|  |  |  |  |
| --- | --- | --- | --- |
| **Gene** | **p\_value** | **morans\_test\_statistic** | **q\_value** |
| TAGLN2 | 0 | 38.11437 | 0 |
| TMSB10 | 0 | 44.69823 | 0 |
| SLC5A7 | 0 | 58.06673 | 0 |
| SCG2 | 0 | 46.48832 | 0 |
| GAP43 | 0 | 72.92436 | 0 |
| SST | 0 | 47.13697 | 0 |
| PHOX2B | 0 | 58.04957 | 0 |
| AC105389.3 | 0 | 39.63936 | 0 |
| LINC00682 | 0 | 47.25301 | 0 |
| ISL1 | 0 | 50.60657 | 0 |
| SLIT3 | 0 | 47.26864 | 0 |
| NRN1 | 0 | 37.86831 | 0 |
| ARHGAP36 | 0 | 38.03508 | 0 |
| NEFM | 0 | 40.91652 | 0 |
| NEFL | 0 | 70.73235 | 0 |
| STMN2 | 0 | 47.32075 | 0 |
| PHOX2A | 0 | 40.38706 | 0 |
| LAYN | 0 | 41.79922 | 0 |
| SNCG | 0 | 38.97542 | 0 |
| CALY | 0 | 38.27564 | 0 |
| TAC3 | 0 | 38.39052 | 0 |
| RTN1 | 0 | 48.37341 | 0 |
| ANXA2 | 0 | 46.8574 | 0 |
| MAF | 0 | 41.05048 | 0 |
| GNAS | 0 | 44.89943 | 0 |
| MT-RNR2 | 0 | 37.69207 | 0 |
| MT-ND1 | 0 | 45.7606 | 0 |
| MT-ND2 | 0 | 48.14412 | 0 |
| MT-CO1 | 0 | 63.38316 | 0 |
| MT-CO2 | 0 | 56.38167 | 0 |
| MT-ATP6 | 0 | 46.41531 | 0 |
| MT-CO3 | 0 | 57.01367 | 0 |
| MT-ND3 | 0 | 49.06381 | 0 |
| MT-ND4L | 0 | 48.60588 | 0 |
| MT-ND4 | 0 | 63.23224 | 0 |
| MT-ND5 | 0 | 57.26671 | 0 |
| MT-CYB | 0 | 53.05798 | 0 |
| SNCA | 2.01E-305 | 37.33761 | 1.10E-302 |
| SH3BGRL3 | 3.19E-293 | 36.57806 | 1.70E-290 |
| CRABP1 | 5.24E-284 | 35.99374 | 2.72E-281 |
| CDKN1A | 1.83E-278 | 35.63762 | 9.29E-276 |
| MAB21L2 | 5.27E-276 | 35.47854 | 2.61E-273 |
| TLX1 | 2.57E-272 | 35.23852 | 1.24E-269 |
| NHLH1 | 2.05E-262 | 34.58598 | 9.69E-260 |
| UCHL1 | 1.66E-261 | 34.52558 | 7.66E-259 |
| SLC2A1 | 2.31E-257 | 34.24833 | 1.04E-254 |
| SHOX2 | 1.02E-255 | 34.13775 | 4.49E-253 |
| VIM | 2.49E-254 | 34.04397 | 1.08E-251 |
| MTATP6P1 | 2.86E-252 | 33.90447 | 1.21E-249 |
| SLC17A6 | 3.90E-248 | 33.62275 | 1.62E-245 |
| ID4 | 2.93E-244 | 33.35652 | 1.19E-241 |
| TCF4 | 1.22E-235 | 32.75665 | 4.88E-233 |
| STMN1 | 2.23E-233 | 32.59749 | 8.73E-231 |
| RGMB | 1.42E-231 | 32.46991 | 5.46E-229 |
| TUBA1B | 3.42E-231 | 32.4428 | 1.29E-228 |
| H3F3B | 3.43E-228 | 32.22928 | 1.27E-225 |
