**Table s1.** three gene-based Association Testing Results for genes associated with guttate psoriasis in Exome\_Fine Array

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **SetID** | **N.Marker.All** | **N.Marker.Test** | **MAC** | **m** | **P.skat** | **P.skato** | **P.burden** |
| **DNAH1** | 39 | 32 | 859 | 495 | 6.02E-03 | 6.77E-03 | 6.32E-03 |
| **SLC25A45** | 3 | 2 | 9 | 7 | 2.56E-03 | 2.24E-03 | 2.06E-03 |
| **CEP72** | 12 | 10 | 370 | 235 | 5.94E-03 | 8.24E-03 | 9.52E-03 |
| **ANKEF1** | 9 | 8 | 282 | 140 | 3.44E-02 | 1.34E-02 | 1.18E-02 |
| **PLCB2** | 8 | 6 | 172 | 172 | 6.21E-03 | 2.01E-04 | 1.11E-04 |
| **AGL** | 11 | 7 | 60 | 60 | 1.23E-03 | 5.47E-04 | 3.10E-04 |
| **OLIG3** | 4 | 3 | 83 | 81 | 4.02E-04 | 4.63E-04 | 5.05E-04 |
| **HOMER3** | 3 | 1 | 6 | 6 | 1.34E-03 | 1.34E-03 | 1.34E-03 |
| **CAPN15** | 12 | 10 | 245 | 138 | 4.30E-03 | 5.00E-03 | 1.11E-02 |
| **RNF31** | 5 | 5 | 20 | 20 | 3.22E-03 | 9.17E-04 | 5.06E-04 |
| **NR2C1** | 2 | 1 | 55 | 55 | 4.96E-04 | 4.96E-04 | 4.96E-04 |
| **DLGAP5** | 8 | 5 | 178 | 177 | 5.29E-03 | 6.21E-04 | 3.30E-04 |
| **ADAMTS8** | 7 | 6 | 35 | 35 | 1.42E-03 | 1.84E-03 | 9.24E-04 |
| **CCDC34** | 3 | 2 | 21 | 15 | 5.67E-03 | 5.73E-03 | 1.00E-02 |
| **GPRC5C** | 6 | 5 | 11 | 11 | 2.72E-02 | 4.06E-03 | 9.95E-04 |
| **CHAF1A** | 8 | 7 | 27 | 23 | 4.28E-03 | 4.77E-03 | 5.23E-03 |
| **TRIB3** | 14 | 10 | 162 | 162 | 8.33E-03 | 2.09E-03 | 1.06E-03 |
| **FBXO28** | 2 | 2 | 3 | 3 | 5.38E-03 | 5.38E-03 | 5.38E-03 |
| **TAS2R40** | 4 | 2 | 3 | 2 | 2.44E-02 | 2.44E-02 | 2.44E-02 |
| **WNT9B** | 4 | 3 | 3 | 3 | 5.38E-03 | 5.38E-03 | 5.38E-03 |
| **SENP1** | 2 | 1 | 3 | 3 | 5.38E-03 | 5.38E-03 | 5.38E-03 |
| **BPIFB6** | 4 | 3 | 3 | 3 | 5.38E-03 | 5.38E-03 | 5.38E-03 |
| **LHX3** | 3 | 2 | 3 | 3 | 5.38E-03 | 5.38E-03 | 5.38E-03 |
| **FPGS** | 2 | 2 | 3 | 3 | 5.38E-03 | 5.38E-03 | 5.38E-03 |
| **PLSCR2** | 2 | 2 | 3 | 3 | 5.38E-03 | 5.38E-03 | 5.38E-03 |
