 79020953 | - | 0.05 | -3655 | 100519354 | RUFY1 | 78974361 | 79017182 |
| NC_010456.5 | 71550090 | 71550464 | - | 1.88 | -2540 | 100154292 | RUFY2 | 71497232 | 71547737 |
| NC_010448.4 | 54250892 | 54251233 | + | 2.05 | 556 | 100511637 | RUVBL2 | 54250506 | 54263492 |
| NC_010446.5 | 97260930 | 97261744 | + | 2.01 | -497 | 100515138 | S100A10 | 97261834 | 97272517 |
| NC_010446.5 | 97235809 | 97236097 | + | 1.78 | 2120 | 445534 | S100A11 | 97233833 | 97239081 |
| NC_010454.4 | 26315316 | 26315605 | - | 3.27 | 87 | 102159512 | SAMD14 | 26295159 | 26315548 |
| NC_010449.5 | 100451378 | 100451609 | + | -0.67 | 1935 | 100152746 | SAMD15 | 100449558 | 100463889 |
| NC_010456.5 | 77680300 | 77680611 | + | -0.71 | 1168 | 100151793 | SAMD8 | 77679287 | 77737657 |
| NC_010456.5 | 16680950 | 16681299 | - | 1.78 | 799 | 100620430 | SAP30 | 16674835 | 16681924 |
| NC_010443.5 | 180432462 | 180432757 | - | -0.41 | 1848 | 100156165 | SAV1 | 180404871 | 180434458 |
| NC_010444.4 | 49241109 | 49241397 | + | 2.05 | -1488 | 100521123 | SBF2 | 49242741 | 49691769 |
| NC_010444.4 | 49243462 | 49243693 | + | 0.20 | 836 | 100521123 | SBF2 | 49242741 | 49691769 |
| NC_010448.4 | 54686433 | 54686721 | + | 1.61 | 1240 | 100521729 | SCAF1 | 54685337 | 54700400 |
| NC_010448.4 | 54686796 | 54687084 | + | 1.46 | 1603 | 100521729 | SCAF1 | 54685337 | 54700400 |
| NC_010447.5 | 76875596 | 76875974 | - | 2.05 | 866 | 100525109 | SCAF11 | 76809441 | 76876651 |
| NC_010449.5 | 58673279 | 58673567 | + | 0.20 | 784 | 100154517 | SCAMP2 | 58672639 | 58699145 |
| NC_010452.4 | 15263657 | 15263945 | - | 0.46 | 615 | 100512485 | SCCPDH | 15205644 | 15264416 |
| NC_010449.5 | 68851345 | 68851647 | - | 2.14 | -441 | 100157840 | SCFD1 | 68742126 | 68851055 |
| NC_010449.5 | 68850978 | 68851294 | - | 1.30 | -81 | 100157840 | SCFD1 | 68742126 | 68851055 |
| NC_010444.4 | 16997 | 17664 | + | 3.18 | -221 | 100517148 | SCGB1C1 | 17552 | 20717 |
| NC_010444.4 | 149119243 | 149119531 | + | 1.68 | -1265 | 100622733 | SCGB3A2 | 149120652 | 149124614 |
| NC_010457.5 | 72916369 | 72916657 | - | 1.20 | -4161 | 100516701 | SCN9A | 72745706 | 72912352 |
| NC_010446.5 | 825713 | 826001 | + | 2.78 | 932 | 110260417 | SCRIB | 824925 | 852360 |
| NC_010459.5 | 34561389 | 34561677 | + | 1.78 | 3286 | 100620262 | SCRT2 | 34558247 | 34570434 |
| NC_010448.4 | 87537239 | 87537745 | - | 2.14 | -1803 | 100516859 | SDC3 | 87495041 | 87535689 |
| NC_010452.4 | 13897071 | 13897395 | - | 1.68 | 614 | 100524888 | SDE2 | 13879482 | 13897847 |
| NC_010448.4 | 75676967 | 75677271 | - | 1.05 | 992 | 414412 | SDHB | 75648362 | 75678111 |
| NC_010444.4 | 136885270 | 136885512 | + | 0.46 | 1516 | 100511986 | SEC24A | 136883875 | 136952181 |

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| NC_010444.4 | 136884763 | 136885051 | + | 3.20 | 1032 | 100511986 | SEC24A | 136883875 | 136952181 |
| NC_010450.4 | 112762665 | 112763077 | - | 1.68 | -1 | 100622653 | SEC24B | 112670529 | 112762870 |
| NC_010450.4 | 104560806 | 104561094 | + | 0.20 | 227 | 100739491 | SEC24D | 104560723 | 105005400 |
| NC_010450.4 | 135434868 | 135435099 | + | -0.67 | 2866 | 100511210 | SEC31A | 135432117 | 135495124 |
| NC_010443.5 | 74077494 | 74077759 | - | -1.35 | 978 | 100152304 | SEC63 | 74003428 | 74078605 |
| NC_010458.4 | 27546800 | 27547096 | - | -2.58 | 915 | 100037964 | SELENOP | 27537885 | 27547863 |
| NC_010449.5 | 55766716 | 55767004 | + | 4.05 | 1215 | 110261555 | SEMA4B | 55765645 | 55793982 |
| NC_010455.5 | 133268293 | 133268581 | - | 3.46 | 763 | 100526077 | SENP5 | 133196061 | 133269200 |
| NC_010448.4 | 145188448 | 145188819 | + | 1.14 | 2082 | 100518613 | SERBP1 | 145186551 | 145201781 |
| NC_010443.5 | 40098767 | 40099492 | + | 2.63 | -193 | 102158514 | SERINC1 | 40099323 | 40141552 |
| NC_010455.5 | 106560210 | 106560501 | + | 2.82 | 1029 | 100154352 | SERPINI1 | 106559326 | 106636930 |
| NC_010448.4 | 85327504 | 85327792 | + | 2.78 | 4325 | 100620966 | SESN2 | 85323323 | 85348044 |
| NC_010451.4 | 27277696 | 27278041 | - | 0.53 | 1336 | 100526065 | SESN3 | 27207239 | 27279205 |
| NC_010455.5 | 199588341 | 199588629 | - | 1.46 | 1439 | 100622154 | SETD4 | 199564048 | 199589924 |
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| NC_010456.5 | 129075010 | 129075429 | - | 1.46 | 578 | 100154966 | SFXN4 | 129047831 | 129075798 |
| NC_010458.4 | 67484171 | 67484463 | - | -2.71 | -2608 | 100240724 | SGCD | 66447995 | 67481709 |
| NC_010451.4 | 74471077 | 74471509 | - | -0.86 | 2609 | 100240725 | SGCE | 74402714 | 74473902 |
| NC_010455.5 | 7153605 | 7153905 | - | -0.12 | -553 | 100520101 | SGO1 | 7137891 | 7153202 |
| NC_010444.4 | 72393176 | 72393613 | + | 2.20 | -906 | 100521544 | SH2D3A | 72394301 | 72406242 |
| NC_010445.4 | 59322796 | 59323084 | - | 0.46 | 4118 | 100520186 | SH2D6 | 59319980 | 59327058 |
| NC_010455.5 | 203046049 | 203046369 | + | 2.88 | -366 | 100626262 | SH3BGR | 203046575 | 203108638 |
| NC_010455.5 | 203046875 | 203047167 | + | 0.46 | 446 | 100626262 | SH3BGR | 203046575 | 203108638 |
| NC_010447.5 | 10187815 | 10188117 | - | 1.68 | -83 | 100623659 | SH3BP1 | 10172303 | 10187883 |
| NC_010448.4 | 48809067 | 48809355 | + | 3.78 | -3952 | 110260987 | SHKBP1 | 48813163 | 48826461 |
| NC_010447.5 | 22539414 | 22539702 | + | 1.20 | 3778 | 100626911 | SHMT2 | 22535780 | 22540322 |
| NC_010446.5 | 105779529 | 105779760 | + | -0.86 | -151 | 100156436 | SIKE1 | 105779796 | 105791241 |