| EBF1 | 2.26E-223 | 31.88347 | 8.25E-221 |
| SOX4 | 1.11E-222 | 31.83358 | 3.98E-220 |
| MALAT1 | 7.53E-218 | 31.48253 | 2.65E-215 |
| LHX2 | 4.90E-210 | 30.90641 | 1.70E-207 |
| AC010478.1 | 9.75E-203 | 30.35833 | 3.32E-200 |
| ROBO3 | 2.13E-196 | 29.87425 | 7.12E-194 |
| SLC10A4 | 3.93E-190 | 29.3878 | 1.30E-187 |
| SV2C | 5.00E-185 | 28.98561 | 1.62E-182 |
| RND3 | 5.83E-185 | 28.98029 | 1.86E-182 |
| DDR1 | 1.10E-183 | 28.87885 | 3.46E-181 |
| DLL1 | 1.70E-183 | 28.86381 | 5.27E-181 |
| MAPT | 8.11E-178 | 28.40777 | 2.48E-175 |
| S100A6 | 2.68E-177 | 28.36569 | 8.07E-175 |
| TCF12 | 3.32E-174 | 28.11378 | 9.87E-172 |
| CNR1 | 1.53E-170 | 27.81254 | 4.48E-168 |
| TBX2 | 1.33E-169 | 27.73474 | 3.84E-167 |
| FEV | 4.36E-168 | 27.60879 | 1.24E-165 |
| NEUROD2 | 4.46E-167 | 27.52458 | 1.25E-164 |
| CCK | 5.46E-167 | 27.51723 | 1.51E-164 |
| SOX11 | 1.29E-166 | 27.48592 | 3.54E-164 |
| LY6H | 1.61E-164 | 27.30997 | 4.36E-162 |
| LINC01158 | 3.95E-162 | 27.10813 | 1.05E-159 |
| TUBB2A | 6.23E-156 | 26.57721 | 1.64E-153 |
| UTS2 | 5.28E-155 | 26.49678 | 1.37E-152 |
| RPS27L | 6.35E-151 | 26.14032 | 1.63E-148 |
| LBX1 | 6.41E-150 | 26.05184 | 1.62E-147 |
| CHL1 | 3.81E-147 | 25.80591 | 9.53E-145 |
| EDIL3 | 4.99E-139 | 25.07231 | 1.23E-136 |
| FTL | 1.01E-136 | 24.85992 | 2.47E-134 |
| NPPA | 1.51E-135 | 24.75114 | 3.64E-133 |
| RCAN3 | 7.14E-135 | 24.68831 | 1.71E-132 |
| LAMP5 | 2.89E-134 | 24.6317 | 6.83E-132 |
| BASP1 | 2.97E-133 | 24.53704 | 6.94E-131 |
| ADM | 9.42E-133 | 24.49009 | 2.17E-130 |
| TFRC | 1.03E-128 | 24.10792 | 2.36E-126 |
| DLC1 | 2.50E-128 | 24.07125 | 5.65E-126 |
| DCX | 3.11E-128 | 24.06226 | 6.94E-126 |
| NSG2 | 1.50E-127 | 23.99698 | 3.31E-125 |
| LYPD1 | 4.24E-126 | 23.85743 | 9.27E-124 |
| YWHAH | 5.62E-125 | 23.74901 | 1.22E-122 |
| MT-RNR1 | 4.28E-124 | 23.66355 | 9.17E-122 |
| RBMS1 | 8.67E-124 | 23.63377 | 1.84E-121 |
| EBF3 | 1.23E-123 | 23.61891 | 2.59E-121 |
| C1orf61 | 4.80E-123 | 23.5614 | 9.97E-121 |

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| --- | --- | --- | --- |