| **ZBTB22** | 2 | 2 | 36 | 36 | 3.57E-03 | 2.56E-03 | 1.60E-03 |
| **CBR1** | 3 | 2 | 9 | 9 | 3.65E-03 | 3.65E-03 | 2.12E-03 |
| **COL2A1** | 11 | 7 | 52 | 52 | 2.05E-04 | 3.17E-04 | 1.97E-03 |
| **CCDC154** | 8 | 7 | 160 | 131 | 2.18E-02 | 1.45E-02 | 8.39E-03 |
| **GPR161** | 3 | 2 | 7 | 7 | 2.56E-03 | 2.56E-03 | 5.42E-03 |
| **OR11L1** | 9 | 9 | 128 | 101 | 1.74E-02 | 2.62E-02 | 2.52E-02 |
| **PSG6** | 6 | 3 | 5 | 5 | 2.37E-03 | 2.37E-03 | 7.92E-03 |
| **TPST2** | 2 | 2 | 5 | 5 | 6.07E-03 | 6.07E-03 | 4.22E-03 |
| **RGR** | 2 | 2 | 5 | 5 | 6.07E-03 | 6.07E-03 | 4.22E-03 |
| **EXTL1** | 5 | 4 | 5 | 5 | 3.29E-03 | 3.29E-03 | 6.99E-03 |
| **NOC4L** | 15 | 10 | 105 | 104 | 2.26E-02 | 4.16E-03 | 2.16E-03 |
| **TLR9** | 7 | 6 | 66 | 66 | 6.37E-03 | 2.37E-03 | 1.96E-03 |
| **MYO3A** | 15 | 14 | 244 | 242 | 2.19E-02 | 4.14E-03 | 2.03E-03 |
| **CABP5** | 3 | 2 | 12 | 12 | 7.77E-03 | 7.77E-03 | 4.05E-03 |
| **ARHGEF16** | 5 | 5 | 54 | 54 | 1.57E-02 | 3.45E-03 | 2.72E-03 |
| **CLDN15** | 2 | 1 | 23 | 23 | 3.51E-03 | 3.51E-03 | 3.51E-03 |
| **OR10J3** | 3 | 2 | 95 | 95 | 4.01E-03 | 3.27E-03 | 3.04E-03 |
| **C1QTNF2** | 4 | 3 | 92 | 91 | 9.43E-03 | 5.70E-03 | 3.92E-03 |
| **GFER** | 2 | 1 | 15 | 15 | 4.80E-03 | 4.80E-03 | 4.80E-03 |
| **TRAPPC11** | 5 | 5 | 15 | 15 | 4.51E-02 | 9.70E-03 | 4.41E-03 |
| **GLYATL2** | 3 | 3 | 118 | 118 | 2.16E-03 | 2.57E-03 | 4.41E-03 |
| **MCF2L** | 15 | 11 | 130 | 130 | 1.90E-02 | 5.01E-03 | 3.22E-03 |
| **SGOL1** | 4 | 3 | 46 | 42 | 2.21E-02 | 1.23E-02 | 8.28E-03 |
| **FGF2** | 2 | 1 | 38 | 38 | 4.67E-03 | 4.67E-03 | 4.67E-03 |
| **ZNRF3** | 3 | 3 | 38 | 37 | 1.50E-03 | 2.37E-03 | 6.23E-03 |
| **NDUFB5** | 3 | 3 | 60 | 60 | 2.43E-03 | 2.72E-03 | 4.56E-03 |
| **CLEC10A** | 6 | 4 | 187 | 96 | 4.43E-02 | 4.02E-02 | 3.87E-02 |
| **STK31** | 12 | 10 | 360 | 287 | 1.20E-04 | 2.38E-04 | 1.24E-02 |
| **SNRNP48** | 3 | 3 | 52 | 52 | 1.33E-03 | 2.18E-03 | 4.63E-03 |