| NC_010459.5 | 33612382 | 33612670 | - | 3.46 | -1151 | 494566 | SIRPA | 33566270 | 33611375 |
| NC_010444.4 | 53791 | 54022 | - | -1.86 | 1122 | 100125971 | SIRT3 | 38465 | 55029 |
| NW_018084979.1 | 3028127 | 3028415 | + | 1.78 | -1511 | 110258343 | SIVA1 | 3029782 | 3034647 |
| NC_010448.4 | 52100528 | 52100816 | - | 2.46 | -1214 | 100626906 | SIX5 | 52095332 | 52099458 |
| NC_010444.4 | 136474240 | 136474599 | - | 0.82 | 1944 | 110259483 | SKP1 | 136458772 | 136476364 |
| NC_010444.4 | 136474875 | 136475106 | - | 0.46 | 1373 | 110259483 | SKP1 | 136458772 | 136476364 |
| NC_010450.4 | 82114815 | 82115086 | + | -0.44 | -107 | 100192449 | SLC10A7 | 82115058 | 82164221 |

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| NC_010449.5 | 80192295 | 80192572 | + | 0.05 | 2057 | 100156993 | SLC12A6 | 80190376 | 80266330 |
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| NC_010449.5 | 20487614 | 20487869 | + | -1.95 | -2551 | 106504136 | SLC17A4 | 20490293 | 20521425 |
| NC_010456.5 | 4276294 | 4276628 | - | 2.20 | 2876 | 100154435 | SLC18A1 | 4243564 | 4279337 |
| NC_010443.5 | 30923929 | 30924226 | + | -0.71 | 360 | 100155211 | SLC18B1 | 30923717 | 30956898 |
| NC_010444.4 | 7567486 | 7567846 | - | 1.88 | -1866 | 100520540 | SLC22A12 | 7557822 | 7565800 |
| NC_010449.5 | 2131036 | 2131324 | - | 2.78 | 598 | 100152838 | SLC22A23 | 1988690 | 2131778 |
| NC_010449.5 | 38329662 | 38329950 | + | 2.05 | 1332 | 733693 | SLC22A7 | 38328474 | 38334879 |
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| NC_010454.4 | 51971259 | 51971547 | + | 2.20 | 609 | 397390 | SLC25A11 | 51970794 | 51973668 |
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| NC_010444.4 | 115529115 | 115529408 | + | 1.40 | -400 | 100516066 | SLC25A46 | 115529662 | 115555441 |
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| NC_010460.4 | 14881373 | 14882004 | + | 1.00 | 1366 | 100525844 | SLC35B4 | 14880322 | 14916406 |
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| NC_010445.4 | 112296445 | 112296733 | - | 1.46 | 224 | 100513653 | SLC35F6 | 112280654 | 112296813 |
| NC_010457.5 | 99656167 | 99656455 | + | 0.88 | 1321 | 110257100 | SLC39A10 | 99654990 | 99724619 |
| NC_010457.5 | 99656583 | 99656871 | + | 1.46 | 1737 | 110257100 | SLC39A10 | 99654990 | 99724619 |
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| NC_010454.4 | 47838722 | 47839139 | - | 1.53 | 196 | 100623009 | SLC43A2 | 47791911 | 47839127 |
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| NC_010447.5 | 67575982 | 67576270 | - | 3.05 | -2268 | 100512716 | SLC6A12 | 67550286 | 67573858 |
| NC_010448.4 | 28837484 | 28837790 | + | 1.46 | 2840 | 110260947 | SLC7A6 | 28834797 | 28876154 |
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| NC_010456.5 | 114899721 | 114900009 | + | 2.46 | 902 | 100156642 | SLK | 114898963 | 114957494 |
| NC_010455.5 | 39574841 | 39575110 | + | -1.39 | 3045 | 100514321 | SLMAP | 39571930 | 39720229 |
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| NC_010443.5 | 97509854 | 97510085 | - | -0.12 | 1392 | 100155304 | SMAD2 | 97415360 | 97511362 |
| NC_010443.5 | 100576028 | 100576316 | + | 1.20 | 1592 | 397142 | SMAD4 | 100574580 | 100633501 |
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| NC_010450.4 | 125484538 | 125484925 | - | 1.46 | 3561 | 100515330 | SMARCAD1 | 125410221 | 125488293 |
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| NC_010458.4 | 47776406 | 47776930 | - | 3.41 | 711 | 100170853 | SMN1 | 47738776 | 47777379 |
| NC_010451.4 | 3328190 | 3328602 | - | 1.20 | 97 | 100518980 | SMPD1 | 3324091 | 3328493 |
| NC_010454.4 | 14367852 | 14368140 | + | 1.29 | -687 | 100627676 | SMURF2 | 14368683 | 14492129 |
| NC_010454.4 | 14369453 | 14369741 | + | 3.05 | 914 | 100627676 | SMURF2 | 14368683 | 14492129 |
| NC_010445.4 | 46930217 | 46930477 | + | -2.12 | 1178 | 100739577 | SNRNP200 | 46929169 | 46960420 |
| NC_010443.5 | 145708315 | 145708603 | + | 0.46 | 1066 | 100156573 | SNRPA1 | 145707393 | 145719287 |
| NC_010448.4 | 106802459 | 106802747 | + | 1.88 | 4402 | 100524872 | SNRPD1 | 106798201 | 106810178 |
| NC_010445.4 | 72199808 | 72200039 | + | -1.12 | 1201 | 100525867 | SNRPG | 72198722 | 72208053 |
| NC_010448.4 | 17773143 | 17773599 | - | 0.14 | 1179 | 100620497 | SNTB2 | 17674587 | 17774550 |
| NC_010443.5 | 54546022 | 54546358 | - | 3.27 | 1014 | 100156800 | SNX14 | 54460645 | 54547204 |
| NC_010443.5 | 54547771 | 54548125 | - | 3.05 | -744 | 100156800 | SNX14 | 54460645 | 54547204 |
| NC_010443.5 | 74347988 | 74348338 | - | 0.20 | 1572 | 100627262 | SNX3 | 74306450 | 74349735 |
| NC_010443.5 | 152635445 | 152635765 | - | 2.46 | 1040 | 100155619 | SOCS6 | 152593647 | 152636645 |
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| NC_010457.5 | 76899641 | 76899929 | + | 1.29 | -353 | 100621662 | SP5 | 76900138 | 76905024 |
| NC_010454.4 | 27370954 | 27371242 | - | 1.78 | -834 | 100518147 | SPAG9 | 27225377 | 27370264 |
| NC_010445.4 | 107507174 | 107507405 | - | -2.03 | 1625 | 396584 | SPAST | 107439810 | 107508915 |
| NC_010454.4 | 49610783 | 49611071 | - | 1.24 | -1695 | 100415924 | SPATA22 | 49573050 | 49609232 |
| NC_010443.5 | 217300327 | 217300558 | + | -1.71 | -1595 | 100522592 | SPATA6L | 217302038 | 217353093 |
| NC_010449.5 | 110307920 | 110308221 | + | 2.78 | -1344 | 100153278 | SPATA7 | 110309415 | 110368370 |

