Supplemental Table 1. Pairwise Fst values

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Fort Wetherill | Giant's Staircase | Cape Cod Canal | Downeast Institute | Fisher's Island | Fort Stark | Isles of Shoals | Newcastle | Black Ledge | Lubec Dock | Lubec Light | Mt Desert Rock | Narrow Blade | Nubble Light | Orr's Island | Pine Island |
| Fort Wetherill | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Giant's Staircase | 0.279 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Cape Cod Canal | 0.224 | 0.177 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Downeast Institute | 0.259 | 0.196 | 0.109 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Fisher's Island | 0.047 | 0.293 | 0.239 | 0.274 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Fort Stark | 0.237 | 0.147 | 0.086 | 0.102 | 0.250 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Isles of Shoals | 0.261 | 0.185 | 0.077 | 0.106 | 0.275 | 0.056 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Newcastle | 0.236 | 0.151 | 0.085 | 0.098 | 0.250 | 0.006 | 0.052 | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Black Ledge | 0.054 | 0.301 | 0.238 | 0.270 | 0.010 | 0.252 | 0.271 | 0.251 | NA | NA | NA | NA | NA | NA | NA | NA |
| Lubec Dock | 0.285 | 0.222 | 0.153 | 0.107 | 0.295 | 0.150 | 0.157 | 0.142 | 0.297 | NA | NA | NA | NA | NA | NA | NA |
| Lubec Light | 0.284 | 0.227 | 0.151 | 0.103 | 0.297 | 0.145 | 0.157 | 0.140 | 0.295 | 0.005 | NA | NA | NA | NA | NA | NA |
| Mt Desert Rock | 0.294 | 0.219 | 0.209 | 0.186 | 0.310 | 0.161 | 0.201 | 0.166 | 0.317 | 0.223 | 0.227 | NA | NA | NA | NA | NA |
| Narrow Blade | 0.253 | 0.004 | 0.135 | 0.150 | 0.265 | 0.102 | 0.143 | 0.108 | 0.278 | 0.183 | 0.191 | 0.181 | NA | NA | NA | NA |
| Nubble Light | 0.251 | 0.150 | 0.114 | 0.126 | 0.263 | 0.023 | 0.079 | 0.031 | 0.270 | 0.170 | 0.171 | 0.165 | 0.105 | NA | NA | NA |
| Orr's Island | 0.225 | 0.132 | 0.088 | 0.091 | 0.236 | 0.085 | 0.095 | 0.081 | 0.237 | 0.128 | 0.132 | 0.194 | 0.086 | 0.117 | NA | NA |
| Pine Island | 0.038 | 0.289 | 0.218 | 0.249 | 0.003 | 0.226 | 0.253 | 0.225 | 0.009 | 0.281 | 0.279 | 0.303 | 0.253 | 0.248 | 0.211 | NA |

Supplemental Table 2. Reference and alternative sequence reads for significant single nucleotide markers (SNPs) in the Genome Wide Association analysis (GWAS) and top ten significant SNPs from extended Lewontin and Krakauer (FLK) selection signature test

|  |  |  |
| --- | --- | --- |
| Statistical test | Significant SNPs | Reference read |
| GWAS | 37855763-68-T/C | TGCAGTATTCTCCCCCCTCTGGTGTAGGACATGGGTGGCCAAAGAGGGTCAAGCCTGGGCACTGGGCAT |
| FLK | 37850355-52-C/T | TGCAGGGCCCTTGCCGCCCTCTGAGGGTACGGCTAAAACCAAAACGAACTTTCCCCCCCG |