| **Gene** | **p\_value** | **morans\_test\_statistic** | **q\_value** |
| CAMK2N1 | 0 | 50.66858 | 0 |
| STMN1 | 0 | 46.66235 | 0 |
| NHLH1 | 0 | 55.7692 | 0 |
| ATP1B1 | 0 | 69.66597 | 0 |
| CNTN2 | 0 | 43.7615 | 0 |
| LYPD1 | 0 | 49.32273 | 0 |
| RND3 | 0 | 61.33213 | 0 |
| NDNF | 0 | 42.11496 | 0 |
| HMGCS1 | 0 | 39.61499 | 0 |
| RGMB | 0 | 49.36704 | 0 |
| PEG10 | 0 | 65.40369 | 0 |
| NEFM | 0 | 37.71724 | 0 |
| NEFL | 0 | 56.53903 | 0 |
| DUSP4 | 0 | 46.23796 | 0 |
| BNC2 | 0 | 44.04329 | 0 |
| ROBO3 | 0 | 50.96962 | 0 |
| CRABP1 | 0 | 52.96983 | 0 |
| CBLN1 | 0 | 42.36286 | 0 |
| TOX3 | 0 | 51.36249 | 0 |
| MAF | 0 | 50.36909 | 0 |
| MAPT | 0 | 43.62036 | 0 |
| VSTM2L | 0 | 43.73836 | 0 |
| MAFB | 0 | 43.29908 | 0 |
| TCF4 | 1.76E-302 | 37.15596 | 1.92E-299 |
| B3GAT2 | 9.61E-302 | 37.11021 | 1.01E-298 |
| TH | 1.54E-301 | 37.09758 | 1.55E-298 |
| DRGX | 1.11E-294 | 36.66975 | 1.08E-291 |
| DCC | 1.15E-293 | 36.60602 | 1.07E-290 |
| LHX2 | 1.90E-288 | 36.27647 | 1.72E-285 |
| MT-CO3 | 3.48E-287 | 36.19627 | 3.04E-284 |
| METRN | 1.04E-285 | 36.10232 | 8.82E-283 |
| PGM2L1 | 1.27E-271 | 35.19315 | 1.04E-268 |
| SLC35F4 | 3.41E-269 | 35.0341 | 2.70E-266 |
| DCX | 1.79E-258 | 34.3229 | 1.38E-255 |
| EBF1 | 4.85E-255 | 34.092 | 3.63E-252 |
| AC092376.2 | 7.88E-255 | 34.07774 | 5.74E-252 |
| TMSB4X | 2.18E-251 | 33.84465 | 1.54E-248 |
| NRN1 | 1.11E-247 | 33.59176 | 7.63E-245 |
| EBF3 | 2.17E-242 | 33.22726 | 1.46E-239 |
| NEUROD2 | 2.07E-241 | 33.15942 | 1.36E-238 |
| TAGLN3 | 6.80E-241 | 33.12361 | 4.34E-238 |
| TUBB2A | 3.24E-240 | 33.07642 | 2.02E-237 |
| SOX11 | 6.18E-239 | 32.98727 | 3.77E-236 |
| GAP43 | 1.83E-235 | 32.74437 | 1.09E-232 |
| MT-CO1 | 1.28E-230 | 32.40213 | 7.46E-228 |
| MAFA | 2.45E-228 | 32.23968 | 1.40E-225 |
| CCNI | 3.78E-226 | 32.08323 | 2.11E-223 |
| ECEL1 | 2.16E-221 | 31.74028 | 1.18E-218 |
| UCHL1 | 8.68E-218 | 31.47802 | 4.65E-215 |
| MT-ND4 | 2.67E-216 | 31.36908 | 1.40E-213 |
| MT-CO2 | 4.00E-215 | 31.28279 | 2.06E-212 |
| ETFB | 1.02E-213 | 31.17912 | 5.15E-211 |
| MT-CYB | 2.64E-209 | 30.85186 | 1.31E-206 |
| LGI2 | 5.36E-209 | 30.82896 | 2.60E-206 |