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| NC_010456.5 | 49333636 | 49333924 | + | 2.46 | 530 | 100519740 | SPECC1L | 49333250 | 49463965 |
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| NC_010457.5 | 13207616 | 13208091 | - | 3.85 | -186 | 100156406 | SPOPL | 13134221 | 13207667 |
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| NC_010453.5 | 52155970 | 52156292 | - | -0.80 | 2635 | 100157266 | SPRY2 | 52153695 | 52158766 |
| NC_010444.4 | 143886468 | 143886894 | - | 1.14 | 4141 | 100512891 | SPRY4 | 143877334 | 143890822 |
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| NC_010449.5 | 100637768 | 100638071 | - | 2.27 | 1053 | 100158010 | SPTLC2 | 100545360 | 100638973 |
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| NC_010449.5 | 65303625 | 65303985 | + | 0.65 | 918 | 100156815 | SPTSSA | 65302887 | 65325877 |
| NC_010455.5 | 101057990 | 101058267 | - | -0.35 | 432 | 100623291 | SPTSSB | 101027944 | 101058561 |
| NC_010443.5 | 126118384 | 126118805 | - | 3.46 | 976 | 100154990 | SQOR | 126078340 | 126119571 |
| NC_010458.4 | 43345775 | 43346262 | - | 1.29 | 233 | 100620947 | SREK1IP1 | 43297364 | 43346252 |
| NC_010455.5 | 65758268 | 65758556 | - | 1.37 | 1480 | 102167373 | SRGAP3 | 65367596 | 65759892 |
| NC_010450.4 | 55724566 | 55724854 | + | 3.05 | -4492 | 100520920 | SRP72 | 55729202 | 55762298 |
| NC_010450.4 | 55728119 | 55728454 | + | 2.24 | -915 | 100520920 | SRP72 | 55729202 | 55762298 |
| NC_010445.4 | 101597105 | 101597397 | + | 0.88 | -2178 | 100518189 | SRSF7 | 101599429 | 101608786 |
| NC_010455.5 | 26109808 | 26110039 | + | -0.54 | 1636 | 100523140 | SS18L2 | 26108287 | 26112625 |
| NC_010454.4 | 46089752 | 46090040 | - | 2.78 | -4176 | 100520864 | SSH2 | 45818103 | 46085720 |
| NC_010444.4 | 13619950 | 13620238 | + | 3.46 | 428 | 100624907 | SSRP1 | 13619666 | 13629233 |
| NC_010445.4 | 58861974 | 58862205 | + | 1.73 | -905 | 100625751 | ST3GAL5 | 58862995 | 58919544 |
| NC_010447.5 | 51209012 | 51209345 | + | 2.05 | -2133 | 100625270 | ST8SIA1 | 51211312 | 51364226 |
| NC_010452.4 | 43947644 | 43947949 | + | -1.71 | 806 | 100523271 | STAM | 43946990 | 44016064 |
| NC_010457.5 | 118616 | 118904 | + | 3.78 | 3462 | 100157042 | STAM2 | 115298 | 168659 |
| NC_010451.4 | 108631544 | 108631942 | + | 0.88 | 504 | 100529117 | STARD3NL | 108631239 | 108675617 |
| NC_010445.4 | 46993414 | 46993702 | + | 1.73 | 850 | 100525865 | STARD7 | 46992708 | 47017668 |
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| NC_010448.4 | 164199358 | 164199589 | + | -0.44 | 1947 | 100522443 | STIL | 164197526 | 164266615 |
| NC_010448.4 | 164197271 | 164197884 | + | 2.60 | 51 | 100522443 | STIL | 164197526 | 164266615 |

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| NC_010457.5 | 121604004 | 121604329 | + | 2.68 | 91 | 110256991 | STK11IP | 121604075 | 121619066 |
| NC_010446.5 | 38012447 | 38012678 | + | -2.35 | 760 | 100524741 | STK3 | 38011802 | 38306777 |
| NC_010448.4 | 92482851 | 92483407 | - | 2.05 | 1234 | 100625215 | STK40 | 92441231 | 92484363 |
| NC_010457.5 | 105056941 | 105057229 | + | 2.20 | 1838 | 100511661 | STRADB | 105055247 | 105083429 |
| NC_010451.4 | 52726264 | 52726515 | + | 0.24 | -404 | 100511525 | STT3A | 52726794 | 52754671 |
| NC_010455.5 | 17535549 | 17535837 | + | -1.08 | 3352 | 100526009 | STT3B | 17532341 | 17635039 |
| NC_010444.4 | 11740399 | 11740630 | - | -0.27 | -668 | 100520886 | STX3 | 11694791 | 11739846 |
| NC_010446.5 | 111293695 | 111293983 | - | 1.05 | 228 | 100519481 | STXBP3 | 111234154 | 111294067 |
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| NC_010443.5 | 182358058 | 182358488 | + | 0.88 | 676 | 100517509 | STYX | 182357597 | 182407790 |
| NC_010445.4 | 60142430 | 60142782 | + | 1.68 | 197 | 399539 | SUCLG1 | 60142409 | 60177497 |
| NC_010455.5 | 49090280 | 49090579 | - | 1.46 | 91 | 397026 | SUCLG2 | 48824366 | 49090521 |
| NC_010455.5 | 92114425 | 92114656 | + | 1.46 | -2269 | 100739158 | SUCNR1 | 92116810 | 92130683 |
| NC_010444.4 | 58574579 | 58574886 | + | 1.46 | 298 | 110259310 | SUGP1 | 58574434 | 58615054 |
| NC_010453.5 | 12865119 | 12865532 | - | 2.78 | -1143 | 100739486 | SUPT20H | 12825932 | 12864182 |
| NC_010443.5 | 272987933 | 272988221 | - | 3.78 | 606 | 100623620 | SURF4 | 272975164 | 272988683 |
| NC_010446.5 | 130701119 | 130701407 | + | 2.20 | -1077 | 100154622 | SYDE2 | 130702340 | 130749742 |
| NC_010443.5 | 54597274 | 54597562 | - | 0.46 | 157 | 100154370 | SYNCRIP | 54563112 | 54597575 |
| NC_010455.5 | 196329330 | 196329618 | - | 3.37 | 1037 | 100525664 | SYNJ1 | 196230101 | 196330511 |
| NC_010454.4 | 39070135 | 39070440 | - | 2.05 | -445 | 100624012 | SYNRG | 38974567 | 39069842 |
| NC_010451.4 | 105981843 | 105982074 | - | -0.93 | 3213 | 100518030 | SYPL1 | 105952898 | 105985172 |
| NC_010459.5 | 47686711 | 47686999 | + | 1.88 | 671 | 102162899 | SYS1 | 47686184 | 47694045 |
| NC_010443.5 | 16615606 | 16615894 | - | 0.20 | -3871 | 100156182 | TAB2 | 16533364 | 16611879 |
| NC_010451.4 | 77196189 | 77196420 | + | 1.24 | -1104 | 100525179 | TAC1 | 77197409 | 77206529 |
| NC_010450.4 | 117661443 | 117661731 | + | 0.88 | -535 | 100521983 | TACR3 | 117662122 | 117718317 |
| NC_010451.4 | 3144127 | 3144724 | + | 2.27 | 163 | 414401 | TAF10 | 3144262 | 3145702 |
| NC_010452.4 | 63573760 | 63574012 | - | -0.12 | 2514 | 100620508 | TAF3 | 63422184 | 63576400 |
| NC_010456.5 | 114304114 | 114304379 | + | 2.14 | -316 | 100152210 | TAF5 | 114304563 | 114321624 |