| 37832954-53-G/A | TGCAGGCATAGGTTAAGAGTGTGCCAGCACCATTGTCTTGTGCATCAACATGAGCCCCGTGACGAATGA |
| 37862869-67-C/T | TGCAGTAGCAGCCAAGCCTGCTACTTGCGCCTACGGGACTCTGACCACTTCACTTAACTCTTGAAAACC |
| 37841131-41-C/T | TGCAGCAACCCCAGCAGCAGCAACAGCAACAGCAGCAGCAACAGCAGCAGCAACATCACCGCCACCGAC |
| 37857606-5-T/C | TGCAGTAGCAACGATAGATAGACTAGTTGTGAGAAACGCAGTCGGGTTGCGGACGTTCGTCGAGTCGGG |
| 37848571-13-A/G | TGCAGGACGCCATAGGCTGGTGGCAGCGGGAGAGCTCGCGGTTCGACGCCAGAGTGTGGACGGGGGAAC |
| 37853585-39-G/A | TGCAGAGTAAGACCATGAGGGTTGATTGTAGCAAGGGGCGTCCTCACCG |
| 37857066-8-G/A | TGCAGTAAGCGAACGATTAAACAAATCGATGGTACCTGTGCATATGGTAACTATAGGTATCACGAGTAT |
| 37854090-21-C/T | TGCAGGTGTGGTGACGGCCGACGGGCTCTCTCGCGTGAACATCAGTGGCAACACCTGGTTTCACAACAA |
| 37847908-28-G/A | TGCAGCACGCCGACCGCAGGCAACTCGAGACGACTTGCGCCGAATTTAGTCCAACGCGCTACGAGCGCA |
|  |  | Alternative read |
| GWAS | 37855763-68-T/C | TGCAGTATTCTCCCCCCTCTGGTGTAGGACATGGGTGGCCAAAGAGGGTCAAGCCTGGGCACTGGGCAC |
| FLK | 37850355-52-C/T | TGCAGGGCCCTTGCCGCCCTCTGAGGGTACGGCTAAAACCAAAACGAACTTTTCCCCCCG |
| 37832954-53-G/A | TGCAGGCATAGGTTAAGAGTGTGCCAGCACCATTGTCTTGTGCATCAACATGAACCCCGTGACGAATGA |
| 37862869-67-C/T | TGCAGTAGCAGCCAAGCCTGCTACTTGCGCCTACGGGACTCTGACCACTTCACTTAACTCTTGAAAATC |
| 37841131-41-C/T | TGCAGCAACCCCAGCATCAGCAACAGCAACAGCAGCAGCAACAGCAGCAGCAACATCACCGCCACCGAC |
| 37857606-5-T/C | TGCAGCAGCAACGATAGATAGACTAGTTGTGAGAAACGCAGTCGGGTTGCGGACGTTCGTCGAGTCGGG |
| 37848571-13-A/G | TGCAGGACGCCATGGGCTGGTGGCAGCGGGAGAGCTCGCGGTTCGACGCCAGAGTGTGGACGGGGGAAC |
| 37853585-39-G/A | ATGCAGAGTAAGACCATGAGGGTTGATTGTAGCAAGGGGCATCCTCACCG |
| 37857066-8-G/A | TGCAGTAAGCGAACGATTAAACAAATCGATGGTACCTGTGAATATGGTAACTATAGGTATCACGAGTAT |
| 37854090-21-C/T | TGCAGGTGTGGTGACGGCCGATAGGCTCTCTCGCGTGAACATCAGTGGCAACACCTGGTTTCACAACAA |
| 37847908-28-G/A | TGCAGCACGCCGACCGCAGGCAACTCGAAACGACTTGCGCCGAATTTAGTCCAACGCGCTACGAGCGCA |

Supplemental Table 3. Results for 248 outlier SNPs and their sequences alignment results on *Saccharina japonica* reference genome with chromosome (Chr), position (Pos), overlapping *S japonica* gene ID, and associated gene ontology terms (Ye et al. 2015). The frequency of each outlier loci within GOM and SNE were also reported.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| SNPs | Chr | Pos | Gene ID | GO terms for the gene | Frequency  GOM | Frequency  SNE |
| 37856712-11-C/T | chr24 | 598649 | SJ11052 | GO:0017176;GO:0016021;GO:0006506 | 0.27 | 1.00 |
| 37843218-20-T/G | NA | NA | NA | NA | 0.34 | 1.00 |
| 37845063-19-G/T | NA | NA | NA | NA | 0.35 | 1.00 |
| 37841928-26-C/T | chr7 | 1932371 | SJ21909 | GO:0005515 | 0.45 | 1.00 |
| 37837174-11-A/T | NA | NA | NA | NA | 0.46 | 1.00 |
| 37864368-5-G/T | chr0 | 29986215 | SJ25791 | NA | 0.59 | 1.00 |