| KITLG | 3.70E-194 | 29.70121 | 1.77E-191 |
| NFIA | 6.24E-190 | 29.3721 | 2.92E-187 |
| INSM1 | 5.58E-187 | 29.14006 | 2.57E-184 |
| FTH1 | 1.13E-186 | 29.11584 | 5.11E-184 |
| CRABP2 | 2.96E-186 | 29.0828 | 1.32E-183 |
| CBLN2 | 5.19E-181 | 28.66518 | 2.27E-178 |
| LY6H | 3.19E-178 | 28.44058 | 1.37E-175 |
| MMD | 6.83E-176 | 28.25146 | 2.89E-173 |
| TSHZ2 | 8.07E-175 | 28.16402 | 3.36E-172 |
| SOX4 | 8.86E-171 | 27.83214 | 3.63E-168 |
| CDC42 | 4.43E-169 | 27.69138 | 1.79E-166 |
| NPTX2 | 9.03E-166 | 27.41523 | 3.59E-163 |
| NFIB | 5.64E-163 | 27.1797 | 2.21E-160 |
| ID2 | 2.85E-162 | 27.12016 | 1.10E-159 |
| HES6 | 1.33E-160 | 26.97814 | 5.07E-158 |
| VGF | 6.83E-160 | 26.91762 | 2.56E-157 |
| NRCAM | 2.64E-159 | 26.86737 | 9.76E-157 |
| BASP1 | 4.46E-159 | 26.84794 | 1.62E-156 |
| LMO4 | 9.47E-158 | 26.73403 | 3.40E-155 |
| PCDH9 | 1.42E-154 | 26.45949 | 5.03E-152 |
| PCBP4 | 1.23E-153 | 26.37794 | 4.29E-151 |
| C1orf61 | 9.58E-153 | 26.30003 | 3.30E-150 |
| PCDH7 | 1.16E-152 | 26.29279 | 3.95E-150 |
| TMSB10 | 5.78E-150 | 26.05578 | 1.94E-147 |
| EZR | 9.35E-149 | 25.94893 | 3.10E-146 |
| CHD7 | 1.59E-144 | 25.57145 | 5.19E-142 |
| YWHAH | 7.25E-144 | 25.512 | 2.35E-141 |
| RBP1 | 1.97E-143 | 25.4729 | 6.22E-141 |
| KCTD12 | 1.96E-143 | 25.47304 | 6.22E-141 |
| IGFBP2 | 4.81E-143 | 25.43784 | 1.50E-140 |
| MT-ATP6 | 6.25E-143 | 25.4276 | 1.93E-140 |
| CHMP2B | 7.18E-143 | 25.42212 | 2.19E-140 |
| LINC01158 | 7.64E-143 | 25.41971 | 2.30E-140 |
| MEIS2 | 3.84E-141 | 25.26535 | 1.14E-138 |
| DOK6 | 1.81E-139 | 25.11261 | 5.33E-137 |
| CSRP2 | 4.95E-139 | 25.07257 | 1.44E-136 |
| RCOR2 | 6.42E-138 | 24.97036 | 1.85E-135 |
| NGEF | 1.03E-137 | 24.95143 | 2.94E-135 |
| SNN | 6.74E-137 | 24.87617 | 1.90E-134 |
| SOX8 | 3.32E-135 | 24.71925 | 9.26E-133 |
| MT-ND5 | 2.58E-134 | 24.63624 | 7.13E-132 |
| CRNDE | 3.03E-132 | 24.44241 | 8.27E-130 |
| GSTP1 | 4.81E-132 | 24.42351 | 1.30E-129 |
| TSHZ3 | 1.87E-131 | 24.36791 | 5.01E-129 |
| NKAIN4 | 7.15E-131 | 24.31297 | 1.89E-128 |
| CALY | 1.75E-130 | 24.27624 | 4.58E-128 |