| **CD109** | 13 | 11 | 134 | 133 | 7.89E-03 | 7.96E-03 | 5.75E-03 |
| **SLC15A1** | 6 | 6 | 83 | 83 | 4.21E-02 | 9.12E-03 | 4.90E-03 |
| **VCL** | 3 | 3 | 83 | 83 | 4.50E-03 | 5.18E-03 | 5.13E-03 |
| **PTCH2** | 5 | 1 | 33 | 33 | 4.77E-03 | 4.77E-03 | 4.77E-03 |
| **CANT1** | 4 | 3 | 59 | 59 | 2.89E-03 | 3.17E-03 | 5.42E-03 |
| **APOBR** | 5 | 3 | 24 | 24 | 3.10E-03 | 3.31E-03 | 7.52E-03 |
| **CCS** | 4 | 3 | 24 | 24 | 6.22E-03 | 5.04E-03 | 6.67E-03 |
| **CCDC8** | 5 | 4 | 66 | 66 | 1.50E-03 | 1.93E-03 | 6.41E-03 |
| **RABEP1** | 3 | 3 | 58 | 58 | 4.00E-02 | 8.45E-03 | 5.29E-03 |
| **RELN** | 37 | 33 | 1552 | 1444 | 1.78E-02 | 8.67E-03 | 7.18E-03 |
| **APLP1** | 2 | 2 | 13 | 11 | 2.06E-02 | 2.06E-02 | 1.23E-02 |
| **RABGGTA** | 3 | 3 | 8 | 8 | 4.15E-03 | 4.85E-03 | 1.45E-02 |
| **FIBP** | 2 | 1 | 8 | 8 | 9.06E-03 | 9.06E-03 | 9.06E-03 |
| **BIRC2** | 4 | 2 | 8 | 8 | 7.32E-03 | 1.23E-02 | 1.08E-02 |
| **DUS3L** | 6 | 3 | 8 | 8 | 7.32E-03 | 7.32E-03 | 1.08E-02 |
| **RASGRP1** | 3 | 2 | 8 | 8 | 4.72E-03 | 4.72E-03 | 1.34E-02 |
| **KLHL32** | 3 | 3 | 102 | 100 | 1.94E-02 | 6.68E-03 | 5.90E-03 |
| **COQ3** | 3 | 3 | 89 | 89 | 3.73E-03 | 4.02E-03 | 7.23E-03 |
| **BIN2** | 3 | 3 | 37 | 37 | 7.78E-03 | 7.89E-03 | 7.73E-03 |
| **TBX20** | 4 | 2 | 37 | 37 | 8.08E-03 | 9.22E-03 | 6.31E-03 |
| **DSG1** | 10 | 8 | 125 | 125 | 5.69E-04 | 1.12E-03 | 1.03E-02 |
| **ZCCHC4** | 5 | 4 | 78 | 75 | 1.18E-02 | 1.42E-02 | 1.12E-02 |
| **ATF1** | 4 | 2 | 31 | 31 | 3.24E-02 | 1.00E-02 | 4.69E-03 |
| **TUBA8** | 4 | 4 | 31 | 31 | 4.16E-03 | 6.89E-03 | 1.03E-02 |
| **TMEM255B** | 13 | 13 | 246 | 244 | 4.85E-03 | 6.71E-03 | 8.87E-03 |
| **INSL6** | 4 | 4 | 75 | 74 | 1.29E-02 | 9.51E-03 | 8.61E-03 |
| **PNO1** | 2 | 1 | 2 | 2 | 2.44E-02 | 2.44E-02 | 2.44E-02 |
| **OR1L8** | 4 | 3 | 41 | 41 | 1.35E-02 | 9.85E-03 | 8.50E-03 |
| **CCL25** | 2 | 1 | 2 | 2 | 2.44E-02 | 2.44E-02 | 2.44E-02 |
| **LRRC4** | 2 | 1 | 2 | 2 | 2.44E-02 | 2.44E-02 | 2.44E-02 |