| 37837814-7-A/G | chr0 | 148477000 | SJ17765 | GO:0008270;GO:0006355 | 0.64 | 1.00 |
| 37841038-56-A/G | chr0 | 117873362 | NA | NA | 0.65 | 1.00 |
| 37834509-21-T/C | chr0 | 138690522 | NA | NA | 0.65 | 1.00 |
| 37845374-28-T/C | chr0 | 43792869 | SJ08892 | GO:0016491;GO:0016166;GO:0055114;GO:0016117 | 0.66 | 1.00 |
| 37831336-13-T/C | NA | NA | NA | NA | 0.71 | 1.00 |
| 37850174-16-A/T | NA | NA | NA | NA | 0.78 | 1.00 |
| 37862019-58-A/G | chr7 | 7820753 | NA | NA | 0.83 | 1.00 |
| 37834268-42-T/A | chr18 | 2735867 | SJ19406 | GO:0006486;GO:0016020;GO:0004576 | 0.87 | 1.00 |
| 37847908-28-G/A | chr18 | 2735935 | SJ19406 | GO:0006486;GO:0016020;GO:0004576 | 0.87 | 1.00 |
| 37862313-12-C/T | chr1 | 7313391 | SJ08752 | NA | 0.87 | 1.00 |
| 37848571-13-A/G | chr0 | 159518369 | SJ22385 | GO:0007165;GO:0009584;GO:0000160;GO:0000155;GO:0018298;GO:0005515;GO:0006355 | 0.88 | 1.00 |
| 37855252-30-A/G | chr0 | 71490009 | NA | NA | 0.91 | 1.00 |
| 37860013-25-A/T | NA | NA | NA | NA | 0.50 | 0.99 |
| 37853977-11-C/A | chr4 | 1382721 | NA | NA | 0.89 | 0.99 |
| 37847335-49-G/A | chr7 | 2439408 | SJ02182 | GO:0003677;GO:0008703;GO:0009231;GO:0055114 | 0.72 | 0.97 |
| 37843260-6-A/C | NA | NA | NA | NA | 0.72 | 0.97 |
| 37838372-21-A/G | NA | NA | NA | NA | 0.46 | 0.96 |
| 37858032-5-A/G | NA | NA | NA | NA | 0.50 | 0.94 |
| 37847493-31-A/G | chr23 | 10093130 | SJ14911 | GO:0003777;GO:0007018;GO:0008017;GO:0005524 | 0.53 | 0.93 |
| 37858320-14-G/A | chr0 | 8319054 | SJ15491 | GO:0008270;GO:0003676 | 0.50 | 0.91 |
| 37858803-52-C/A | chr0 | 8313403 | SJ24165 | NA | 0.51 | 0.91 |
| 37831964-67-G/A | NA | NA | NA | NA | 0.32 | 0.78 |
| 37845700-31-C/G | chr0 | 168623137 | SJ35329 | NA | 0.59 | 0.74 |
| 37833576-22-C/T | NA | NA | NA | NA | 0.46 | 0.71 |
| 37834118-11-C/T | chr23 | 3458194 | SJ20662 | GO:0005515 | 0.34 | 0.64 |
| 37844731-11-A/G | NA | NA | NA | NA | 0.37 | 0.64 |
| 37845756-45-A/G | chr23 | 7659655 | SJ01492 | GO:0005515 | 0.45 | 0.64 |
| 37842290-33-A/C | chr23 | 7659590 | SJ01492 | GO:0005515 | 0.46 | 0.63 |
| 37836326-5-C/T | NA | NA | NA | NA | 0.36 | 0.61 |
| 37833660-57-A/G | chr0 | 180417924 | SJ02094 | NA | 0.38 | 0.61 |
| 37841932-14-T/A | chr2 | 10230575 | NA | NA | 0.37 | 0.60 |
| 37845602-48-G/T | chr0 | 3838751 | NA | NA | 0.47 | 0.57 |
| 37831897-35-C/T | NA | NA | NA | NA | 0.34 | 0.54 |
| 37836524-17-C/G | chr15 | 8726625 | SJ05742 | GO:0005515 | 0.51 | 0.53 |
| 37841339-50-C/T | chr19 | 1375588 | NA | NA | 0.36 | 0.51 |
| 37838471-11-T/G | NA | NA | NA | NA | 0.58 | 0.51 |
| 37840364-6-T/G | NA | NA | NA | NA | 0.36 | 0.50 |
| 37832703-66-A/G | chr23 | 10615963 | NA | NA | 0.51 | 0.50 |
| 37848007-59-A/G | chr23 | 9349200 | SJ15816 | GO:0005524 | 0.60 | 0.50 |