| NC_010444.4 | 9003397 | 9003685 | - | 1.20 | -3551 | 100620136 | TAF6L | 8983823 | 8999990 |
| NC_010446.5 | 90566767 | 90567055 | + | 1.88 | 639 | 100515893 | TAGLN2 | 90566272 | 90574762 |
| NC_010443.5 | 246929523 | 246929811 | + | 3.46 | -3308 | 100154895 | TAL2 | 246932975 | 246944722 |
| NC_010454.4 | 45598184 | 45598415 | + | -0.27 | 1232 | 100622172 | TAOK1 | 45597067 | 45750117 |
| NC_010456.5 | 34329484 | 34329772 | + | 4.05 | -1634 | 100154763 | TAOK3 | 34331262 | 34514234 |
| NC_010449.5 | 29672368 | 29672656 | - | 2.78 | 941 | 100155428 | TAPBP | 29663491 | 29673453 |

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| NC_010458.4 | 19454400 | 19454995 | + | 2.20 | -596 | 100526191 | TARS | 19455294 | 19486735 |
| NC_010460.4 | 44906919 | 44907207 | - | 2.20 | 3202 | 100516165 | TAX1BP1 | 44827908 | 44910265 |
| NC_010455.5 | 4606010 | 4606257 | - | -1.35 | 2549 | 100626058 | TBC1D5 | 4191544 | 4608683 |
| NC_010447.5 | 28881072 | 28881674 | + | -0.98 | 1163 | 100125828 | TBK1 | 28880210 | 28929964 |
| NC_010455.5 | 115486039 | 115486326 | - | -0.37 | 932 | 100522831 | TBL1XR1 | 115312445 | 115487115 |
| NC_010455.5 | 115486796 | 115487059 | - | -0.18 | 187 | 100522831 | TBL1XR1 | 115312445 | 115487115 |
| NC_010445.4 | 39995712 | 39996000 | - | 1.46 | -257 | 100623969 | TBL3 | 39989739 | 39995599 |
| NC_010460.4 | 9886455 | 9886743 | - | 3.05 | 100 | 397112 | TBXAS1 | 9717291 | 9886699 |
| NC_010455.5 | 27647953 | 27648305 | + | 1.88 | 59 | 100627345 | TCAIM | 27648070 | 27703489 |
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| NC_010456.5 | 47496428 | 47496716 | + | 2.20 | 318 | 100152846 | TCN2 | 47496254 | 47515966 |
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| NC_010449.5 | 111769451 | 111769739 | + | 2.20 | 2044 | 100153247 | TDP1 | 111767551 | 111815292 |
| NC_010456.5 | 124524622 | 124524901 | + | -1.54 | -1251 | 100157555 | TDRD1 | 124526013 | 124575166 |
| NC_010446.5 | 62833423 | 62833711 | - | 2.05 | -2108 | 100516798 | TERF1 | 62797244 | 62831459 |
| NC_010460.4 | 29934696 | 29935116 | - | -1.56 | 1342 | 100125376 | TES | 29895878 | 29936248 |
| NC_010454.4 | 714875 | 715106 | + | -0.93 | 1811 | 100624315 | TEX19 | 713179 | 715704 |
| NC_010455.5 | 33893513 | 33893864 | + | -0.35 | 410 | 102161929 | TEX264 | 33893278 | 33924175 |
| NC_010455.5 | 74864142 | 74864407 | + | -1.93 | 1772 | 396845 | TF | 74862502 | 74907059 |
| NC_010449.5 | 44641911 | 44642203 | + | 4.05 | 1776 | 100155785 | TFAP2D | 44640281 | 44702561 |
| NC_010443.5 | 128194239 | 128194506 | + | -0.12 | 2725 | 100158178 | TGM5 | 128191647 | 128217249 |
| NC_010445.4 | 96872364 | 96872652 | + | 2.05 | 330 | 100516259 | THADA | 96872178 | 97197051 |
| NC_010459.5 | 11771897 | 11772216 | - | 1.46 | 1264 | 100621925 | THAP1 | 11765383 | 11773321 |
| NC_010448.4 | 28465723 | 28466190 | + | 3.27 | 498 | 100520959 | THAP11 | 28465458 | 28466387 |
| NC_010447.5 | 35671794 | 35672025 | + | -1.27 | 629 | 100152778 | THAP2 | 35671280 | 35687298 |
| NC_010456.5 | 50594723 | 50595011 | - | 3.46 | -1089 | 100526013 | THAP7 | 50591412 | 50593778 |
| NC_010458.4 | 65609887 | 65610175 | - | 2.46 | 588 | 100521164 | THG1L | 65602637 | 65610619 |
| NC_010458.4 | 65610243 | 65610670 | - | 1.46 | 162 | 100521164 | THG1L | 65602637 | 65610619 |
| NC_010445.4 | 100556581 | 100556869 | + | 0.88 | -443 | 100517336 | THUMPD2 | 100557168 | 100597664 |
| NC_010456.5 | 129467704 | 129468021 | - | 3.46 | -790 | 100158186 | TIAL1 | 129441210 | 129467072 |
| NC_010450.4 | 110378281 | 110378569 | + | 1.88 | 608 | 100513485 | TIFA | 110377817 | 110394190 |
| NC_010444.4 | 76147080 | 76147368 | + | 1.05 | 278 | 100620885 | TIMM13 | 76146946 | 76148163 |
| NC_010455.5 | 140757813 | 140758260 | - | 1.46 | 661 | 110256419 | TIMMDC1 | 140728559 | 140758698 |
| NC_010443.5 | 164369168 | 164369399 | - | -0.86 | -24 | 100153268 | TIPIN | 164349196 | 164369259 |

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| NC_010446.5 | 82794016 | 82794620 | - | 3.46 | 84 | 100155988 | TIPRL | 82759309 | 82794402 |
| NC_010454.4 | 47914529 | 47914817 | - | 2.46 | 3582 | 110256072 | TLCD2 | 47904150 | 47918255 |
| NC_010443.5 | 236452747 | 236452978 | - | -1.12 | -1884 | 100157220 | TLN1 | 236416041 | 236450978 |
| NC_010457.5 | 47601469 | 47602023 | + | 0.88 | -194 | 100154457 | TM2D2 | 47601940 | 47611802 |
| NC_010455.5 | 89703966 | 89704350 | + | 0.32 | 2987 | 100522400 | TM4SF4 | 89701171 | 89730488 |
| NC_010447.5 | 15675277 | 15675572 | + | -1.12 | 1217 | 396907 | TMBIM6 | 15674207 | 15692765 |
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| NC_010444.4 | 69578789 | 69579077 | - | 3.37 | -2512 | 100627642 | TMED1 | 69573128 | 69576421 |
| NC_010456.5 | 29397887 | 29398118 | - | 0.88 | 2451 | 100625917 | TMED2 | 29390903 | 29400454 |
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| NC_010454.4 | 19755038 | 19755423 | - | 3.05 | 291 | 100624959 | TMEM106A | 19747352 | 19755522 |
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| NC_010450.4 | 54753502 | 54753844 | + | 1.46 | 2103 | 100523623 | TMEM165 | 54751570 | 54796352 |
| NC_010447.5 | 35691629 | 35691917 | + | 2.46 | -224 | 100519775 | TMEM19 | 35691997 | 35717916 |
| NC_010447.5 | 35693014 | 35693388 | + | 3.46 | 1204 | 100519775 | TMEM19 | 35691997 | 35717916 |
| NC_010450.4 | 43960160 | 43960448 | + | 2.46 | -404 | 100512847 | TMEM192 | 43960708 | 43994286 |