| **TCF23** | 2 | 2 | 2 | 2 | 2.44E-02 | 2.44E-02 | 2.44E-02 |
| **SRRM1** | 3 | 1 | 2 | 2 | 2.44E-02 | 2.44E-02 | 2.44E-02 |
| **PRPF18** | 3 | 1 | 2 | 2 | 2.44E-02 | 2.44E-02 | 2.44E-02 |
| **ADAM9** | 2 | 2 | 2 | 2 | 2.44E-02 | 2.44E-02 | 2.44E-02 |
| **MPDU1** | 2 | 2 | 2 | 2 | 2.44E-02 | 2.44E-02 | 2.44E-02 |
| **BCAT1** | 3 | 2 | 2 | 2 | 2.44E-02 | 2.44E-02 | 2.44E-02 |
| **GRAP2** | 3 | 1 | 2 | 2 | 2.44E-02 | 2.44E-02 | 2.44E-02 |
| **KAT7** | 3 | 2 | 2 | 2 | 2.44E-02 | 2.44E-02 | 2.44E-02 |
| **NSMCE1** | 3 | 2 | 2 | 2 | 2.44E-02 | 2.44E-02 | 2.44E-02 |
| **SLC4A7** | 3 | 2 | 2 | 2 | 2.44E-02 | 2.44E-02 | 2.44E-02 |
| **SLC51A** | 3 | 2 | 2 | 2 | 2.44E-02 | 2.44E-02 | 2.44E-02 |
| **RAD18** | 4 | 2 | 2 | 2 | 2.44E-02 | 2.44E-02 | 2.44E-02 |
| **P2RY6** | 5 | 2 | 2 | 2 | 2.44E-02 | 2.44E-02 | 2.44E-02 |
| **KRT26** | 3 | 2 | 2 | 2 | 2.44E-02 | 2.44E-02 | 2.44E-02 |
| **CHMP6** | 2 | 2 | 2 | 2 | 2.44E-02 | 2.44E-02 | 2.44E-02 |
| **ELMO2** | 2 | 1 | 2 | 2 | 2.44E-02 | 2.44E-02 | 2.44E-02 |
| **DMRT1** | 2 | 2 | 2 | 2 | 2.44E-02 | 2.44E-02 | 2.44E-02 |
| **PKD2L2** | 2 | 2 | 2 | 2 | 2.44E-02 | 2.44E-02 | 2.44E-02 |
| **NARS2** | 3 | 2 | 2 | 2 | 2.44E-02 | 2.44E-02 | 2.44E-02 |
| **ANKRD29** | 3 | 2 | 2 | 2 | 2.44E-02 | 2.44E-02 | 2.44E-02 |
| **SEMA6B** | 3 | 2 | 2 | 2 | 2.44E-02 | 2.44E-02 | 2.44E-02 |
| **POT1** | 2 | 1 | 2 | 2 | 2.44E-02 | 2.44E-02 | 2.44E-02 |
| **ZNF154** | 3 | 3 | 28 | 28 | 3.17E-03 | 4.55E-03 | 1.13E-02 |
| **HSPA13** | 4 | 4 | 25 | 25 | 3.90E-03 | 5.64E-03 | 1.24E-02 |
| **CRELD1** | 5 | 5 | 22 | 22 | 8.01E-03 | 6.86E-03 | 1.02E-02 |
| **SPACA3** | 8 | 6 | 33 | 33 | 2.36E-02 | 1.34E-02 | 9.46E-03 |
| **KIAA0408** | 9 | 8 | 1150 | 1047 | 8.95E-04 | 9.50E-04 | 1.07E-03 |
| **SFRP4** | 2 | 2 | 6 | 6 | 6.16E-03 | 6.16E-03 | 2.06E-02 |
| **FRMD5** | 3 | 3 | 6 | 6 | 4.02E-02 | 1.98E-02 | 6.88E-03 |
| **B3GNT5** | 2 | 2 | 6 | 6 | 6.16E-03 | 6.16E-03 | 2.06E-02 |