| 37849428-58-T/C | chr23 | 9969837 | SJ14929 | GO:0005681;GO:0008380 | 0.43 | 0.49 |
| 37830919-9-T/C | chr21 | 4877880 | NA | NA | 0.53 | 0.49 |
| 37854790-40-G/A | chr16 | 1334699 | NA | NA | 0.15 | 0.47 |
| 37855534-13-A/C | NA | NA | NA | NA | 0.65 | 0.47 |
| 37855533-9-C/A | NA | NA | NA | NA | 0.38 | 0.47 |
| 37852456-37-C/A | chr15 | 8719973 | SJ05743 | GO:0004725;GO:0016791;GO:0016311 | 0.47 | 0.46 |
| 37857695-25-C/G | NA | NA | NA | NA | 0.61 | 0.46 |
| 37837414-17-C/G | NA | NA | NA | NA | 0.41 | 0.44 |
| 37840991-46-A/T | NA | NA | NA | NA | 0.45 | 0.43 |
| 37838105-11-C/A | NA | NA | NA | NA | 0.46 | 0.43 |
| 37839616-7-T/G | NA | NA | NA | NA | 0.42 | 0.42 |
| 37841574-16-C/T | chr14 | 7205155 | SJ16085 | GO:0003676;GO:0008270 | 0.46 | 0.42 |
| 37832052-48-T/C | chr15 | 8758796 | SJ05739 | GO:0005515 | 0.51 | 0.42 |
| 37861843-12-C/T | NA | NA | NA | NA | 0.43 | 0.40 |
| 37848191-47-T/A | chr22 | 2467822 | NA | NA | 0.59 | 0.40 |
| 37847281-12-T/A | chr23 | 6847459 | SJ46300 | NA | 0.50 | 0.39 |
| 37834032-29-A/G | chr23 | 6863359 | NA | NA | 0.52 | 0.39 |
| 37859175-63-A/T | NA | NA | NA | NA | 0.53 | 0.39 |
| 37854999-36-A/G | NA | NA | NA | NA | 0.33 | 0.38 |
| 37837333-22-A/T | chr23 | 8783099 | SJ01173 | GO:0015074;GO:0003676 | 0.51 | 0.38 |
| 37838067-19-T/C | NA | NA | NA | NA | 0.40 | 0.36 |
| 37851129-7-C/A | NA | NA | NA | NA | 0.41 | 0.36 |
| 37850556-40-T/G | NA | NA | NA | NA | 0.42 | 0.36 |
| 37841021-52-C/T | chr23 | 8193068 | SJ07548 | GO:0010468;GO:0003682;GO:0003677 | 0.45 | 0.36 |
| 37834466-27-A/G | chr10 | 931670 | NA | NA | 0.45 | 0.36 |
| 37838373-30-A/G | NA | NA | NA | NA | 0.45 | 0.36 |
| 37852407-16-G/A | chr0 | 127958517 | NA | NA | 0.49 | 0.36 |
| 37842982-22-G/A | chr15 | 2547371 | SJ18401 | GO:0003676;GO:0008270 | 0.50 | 0.36 |
| 37845650-28-A/G | chr23 | 8463508 | SJ07542 | GO:0046872;GO:0004655;GO:0003824;GO:0033014 | 0.25 | 0.35 |
| 37848420-59-C/T | chr1 | 3138927 | SJ37445 | NA | 0.46 | 0.35 |
| 37838833-35-T/C | chr21 | 3217920 | SJ03858 | GO:0035091;GO:0005515;GO:0005509 | 0.59 | 0.35 |
| 37841001-8-A/G | chr22 | 8580033 | SJ08983 | GO:0004601;GO:0020037;GO:0055114;GO:0006979 | 0.32 | 0.33 |
| 37849693-20-G/T | NA | NA | NA | NA | 0.33 | 0.33 |
| 37841582-32-T/C | NA | NA | NA | NA | 0.50 | 0.33 |
| 37835921-12-C/A | NA | NA | NA | NA | 0.46 | 0.31 |
| 37859395-16-A/G | chr10 | 14253073 | SJ23176 | NA | 0.47 | 0.29 |
| 37845351-51-T/G | chr23 | 4132211 | SJ05902 | NA | 0.86 | 0.29 |
| 37850486-8-C/T | NA | NA | NA | NA | 0.38 | 0.26 |
| 37847694-29-C/T | chr10 | 15663262 | SJ03645 | GO:0005524;GO:0006468;GO:0004672 | 0.25 | 0.25 |
| 37844724-18-C/T | NA | NA | NA | NA | 0.41 | 0.24 |