| NC_010448.4 | 86037192 | 86037423 | - | -2.71 | -3960 | 100515438 | TMEM200B | 86027778 | 86033347 |
| NC_010448.4 | 69973877 | 69974165 | + | 3.05 | 643 | 100517949 | TMEM201 | 69973378 | 69998548 |
| NC_010460.4 | 18615942 | 18616173 | + | -0.12 | 799 | 100516476 | TMEM209 | 18615258 | 18644708 |
| NC_010460.4 | 23526526 | 23526757 | + | -0.86 | -4856 | 100524656 | TMEM229A | 23531498 | 23533619 |
| NC_010459.5 | 14135412 | 14135643 | - | -1.35 | 878 | 100625411 | TMEM230 | 14125728 | 14136406 |
| NC_010444.4 | 115523726 | 115524014 | - | 2.05 | -3717 | 100515882 | TMEM232 | 115387770 | 115520153 |
| NC_010447.5 | 13396105 | 13396499 | - | 1.73 | 1110 | 100620181 | TMEM263 | 13379490 | 13397412 |
| NC_010447.5 | 13397798 | 13398086 | - | 2.78 | -530 | 100620181 | TMEM263 | 13379490 | 13397412 |
| NC_010443.5 | 90634441 | 90634672 | + | -1.54 | -4714 | 100154255 | TMEM30A | 90639271 | 90688004 |
| NC_010443.5 | 246973737 | 246974029 | + | 0.20 | 436 | 100153669 | TMEM38B | 246973447 | 247024019 |
| NC_010455.5 | 140798003 | 140798294 | + | 0.56 | 1050 | 100151958 | TMEM39A | 140797098 | 140830732 |
| NC_010451.4 | 224678 | 225287 | + | 1.11 | 1005 | 100519436 | TMEM41B | 223977 | 249813 |
| NC_010448.4 | 82860995 | 82861283 | + | 2.20 | -654 | 100626872 | TMEM50A | 82861793 | 82879061 |
| NC_010448.4 | 158262090 | 158262416 | + | 1.73 | 317 | 733610 | TMEM59 | 158261936 | 158290465 |
| NC_010443.5 | 119946651 | 119946962 | - | 3.37 | 1988 | 397556 | TMOD3 | 119864878 | 119948795 |
| NC_010454.4 | 19023801 | 19024418 | - | 2.29 | -101 | 100514791 | TMUB2 | 19019641 | 19024008 |

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| NC_010443.5 | 159187020 | 159187425 | - | 1.05 | 253 | 100521706 | TNFRSF11A | 159128039 | 159187476 |
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| NC_010447.5 | 64316881 | 64317169 | + | 2.46 | -2324 | 397020 | TNFRSF1A | 64319349 | 64331876 |
| NC_010447.5 | 64320756 | 64321044 | + | 1.88 | 1551 | 397020 | TNFRSF1A | 64319349 | 64331876 |
| NC_010444.4 | 1303087 | 1303572 | + | 2.46 | 3966 | 414906 | TNNT3 | 1299363 | 1316474 |
| NC_010460.4 | 19573638 | 19573869 | + | -1.12 | 1198 | 100515455 | TNPO3 | 19572555 | 19673165 |
| NC_010445.4 | 3993537 | 3993829 | - | 3.05 | 2515 | 100515017 | TNRC18 | 3901710 | 3996198 |
| NW_018084874.1 | 688266 | 688497 | - | 0.46 | 919 | 110258158 | TNRC6A | 578944 | 689301 |
| NC_010447.5 | 7085890 | 7086183 | + | 2.46 | -360 | 110260627 | TOB2 | 7086397 | 7098643 |
| NC_010456.5 | 56113852 | 56114372 | + | 2.56 | 1025 | 100152814 | TOMM20 | 56113087 | 56127686 |
| NC_010449.5 | 36977332 | 36977563 | + | -1.71 | 969 | 106504412 | TOMM6 | 36976478 | 36976878 |
| NC_010455.5 | 158578406 | 158578673 | + | -1.44 | 1513 | 100523641 | TOMM70 | 158577026 | 158629878 |
| NC_010459.5 | 43711478 | 43711709 | + | -2.71 | 1323 | 100518587 | TOP1 | 43710270 | 43799700 |
| NC_010454.4 | 60444499 | 60444787 | + | 2.78 | 460 | 110256129 | TOP3A | 60444183 | 60468968 |
| NC_010446.5 | 73832220 | 73832451 | + | -1.93 | -3089 | 100155888 | TOX | 73835425 | 74115352 |
| NC_010448.4 | 32495985 | 32496273 | + | 3.05 | 3443 | 100519713 | TOX3 | 32492686 | 32609923 |
| NC_010448.4 | 120667284 | 120667572 | - | 1.29 | 2806 | 100621913 | TPGS2 | 120605480 | 120670234 |
| NC_010443.5 | 236406667 | 236406956 | - | 3.27 | 3578 | 396693 | TPM2 | 236402249 | 236410390 |
| NC_010445.4 | 59804474 | 59804798 | + | 2.05 | -1834 | 100524432 | TRABD2A | 59806470 | 59857941 |
| NC_010444.4 | 24603589 | 24603877 | + | 2.05 | 984 | 396629 | TRAF6 | 24602749 | 24628263 |
| NC_010449.5 | 46406526 | 46407089 | - | 1.78 | 175 | 100157796 | TRAM2 | 46323073 | 46406983 |
| NC_010445.4 | 38537724 | 38537955 | + | -0.86 | 1129 | 100515536 | TRAP1 | 38536710 | 38595273 |
| NC_010448.4 | 115785322 | 115785804 | - | 1.68 | 1105 | 100626409 | TRAPPC8 | 115692509 | 115786668 |
| NC_010448.4 | 115786337 | 115786679 | - | 2.10 | 160 | 100626409 | TRAPPC8 | 115692509 | 115786668 |
| NC_010450.4 | 75873181 | 75873488 | - | 3.05 | 2739 | 100627416 | TRIM2 | 75770344 | 75876074 |
| NC_010460.4 | 11151255 | 11151777 | - | 3.46 | 170 | 100620590 | TRIM24 | 11055211 | 11151686 |
| NC_010449.5 | 22768819 | 22769316 | - | 1.73 | -1405 | 100144460 | TRIM26 | 22757794 | 22767662 |
| NC_010444.4 | 119354432 | 119354720 | - | 1.88 | -2185 | 100519890 | TRIM36 | 119304476 | 119352391 |
| NC_010444.4 | 57295131 | 57295569 | - | 3.20 | 364 | 100626621 | TRIM41 | 57285401 | 57295714 |
| NC_010446.5 | 43709456 | 43709882 | + | 2.46 | 1830 | 110260258 | TRIQQ | 43707839 | 43797108 |
| NC_010450.4 | 120881534 | 120881822 | + | 1.46 | 2210 | 100512243 | TRMT10A | 120879468 | 120917436 |
| NC_010450.4 | 120879322 | 120879843 | + | 1.01 | 114 | 100512243 | TRMT10A | 120879468 | 120917436 |
| NC_010443.5 | 37002648 | 37002999 | - | -0.54 | -744 | 100152782 | TRMT11 | 36930857 | 37002079 |
| NC_010444.4 | 7801939 | 7802337 | + | 1.61 | -46 | 100520885 | TRMT112 | 7802184 | 7803556 |

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| NC_010446.5 | 15196996 | 15197347 | - | 1.31 | -29 | 100155406 | TRMT12 | 15158866 | 15197142 |
| NC_010445.4 | 110383991 | 110384283 | + | 2.05 | 714 | 100520017 | TRMT61B | 110383423 | 110400272 |
| NC_010447.5 | 3223295 | 3223583 | - | 3.05 | -1410 | 100521087 | TRMU | 3208122 | 3222029 |
| NC_010453.5 | 13521331 | 13521619 | - | 1.14 | -2474 | 100157635 | TRPC4 | 13300288 | 13519001 |