| 37856790-39-C/G | chr5 | 16374931 | SJ05962 | GO:0005515 | 0.50 | 0.24 |
| 37842306-30-T/C | chr0 | 28259270 | NA | NA | 0.42 | 0.22 |
| 37847230-57-C/T | chr8 | 8607878 | SJ21677 | GO:0003924;GO:0005525 | 0.46 | 0.22 |
| 37841958-19-C/G | chr0 | 101720644 | SJ30804 | NA | 0.35 | 0.21 |
| 37842660-16-C/A | chr0 | 96727900 | SJ16346 | GO:0003924;GO:0005525 | 0.46 | 0.21 |
| 37842923-68-G/C | chr0 | 167460439 | SJ09138 | GO:0005515 | 0.48 | 0.21 |
| 37844632-22-A/G | NA | NA | NA | NA | 0.47 | 0.20 |
| 37840016-7-C/T | NA | NA | NA | NA | 0.32 | 0.19 |
| 37831146-21-C/T | chr23 | 7336028 | SJ46330 | NA | 0.38 | 0.19 |
| 37843581-29-T/C | chr0 | 171483122 | SJ09393 | GO:0016779 | 0.45 | 0.19 |
| 37841449-18-A/G | chr0 | 180143363 | SJ18921 | GO:0005515 | 0.55 | 0.17 |
| 37831817-29-G/A | NA | NA | NA | NA | 0.34 | 0.15 |
| 37831393-33-C/A | chr27 | 6790947 | NA | NA | 0.52 | 0.14 |
| 37833820-51-T/C | NA | NA | NA | NA | 0.53 | 0.14 |
| 37851870-32-T/C | NA | NA | NA | NA | 0.54 | 0.14 |
| 37851794-45-T/A | chr27 | 6795011 | NA | NA | 0.54 | 0.13 |
| 37842142-7-G/T | chr23 | 9675016 | SJ15800 | GO:0005515 | 0.61 | 0.13 |
| 37841346-17-T/C | NA | NA | NA | NA | 0.25 | 0.11 |
| 37831655-10-A/T | NA | NA | NA | NA | 0.23 | 0.10 |
| 37853744-11-G/A | NA | NA | NA | NA | 0.29 | 0.10 |
| 37832255-37-G/C | chr0 | 38536098 | NA | NA | 0.49 | 0.10 |
| 37860287-63-A/G | chr0 | 95614586 | NA | NA | 0.48 | 0.09 |
| 37851881-59-C/A | NA | NA | NA | NA | 0.22 | 0.08 |
| 37853613-24-A/G | chr18 | 1397809 | NA | NA | 0.23 | 0.08 |
| 37843290-7-G/A | chr22 | 1401859 | NA | NA | 0.23 | 0.07 |
| 37832177-56-A/G | chr9 | 11323363 | SJ11893 | GO:0003676 | 0.75 | 0.07 |
| 37855529-38-T/A | NA | NA | NA | NA | 0.21 | 0.06 |
| 37837456-22-G/C | chr0 | 80830323 | NA | NA | 0.25 | 0.06 |
| 37848302-7-G/A | chr23 | 12465116 | NA | NA | 0.36 | 0.06 |
| 37847730-6-C/T | NA | NA | NA | NA | 0.46 | 0.06 |
| 37842120-7-T/C | NA | NA | NA | NA | 0.27 | 0.04 |
| 37839985-30-A/G | chr19 | 6556772 | NA | NA | 0.37 | 0.04 |
| 37851473-21-A/G | chr0 | 23157663 | NA | NA | 0.41 | 0.04 |
| 37848185-53-A/G | chr21 | 3506657 | SJ45056 | NA | 0.44 | 0.04 |
| 37840151-5-A/G | NA | NA | NA | NA | 0.44 | 0.04 |
| 37853803-43-T/A | NA | NA | NA | NA | 0.49 | 0.04 |
| 37843699-9-G/C | chr12 | 8749037 | SJ09318 | GO:0004739;GO:0016624;GO:0006086;GO:0003824 | 0.16 | 0.03 |
| 37862646-28-C/T | chr20 | 8000327 | SJ08304 | GO:0016021;GO:0015020;GO:0006486;GO:0006024;GO:0016757;GO:0015012 | 0.15 | 0.03 |
| 37832774-33-C/A | chr22 | 2859865 | SJ17152 | GO:0003676;GO:0008270 | 0.17 | 0.03 |
| 37836939-40-T/G | chr0 | 156438280 | NA | NA | 0.21 | 0.03 |
| 37837367-48-T/C | chr0 | 1460917 | NA | NA | 0.33 | 0.03 |