| NC_010459.5 | 38467530 | 38467864 | - | 4.27 | 593 | 100156677 | TRPC4AP | 38385650 | 38468290 |
| NC_010455.5 | 90639803 | 90640091 | + | 2.05 | -548 | 100155608 | TSC22D2 | 90640495 | 90697671 |
| NC_010455.5 | 90636389 | 90636677 | + | 0.88 | -3962 | 100155608 | TSC22D2 | 90640495 | 90697671 |
| NC_010455.5 | 68477657 | 68478335 | + | 2.35 | -2746 | 100525362 | TSEN2 | 68480742 | 68520726 |
| NC_010444.4 | 115830736 | 115830992 | + | -1.12 | -1288 | 100515191 | TSLP | 115832152 | 115837572 |
| NC_010449.5 | 57186571 | 57186868 | - | 1.88 | 795 | 100157865 | TSPAN3 | 57162080 | 57187515 |
| NC_010454.4 | 34602713 | 34603001 | - | 2.05 | 3766 | 100514918 | TSPOAP1 | 34578698 | 34606623 |
| NC_010461.5 | 47188011 | 47188242 | + | -0.54 | 1516 | 100157624 | TSR2 | 47186610 | 47192465 |
| NC_010458.4 | 25740929 | 25741234 | - | 1.88 | 700 | 100625161 | TTC33 | 25695932 | 25741782 |
| NC_010446.5 | 103675881 | 103676261 | - | 2.14 | 407 | 100156166 | TTF2 | 103632377 | 103676478 |
| NW_018085072.1 | 148762 | 149075 | - | 2.78 | -1134 | 100526252 | TTI2 | 136338 | 147784 |
| NC_010445.4 | 44022133 | 44022421 | - | 3.46 | 334 | 445530 | TTL | 43980634 | 44022611 |
| NC_010454.4 | 6880630 | 6880918 | - | 2.46 | 750 | 100516219 | TTYH2 | 6838420 | 6881524 |
| NC_010448.4 | 97237036 | 97237326 | - | 1.68 | 3511 | 100623583 | TUBB6 | 97233639 | 97240692 |
| NC_010451.4 | 88784475 | 88784903 | - | -1.54 | 1113 | 100517907 | TWISTNB | 88760394 | 88785802 |
| NC_010451.4 | 88785026 | 88785412 | - | 1.46 | 583 | 100517907 | TWISTNB | 88760394 | 88785802 |
| NC_010445.4 | 54935415 | 54935703 | + | 0.14 | 3798 | 100520954 | TXNDC9 | 54931761 | 54944153 |
| NC_010446.5 | 87994247 | 87994584 | - | 2.27 | -383 | 100156649 | UAP1 | 87960056 | 87994032 |
| NC_010448.4 | 44106621 | 44106909 | + | 1.46 | 3615 | 100739612 | UBA2 | 44103150 | 44141396 |
| NC_010452.4 | 32625276 | 32625595 | - | 0.78 | 598 | 100739464 | UBAP1 | 32552243 | 32626034 |
| NC_010457.5 | 86475170 | 86475401 | + | -0.71 | 4373 | 100520938 | UBE2E3 | 86470912 | 86562297 |
| NC_010460.4 | 18821146 | 18821434 | + | 0.56 | 632 | 100626356 | UBE2H | 18820658 | 18932909 |
| NC_010449.5 | 56084963 | 56085194 | + | -0.71 | 1058 | 100621770 | UBE2Q2 | 56084020 | 56144915 |
| NC_010446.5 | 62051268 | 62051527 | + | -1.86 | 4829 | 100152196 | UBE2W | 62046568 | 62084679 |
| NC_010448.4 | 70345953 | 70346241 | + | 2.05 | 284 | 100737278 | UBE4B | 70345813 | 70462434 |
| NC_010458.4 | 64205487 | 64205899 | - | 2.20 | -9 | 100519748 | UBLCP1 | 64182918 | 64205684 |
| NC_010445.4 | 37553878 | 37554166 | - | 3.05 | 1233 | 100512403 | UBN1 | 37512306 | 37555255 |
| NC_010455.5 | 19274950 | 19275285 | - | -0.27 | 1274 | 100512254 | UBP1 | 19203965 | 19276392 |
| NC_010455.5 | 19276656 | 19276944 | - | 2.46 | -408 | 100512254 | UBP1 | 19203965 | 19276392 |
| NC_010449.5 | 37655453 | 37655754 | + | 0.65 | -204 | 100522688 | UBR2 | 37655808 | 37785301 |

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| NC_010457.5 | 76135461 | 76135749 | + | 1.78 | 149 | 100521299 | UBR3 | 76135456 | 76360819 |
| NC_010448.4 | 77707758 | 77708046 | - | 3.05 | 89 | 102161705 | UBR4 | 77568409 | 77707991 |
| NC_010457.5 | 59265163 | 59265451 | - | 1.85 | -254 | 100155117 | UGGT1 | 59141582 | 59265053 |
| NC_010455.5 | 135649792 | 135650238 | - | 2.85 | 641 | 100516340 | UMPS | 135611857 | 135650656 |
| NC_010453.5 | 5359853 | 5360084 | - | -1.35 | 3385 | 100515273 | URAD | 5353524 | 5363354 |
| NC_010448.4 | 40043627 | 40043915 | + | 1.46 | 451 | 100627684 | URI1 | 40043320 | 40110540 |
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| NC_010447.5 | 87865447 | 87865678 | + | -0.54 | 1151 | 100516911 | USP44 | 87864411 | 87890913 |
| NC_010448.4 | 79810133 | 79810421 | - | 2.46 | -36 | 100625904 | USP48 | 79744942 | 79810241 |
| NC_010447.5 | 63857702 | 63858318 | - | 0.88 | 765 | 100155342 | USP5 | 63843742 | 63858775 |
| NC_010443.5 | 121375673 | 121375961 | - | 1.78 | 337 | 100157546 | USP8 | 121307690 | 121376154 |
| NC_010445.4 | 48872128 | 48872570 | + | 2.88 | 526 | 100513145 | UXS1 | 48871823 | 48940722 |
| NC_010454.4 | 53386590 | 53386878 | - | 1.46 | -4491 | 100620549 | VAMP2 | 53378407 | 53382243 |
| NC_010448.4 | 98258061 | 98258292 | - | -0.60 | -3904 | 100623614 | VAPA | 98212335 | 98254272 |
| NC_010446.5 | 68072615 | 68073038 | + | 0.73 | -576 | 100621816 | VCPIP1 | 68073403 | 68109221 |
| NC_010446.5 | 68076847 | 68077216 | + | 0.59 | 3628 | 100621816 | VCPIP1 | 68073403 | 68109221 |
| NC_010445.4 | 17386587 | 17386875 | + | 2.46 | 501 | 100522924 | VKORC1 | 17386230 | 17389162 |
| NC_010443.5 | 230070369 | 230070812 | + | 2.11 | 1251 | 100153747 | VPS13A | 230069339 | 230331343 |
| NC_010456.5 | 72212337 | 72212740 | + | 3.01 | 1760 | 100155086 | VPS26A | 72210778 | 72241441 |
| NC_010456.5 | 31865608 | 31865839 | - | -0.12 | 3890 | 100737886 | VPS29 | 31860661 | 31869614 |
| NC_010443.5 | 129144797 | 129145060 | + | -1.86 | 590 | 100513254 | VPS39 | 129144338 | 129198760 |
| NC_010445.4 | 77857521 | 77857752 | + | -0.97 | 1531 | 100621212 | VPS54 | 77856105 | 77978194 |
| NC_010445.4 | 77854828 | 77855116 | + | 1.78 | -1133 | 100621212 | VPS54 | 77856105 | 77978194 |
| NC_010445.4 | 77856575 | 77857037 | + | 2.46 | 701 | 100621212 | VPS54 | 77856105 | 77978194 |
| NC_010445.4 | 83536260 | 83536548 | - | 0.61 | 617 | 100511127 | VRK2 | 83435250 | 83537021 |