| 37851236-24-G/A | chr5 | 17923577 | NA | NA | 0.36 | 0.03 |
| 37832792-6-G/A | NA | NA | NA | NA | 0.42 | 0.03 |
| 37851569-60-G/A | chr23 | 11697999 | SJ20360 | GO:0005515 | 0.42 | 0.03 |
| 37842674-17-G/A | chr23 | 11683631 | SJ20359 | GO:0016579;GO:0006511;GO:0036459;GO:0005509 | 0.48 | 0.03 |
| 37833954-59-G/T | NA | NA | NA | NA | 0.54 | 0.03 |
| 37860878-11-C/T | chr1 | 7972557 | NA | NA | 0.11 | 0.01 |
| 37854090-21-C/T | chr20 | 9156952 | NA | NA | 0.12 | 0.01 |
| 37855772-16-G/A | NA | NA | NA | NA | 0.12 | 0.01 |
| 37853585-39-G/A | chr2 | 2574307 | SJ43496 | NA | 0.14 | 0.01 |
| 37836293-31-T/C | chr8 | 1418303 | SJ53051 | NA | 0.15 | 0.01 |
| 37850910-26-T/G | NA | NA | NA | NA | 0.15 | 0.01 |
| 37841970-34-A/T | NA | NA | NA | NA | 0.18 | 0.01 |
| 37856291-28-C/G | NA | NA | NA | NA | 0.19 | 0.01 |
| 37847198-67-C/T | chr0 | 181760598 | SJ36209 | NA | 0.19 | 0.01 |
| 37838452-30-G/A | NA | NA | NA | NA | 0.27 | 0.01 |
| 37843227-56-T/C | chr0 | 86208066 | SJ00329 | GO:0006468;GO:0004672;GO:0005524 | 0.27 | 0.01 |
| 37849514-44-A/G | chr22 | 9089623 | SJ45965 | NA | 0.33 | 0.01 |
| 37848827-26-G/A | chr20 | 9324193 | SJ44909 | NA | 0.34 | 0.01 |
| 37852230-6-G/A | NA | NA | NA | NA | 0.35 | 0.01 |
| 37851408-53-C/G | NA | NA | NA | NA | 0.37 | 0.01 |
| 37850882-28-C/T | chr0 | 110192492 | NA | NA | 0.38 | 0.01 |
| 37849049-51-T/G | chr2 | 530480 | SJ43196 | NA | 0.41 | 0.01 |
| 37832721-62-A/G | NA | NA | NA | NA | 0.52 | 0.01 |
| 37846404-37-A/T | NA | NA | NA | NA | 0.55 | 0.01 |
| 37841658-22-A/G | chr0 | 62332690 | SJ05988 | GO:0006281;GO:0004519 | 0.62 | 0.01 |
| 37838398-20-A/G | NA | NA | NA | NA | 0.09 | 0.00 |
| 37831949-36-T/C | chr8 | 13514250 | SJ00801 | NA | 0.10 | 0.00 |
| 37840321-50-C/A | chr15 | 12345060 | NA | NA | 0.10 | 0.00 |
| 37851904-23-A/G | chr0 | 9897126 | NA | NA | 0.11 | 0.00 |
| 37851918-53-T/C | chr0 | 17221348 | NA | NA | 0.11 | 0.00 |
| 37850355-52-C/T | chr0 | 57833600 | NA | NA | 0.11 | 0.00 |
| 37848969-46-T/A | chr21 | 11583846 | NA | NA | 0.11 | 0.00 |
| 37846254-43-T/A | NA | NA | NA | NA | 0.11 | 0.00 |
| 37853978-35-T/G | chr4 | 1382721 | NA | NA | 0.11 | 0.00 |
| 37832954-53-G/A | NA | NA | NA | NA | 0.12 | 0.00 |
| 37862869-67-C/T | chr0 | 133493700 | NA | NA | 0.12 | 0.00 |
| 37860772-33-G/A | chr0 | 136297452 | NA | NA | 0.12 | 0.00 |
| 37859540-54-C/T | chr1 | 7991878 | NA | NA | 0.13 | 0.00 |
| 37857346-13-T/A | NA | NA | NA | NA | 0.13 | 0.00 |
| 37841131-41-C/T | chr16 | 4678025 | NA | NA | 0.13 | 0.00 |
| 37857606-5-T/C | chr10 | 12823554 | SJ21075 | GO:0003700;GO:0006355 | 0.13 | 0.00 |
| 37860495-10-A/T | chr0 | 106606925 | NA | NA | 0.13 | 0.00 |
| 37858801-31-T/G | NA | NA | NA | NA | 0.13 | 0.00 |