| NC_010448.4 | 55034528 | 55034816 | - | 1.05 | -3543 | 100523004 | VRK3 | 54973734 | 55031129 |
| NC_010445.4 | 120291928 | 120292216 | - | 1.88 | -3915 | 100517707 | VSNL1 | 120177897 | 120288157 |
| NC_010443.5 | 22923032 | 22923320 | - | 0.20 | 685 | 100155445 | VTA1 | 22862628 | 22923861 |
| NC_010456.5 | 124574657 | 124574888 | + | -2.12 | -2647 | 100152718 | VWA2 | 124577420 | 124631760 |
| NC_010445.4 | 24093057 | 24093345 | - | 2.20 | 932 | 100524076 | VWA3A | 24028836 | 24094133 |
| NC_010456.5 | 87588919 | 87589262 | - | 0.61 | -412 | 100157544 | WAPL | 87492452 | 87588678 |
| NC_010449.5 | 121237017 | 121237482 | - | 0.73 | 827 | 100515390 | WARS | 121212981 | 121238077 |

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| NC_010443.5 | 184378521 | 184379075 | - | 1.75 | 176 | 100152808 | WDHD1 | 184300291 | 184378974 |
| NC_010456.5 | 130619414 | 130619702 | + | 2.14 | 634 | 100156416 | WDR11 | 130618924 | 130674536 |
| NW_018084979.1 | 978516 | 978804 | + | 3.78 | 252 | 100516626 | WDR20 | 978408 | 1039635 |
| NC_010446.5 | 102877670 | 102877988 | - | 3.78 | 735 | 100154556 | WDR3 | 102841459 | 102878564 |
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| NC_010448.4 | 45420088 | 45420469 | + | 1.46 | 1312 | 100144885 | WDR62 | 45418966 | 45477619 |
| NC_010443.5 | 117946462 | 117946873 | + | 0.31 | 575 | 100153251 | WDR72 | 117946092 | 118124772 |
| NC_010457.5 | 93980517 | 93980805 | + | 0.88 | -393 | 100511538 | WDR75 | 93981054 | 94026479 |
| NC_010455.5 | 34411675 | 34411963 | - | 2.78 | 371 | 100522703 | WDR82 | 34387799 | 34412190 |
| NC_010455.5 | 34410001 | 34410232 | - | -0.93 | 2073 | 100522703 | WDR82 | 34387799 | 34412190 |
| NC_010444.4 | 66312447 | 66312860 | - | 2.68 | 185 | 100519823 | WDR83 | 66307652 | 66312839 |
| NC_010444.4 | 66313072 | 66313405 | + | -1.54 | 314 | 414435 | WDR83OS | 66312924 | 66328000 |
| NC_010443.5 | 194438970 | 194439538 | + | 2.28 | -754 | 100739573 | WDR89 | 194440008 | 194475876 |
| NC_010449.5 | 52140491 | 52140856 | - | -1.44 | -340 | 100153988 | WHAMM | 52108867 | 52140333 |
| NC_010448.4 | 144247301 | 144247648 | + | -0.54 | 4835 | 100516916 | WLS | 144242639 | 144529659 |
| NC_010444.4 | 51150861 | 51151346 | + | 4.05 | -2874 | 100514950 | WNT3A | 51153978 | 51203678 |
| NC_010454.4 | 52955355 | 52955734 | + | 1.27 | 870 | 100522033 | WRAP53 | 52954674 | 52968371 |
| NC_010448.4 | 17230094 | 17230325 | - | -1.12 | -2518 | 100626361 | WWP2 | 17068783 | 17227691 |
| NC_010446.5 | 82433310 | 82433616 | - | 1.20 | 2687 | 100153155 | XCL1 | 82432845 | 82436150 |
| NC_010455.5 | 23878989 | 23879220 | - | -1.71 | -2254 | 100134978 | XIRP1 | 23867476 | 23876850 |
| NC_010447.5 | 7580382 | 7580670 | - | 2.46 | 2437 | 110260639 | XPNPEP3 | 7530993 | 7582963 |
| NC_010445.4 | 80256869 | 80257168 | + | 0.27 | 1948 | 397330 | XPO1 | 80255070 | 80300260 |
| NC_010444.4 | 91358413 | 91358749 | + | 2.27 | 146 | 100514895 | XRCC4 | 91358435 | 91560528 |
| NC_010451.4 | 9275686 | 9276037 | - | 1.46 | 1733 | 100518139 | XRRA1 | 9173666 | 9277595 |
| NC_010447.5 | 73425101 | 73425389 | - | 1.78 | -589 | 110260764 | YAF2 | 73411029 | 73424656 |
| NC_010447.5 | 41561271 | 41561581 | + | 0.61 | -137 | 100624597 | YARS2 | 41561563 | 41571829 |
| NC_010448.4 | 47234532 | 47234820 | - | 2.46 | -339 | 100514844 | YIF1B | 47224345 | 47234337 |
| NC_010460.4 | 50970497 | 50970785 | - | 2.46 | 743 | 100513964 | YKT6 | 50961451 | 50971384 |
| NC_010451.4 | 67680367 | 67680618 | - | -1.35 | 1228 | 100520400 | YOD1 | 67672640 | 67681721 |
| NC_010450.4 | 66088199 | 66088488 | + | 0.14 | 1804 | 110262114 | YTHDC1 | 66086539 | 66122717 |
| NC_010454.4 | 47643306 | 47643556 | - | -0.71 | 1896 | 100620600 | YWHAE | 47601133 | 47645327 |
| NC_010455.5 | 157421568 | 157421856 | + | 2.46 | -312 | 100521154 | ZBTB11 | 157422024 | 157460216 |
| NC_010448.4 | 101756792 | 101757080 | + | 3.46 | -131 | 110261173 | ZBTB14 | 101757067 | 101764531 |
| NC_010443.5 | 267438397 | 267438685 | + | -0.12 | 1286 | 100628020 | ZBTB34 | 267437255 | 267465619 |

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| NC_010448.4 | 88922489 | 88922748 | + | -1.29 | 372 | 100620574 | ZBTB8A | 88922246 | 88962855 |
| NC_010446.5 | 57817083 | 57817314 | - | -2.03 | 2692 | 100154167 | ZC2HC1A | 57761249 | 57819891 |
| NC_010460.4 | 10531009 | 10531240 | + | -0.86 | 1319 | 100415778 | ZC3HAV1 | 10529805 | 10588913 |
| NC_010461.5 | 97380596 | 97380884 | + | 2.20 | 832 | 100517990 | ZCCHC12 | 97379908 | 97384384 |
| NC_010443.5 | 159019541 | 159019879 | - | 0.46 | 2433 | 100625613 | ZCCHC2 | 158964816 | 159022143 |
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| NC_010444.4 | 40312861 | 40313149 | - | 0.46 | -2550 | 100736787 | ZDHHC13 | 40251511 | 40310455 |
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| NC_010443.5 | 225711715 | 225712008 | - | 2.73 | 2589 | 100048933 | ZFAND5 | 225703196 | 225714451 |
| NC_010449.5 | 92498066 | 92498430 | - | 1.46 | -2384 | 100624279 | ZFP36L1 | 92490069 | 92495864 |
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| NC_010450.4 | 110090019 | 110090357 | + | 2.88 | 268 | 102167653 | ZGRF1 | 110089920 | 110168086 |
| NC_010446.5 | 16102047 | 16102376 | + | -2.35 | 1438 | 100154564 | ZHX1 | 16100773 | 16126674 |
| NC_010449.5 | 22095913 | 22096415 | + | 1.88 | 3699 | 100156123 | ZKSCAN4 | 22092465 | 22105666 |
| NC_010445.4 | 6443447 | 6443735 | + | 1.46 | 686 | 100522312 | ZKSCAN5 | 6442905 | 6464718 |
| NC_010445.4 | 6441629 | 6441947 | + | 3.05 | -1117 | 100522312 | ZKSCAN5 | 6442905 | 6464718 |
| NC_010444.4 | 142410484 | 142410772 | + | 2.85 | -342 | 100621095 | ZMAT2 | 142410970 | 142417012 |
| NC_010448.4 | 96007688 | 96007976 | + | 4.05 | -475 | 106507628 | ZMPSTE24 | 96008307 | 96057131 |
| NC_010443.5 | 128896037 | 128896325 | + | 2.78 | 2216 | 100620097 | ZNF106 | 128893965 | 128957334 |
| NC_010458.4 | 27814787 | 27815075 | + | 3.46 | 949 | 102159255 | ZNF131 | 27813982 | 27846872 |
| NC_010456.5 | 61048334 | 61048738 | + | 1.73 | 450 | 100155460 | ZNF248 | 61048086 | 61065531 |
| NC_010448.4 | 45859549 | 45859853 | + | 1.68 | 1627 | 106510533 | ZNF260 | 45858074 | 45880194 |
| NC_010454.4 | 58961246 | 58961534 | + | 2.46 | -3023 | 106504195 | ZNF286A | 58964413 | 58981107 |
| NC_010445.4 | 7981161 | 7981449 | - | 0.88 | 1388 | 100518654 | ZNF3 | 7971917 | 7982693 |
| NC_010444.4 | 67312413 | 67312795 | + | 0.31 | 456 | 100510891 | ZNF317 | 67312148 | 67336323 |
| NC_010449.5 | 38386043 | 38386431 | - | 0.88 | 2493 | 100153069 | ZNF318 | 38356128 | 38388730 |
| NC_010450.4 | 86034317 | 86034605 | - | 3.78 | 2277 | 100511765 | ZNF330 | 86019111 | 86036738 |
| NC_010449.5 | 21389320 | 21389608 | + | 2.68 | 344 | 100155322 | ZNF391 | 21389120 | 21400090 |
| NC_010443.5 | 149512643 | 149512931 | - | 1.46 | 4497 | 100152080 | ZNF407 | 149090502 | 149517284 |
| NC_010444.4 | 15834341 | 15834629 | - | 2.05 | 64 | 100515769 | ZNF408 | 15829489 | 15834549 |
| NC_010455.5 | 27782626 | 27782857 | - | 0.88 | 588 | 100626643 | ZNF445 | 27748437 | 27783330 |

| | | | | | | | | | |
|-------------|-----------|-----------|---|-------|-------|-----------|--------|-----------|-----------|
| NC_010448.4 | 63051292 | 63051580 | + | 1.20 | 2035 | 110261336 | ZNF446 | 63049401 | 63057863 |
| NC_010448.4 | 46302355 | 46302643 | + | 0.88 | -1762 | 102165184 | ZNF527 | 46304261 | 46328232 |
| NC_010444.4 | 70605897 | 70606185 | - | 0.88 | -595 | 100514703 | ZNF558 | 70578256 | 70605446 |
| NC_010448.4 | 46443039 | 46443327 | + | 1.88 | 626 | 100739461 | ZNF570 | 46442557 | 46468679 |
| NC_010448.4 | 59746639 | 59746870 | + | 0.46 | 560 | 100620473 | ZNF581 | 59746194 | 59767421 |
| NC_010444.4 | 128157092 | 128157382 | - | -0.54 | -468 | 100512589 | ZNF608 | 128048247 | 128156769 |
| NC_010446.5 | 939734 | 940070 | - | 3.78 | 656 | 110260414 | ZNF623 | 928786 | 940558 |
| NC_010454.4 | 58986128 | 58986485 | + | -0.60 | -290 | 100626993 | ZNF624 | 58986597 | 59006958 |
| NC_010452.4 | 38817710 | 38817998 | - | 1.78 | 605 | 110255680 | ZNF658 | 38797314 | 38818459 |
| NC_010452.4 | 38818277 | 38818565 | - | -0.95 | 38 | 110255680 | ZNF658 | 38797314 | 38818459 |
| NC_010445.4 | 17794685 | 17795066 | + | 2.88 | 3442 | 100515603 | ZNF688 | 17791433 | 17795431 |
| NC_010460.4 | 55934638 | 55934926 | + | 1.20 | 2445 | 110257534 | ZNF775 | 55932337 | 55954153 |
| NC_010445.4 | 6482739 | 6483027 | - | 1.78 | -1427 | 100519827 | ZNF789 | 6468709 | 6481456 |
| NC_010460.4 | 42651016 | 42651304 | - | 2.05 | 754 | 100514021 | ZNRF2 | 42550571 | 42651914 |
| NC_010449.5 | 22077767 | 22078073 | + | -2.71 | -4155 | 100154531 | ZSCAN9 | 22082075 | 22089724 |
| NC_010448.4 | 166134064 | 166134352 | + | 2.46 | -3919 | 100514968 | ZSWIM5 | 166138127 | 166326002 |
| NC_010448.4 | 159479004 | 159479235 | - | 0.14 | 1497 | 100739208 | ZYG11B | 159407921 | 159480617 |
| NC_010460.4 | 6870080 | 6870368 | - | 2.05 | 10 | 100524720 | ZYX | 6861072 | 6870234 |

Table S10. Gene Ontology analyses for genes associated with H3K4me3 modifications.

| Term type | GO accession | Description | P Value | Gene ID |
|--------------------|--------------|---|------------|---|
| Biological process | GO:0010769 | regulation of cell morphogenesis involved in differentiation | 0.00076207 | 100381266/780428/100144501/595117/445530 |
| Biological process | GO:0010720 | positive regulation of cell development | 0.00472879 | 100145887/100381266/780428/100519689/595117 |
| Biological process | GO:0010770 | positive regulation of cell morphogenesis involved in differentiation | 0.00538142 | 100381266/780428/595117 |
| Biological process | GO:0016482 | cytosolic transport | 0.00538142 | 733576/595112/100144499 |
| Biological process | GO:0007399 | nervous system development | 0.00715471 | 100145887/100381266/397674/780428/100144501/100038004/595120/100519689/397247/595117/396584/396629/445530/100144885 |
| Biological process | GO:0007409 | axonogenesis | 0.00793462 | 100144501/100038004/595117/445530 |
| Biological process | GO:0032872 | regulation of stress-activated MAPK cascade | 0.00793462 | 100145887/397350/448810/396629 |
| Biological process | GO:0051403 | stress-activated MAPK cascade | 0.00793462 | 100145887/397350/448810/396629 |
| Biological process | GO:0070302 | regulation of stress-activated protein kinase signaling cascade | 0.00793462 | 100145887/397350/448810/396629 |
| Biological process | GO:0000904 | cell morphogenesis involved in differentiation | 0.00845775 | 100381266/780428/100144501/100038004/595117/445530 |
| Cellular component | GO:0044440 | endosomal part | 0.00448365 | 733576/595120/100519689/595117/595112/100144499/733610 |
| Cellular component | GO:0005819 | spindle | 0.00841647 | 100145887/780428/448810/397656/595117/396584/100144885 |
| Molecular function | GO:0050839 | cell adhesion molecule binding | 0.00699647 | 100381266/403163/397247/445534/100125376 |