| 37860771-19-A/G | chr0 | 136297452 | NA | NA | 0.13 | 0.00 |
| 37859353-19-T/G | NA | NA | NA | NA | 0.13 | 0.00 |
| 37846768-8-T/A | chr15 | 10565517 | SJ00274 | NA | 0.14 | 0.00 |
| 37840382-44-C/G | NA | NA | NA | NA | 0.14 | 0.00 |
| 37857066-8-G/A | chr20 | 9284928 | NA | NA | 0.14 | 0.00 |
| 37852310-12-C/A | chr22 | 1839502 | SJ14786 | GO:0008234;GO:0006508 | 0.14 | 0.00 |
| 37832208-50-G/T | chr0 | 25964273 | NA | NA | 0.14 | 0.00 |
| 37836100-34-A/G | chr20 | 9459708 | SJ02644 | GO:0003676;GO:0005524 | 0.15 | 0.00 |
| 37844393-16-A/C | NA | NA | NA | NA | 0.15 | 0.00 |
| 37843106-17-A/T | NA | NA | NA | NA | 0.15 | 0.00 |
| 37844739-34-A/T | NA | NA | NA | NA | 0.15 | 0.00 |
| 37859500-61-C/T | NA | NA | NA | NA | 0.15 | 0.00 |
| 37831636-8-C/G | chr22 | 9133475 | SJ11354 | NA | 0.15 | 0.00 |
| 37843101-24-A/G | NA | NA | NA | NA | 0.15 | 0.00 |
| 37857709-61-T/A | NA | NA | NA | NA | 0.15 | 0.00 |
| 37843167-65-C/G | chr11 | 3000158 | NA | NA | 0.16 | 0.00 |
| 37849259-12-C/A | chr24 | 2982401 | NA | NA | 0.16 | 0.00 |
| 37847078-43-C/A | chr22 | 1862770 | NA | NA | 0.16 | 0.00 |
| 37840074-32-G/A | chr0 | 176339755 | NA | NA | 0.16 | 0.00 |
| 37854808-38-C/T | NA | NA | NA | NA | 0.16 | 0.00 |
| 37834225-65-C/T | chr11 | 1977117 | SJ18942 | GO:0003677 | 0.16 | 0.00 |
| 37846437-22-G/A | NA | NA | NA | NA | 0.16 | 0.00 |
| 37846246-7-C/G | chr0 | 102446319 | NA | NA | 0.17 | 0.00 |
| 37848243-36-A/G | chr0 | 158101527 | SJ17506 | GO:0008270;GO:0006355;GO:0000981;GO:0005634 | 0.17 | 0.00 |
| 37843357-22-C/T | chr6 | 8969968 | NA | NA | 0.17 | 0.00 |
| 37858361-25-T/C | NA | NA | NA | NA | 0.18 | 0.00 |
| 37849501-66-G/A | chr4 | 1161539 | SJ12548 | GO:0005515 | 0.19 | 0.00 |
| 37839948-37-G/T | chr22 | 2900693 | SJ17153 | GO:0003676;GO:0008270 | 0.19 | 0.00 |
| 37852397-10-G/A | chr5 | 11292508 | NA | NA | 0.19 | 0.00 |
| 37832769-49-C/A | chr0 | 86101906 | SJ29674 | NA | 0.19 | 0.00 |
| 37832641-66-C/G | chr0 | 147193857 | NA | NA | 0.19 | 0.00 |
| 37841901-50-T/C | chr23 | 7328408 | SJ46324 | NA | 0.20 | 0.00 |
| 37847976-64-G/A | NA | NA | NA | NA | 0.20 | 0.00 |
| 37840066-37-A/T | NA | NA | NA | NA | 0.20 | 0.00 |
| 37836994-19-T/C | NA | NA | NA | NA | 0.20 | 0.00 |
| 37851113-17-T/G | NA | NA | NA | NA | 0.20 | 0.00 |
| 37850173-5-C/T | NA | NA | NA | NA | 0.21 | 0.00 |
| 37849451-65-T/C | chr8 | 11080309 | NA | NA | 0.22 | 0.00 |
| 37861326-22-C/T | chr0 | 40981909 | SJ06494 | GO:0016747 | 0.23 | 0.00 |
| 37861797-12-A/G | NA | NA | NA | NA | 0.24 | 0.00 |
| 37831796-44-A/G | chr0 | 43206856 | SJ12598 | GO:0048015;GO:0046854;GO:0016301 | 0.24 | 0.00 |
| 37863581-17-C/T | chr0 | 43840655 | SJ26666 | NA | 0.25 | 0.00 |
| 37849364-9-T/A | NA | NA | NA | NA | 0.25 | 0.00 |
| 37851782-54-A/C | chr0 | 186187472 | NA | NA | 0.26 | 0.00 |
| 37831361-18-C/T | NA | NA | NA | NA | 0.27 | 0.00 |
| 37838702-51-A/G | chr0 | 169745743 | SJ12333 | GO:0046856 | 0.27 | 0.00 |
| 37840521-40-A/T | NA | NA | NA | NA | 0.28 | 0.00 |
| 37847073-65-A/G | NA | NA | NA | NA | 0.28 | 0.00 |
| 37847235-11-T/C | chr10 | 7808376 | NA | NA | 0.29 | 0.00 |
| 37849046-12-T/C | chr8 | 14171738 | NA | NA | 0.30 | 0.00 |
| 37846902-19-C/T | NA | NA | NA | NA | 0.30 | 0.00 |
| 37862920-16-C/G | chr6 | 4820195 | NA | NA | 0.30 | 0.00 |
| 37832874-23-C/A | chr26 | 3769865 | NA | NA | 0.31 | 0.00 |
| 37846879-45-A/C | chr0 | 181819396 | NA | NA | 0.32 | 0.00 |
| 37846945-25-G/C | NA | NA | NA | NA | 0.33 | 0.00 |
| 37832023-41-C/T | chr0 | 14748955 | SJ24748 | NA | 0.34 | 0.00 |
| 37842426-53-C/A | chr0 | 45112115 | NA | NA | 0.36 | 0.00 |
| 37853949-34-A/G | NA | NA | NA | NA | 0.38 | 0.00 |
| 37833668-29-T/C | chr7 | 2566568 | SJ02192 | GO:0005515 | 0.40 | 0.00 |
| 37840045-28-T/A | chr23 | 11675278 | SJ20359 | GO:0016579;GO:0006511;GO:0036459;GO:0005509 | 0.41 | 0.00 |
| 37863342-18-T/A | chr0 | 50241336 | NA | NA | 0.41 | 0.00 |
| 37851959-5-G/A | NA | NA | NA | NA | 0.42 | 0.00 |
| 37860743-23-C/G | chr0 | 70247728 | SJ05871 | GO:0003676;GO:0006139;GO:0008408 | 0.42 | 0.00 |
| 37845716-8-A/G | NA | NA | NA | NA | 0.43 | 0.00 |
| 37855738-33-A/C | NA | NA | NA | NA | 0.44 | 0.00 |
| 37854482-47-T/C | NA | NA | NA | NA | 0.44 | 0.00 |
| 37847791-52-C/T | chr5 | 19723691 | SJ17398 | GO:0006886 | 0.45 | 0.00 |
| 37851272-36-C/A | chr27 | 6790885 | NA | NA | 0.46 | 0.00 |
| 37842432-59-C/G | chr23 | 9119407 | SJ19024 | GO:0031931;GO:0031929 | 0.50 | 0.00 |
| 37842336-64-C/A | chr0 | 16992876 | SJ24886 | NA | 0.54 | 0.00 |
| 37836680-12-C/T | NA | NA | NA | NA | 0.54 | 0.00 |
| 37836236-22-T/C | chr7 | 1957854 | SJ21909 | GO:0005515 | 0.55 | 0.00 |
| 37836571-9-T/C | chr10 | 13780811 | SJ02851 | GO:0006457;GO:0005524;GO:0051082 | 0.58 | 0.00 |
| 37861487-15-C/T | chr0 | 68121754 | SJ03191 | GO:0004815;GO:0005524;GO:0006418;GO:0005737;GO:0004812;GO:0000166;GO:0006422;GO:0003676 | 0.58 | 0.00 |
| 37861486-12-A/G | chr0 | 68121754 | SJ03191 | GO:0004815;GO:0005524;GO:0006418;GO:0005737;GO:0004812;GO:0000166;GO:0006422;GO:0003676 | 0.60 | 0.00 |
| 37831808-9-G/T | chr0 | 68130547 | SJ03191 | GO:0004815;GO:0005524;GO:0006418;GO:0005737;GO:0004812;GO:0000166;GO:0006422;GO:0003676 | 0.61 | 0.00 |
| 37833742-11-A/C | chr0 | 68168989 | SJ03193 | GO:0005887;GO:0003676;GO:0055085;GO:0004386;GO:0005524 | 0.68 | 0.00 |
| 37855854-35-C/T | chr5 | 11379666 | NA | NA | 0.68 | 0.00 |
| 37833442-35-T/C | chr20 | 5395085 | SJ44717 | NA | 0.68 | 0.00 |