| **PCDH17** | 2 | 1 | 6 | 6 | 1.34E-02 | 1.34E-02 | 1.34E-02 |
| **ARHGAP19** | 3 | 2 | 6 | 6 | 9.76E-03 | 9.76E-03 | 1.70E-02 |
| **BPIFA2** | 4 | 4 | 6 | 6 | 1.26E-02 | 1.26E-02 | 1.70E-02 |
| **TMEM156** | 2 | 2 | 6 | 6 | 1.70E-02 | 1.70E-02 | 9.76E-03 |
| **DCAF11** | 5 | 4 | 6 | 6 | 1.26E-02 | 1.26E-02 | 1.70E-02 |
| **DOCK5** | 10 | 8 | 75 | 61 | 8.82E-03 | 1.54E-02 | 2.59E-02 |
| **KIF18B** | 6 | 3 | 104 | 104 | 2.71E-02 | 1.04E-02 | 7.87E-03 |
| **HRASLS** | 7 | 4 | 51 | 51 | 4.69E-02 | 1.04E-02 | 8.18E-03 |
| **ZFAND4** | 5 | 3 | 24 | 24 | 2.42E-02 | 1.15E-02 | 9.48E-03 |
| **MED12L** | 8 | 8 | 80 | 79 | 2.43E-02 | 1.92E-02 | 1.10E-02 |
| **CNOT4** | 4 | 2 | 11 | 11 | 6.44E-03 | 8.08E-03 | 1.73E-02 |
| **FOXA2** | 2 | 1 | 11 | 11 | 1.12E-02 | 1.12E-02 | 1.12E-02 |
| **PRDM7** | 3 | 3 | 32 | 32 | 5.22E-03 | 7.48E-03 | 8.70E-03 |
| **SYT6** | 9 | 4 | 83 | 83 | 4.37E-03 | 4.92E-03 | 1.23E-02 |
| **ZNF48** | 4 | 3 | 4 | 4 | 1.08E-02 | 1.08E-02 | 2.75E-02 |
| **PRR30** | 4 | 3 | 4 | 4 | 1.08E-02 | 1.08E-02 | 2.75E-02 |
| **CD5L** | 2 | 2 | 4 | 4 | 2.33E-02 | 2.33E-02 | 1.49E-02 |
| **PRSS58** | 2 | 2 | 4 | 4 | 2.33E-02 | 2.33E-02 | 1.49E-02 |
| **PTTG1IP** | 2 | 2 | 4 | 4 | 2.33E-02 | 2.33E-02 | 1.49E-02 |
| **AFG3L2** | 3 | 2 | 4 | 4 | 1.91E-02 | 1.91E-02 | 1.91E-02 |
| **GPR21** | 3 | 3 | 4 | 4 | 1.08E-02 | 1.08E-02 | 2.75E-02 |
| **NR1H4** | 4 | 4 | 4 | 4 | 1.91E-02 | 1.91E-02 | 1.91E-02 |
| **CCDC36** | 2 | 2 | 4 | 4 | 1.91E-02 | 1.91E-02 | 1.91E-02 |
| **AGPAT2** | 2 | 2 | 4 | 4 | 2.33E-02 | 2.33E-02 | 1.49E-02 |
| **ASRGL1** | 2 | 2 | 4 | 4 | 2.33E-02 | 2.33E-02 | 1.49E-02 |
| **SF3B2** | 2 | 2 | 4 | 4 | 1.91E-02 | 1.91E-02 | 1.91E-02 |
| **SERPINI1** | 3 | 2 | 4 | 4 | 1.91E-02 | 1.91E-02 | 1.91E-02 |
| **PDE4D** | 2 | 1 | 4 | 4 | 1.91E-02 | 1.91E-02 | 1.91E-02 |
| **CDON** | 14 | 13 | 270 | 266 | 1.65E-04 | 3.81E-04 | 2.01E-02 |
| **NRP1** | 6 | 5 | 182 | 178 | 9.43E-03 | 1.25E-02 | 1.20E-02 |
| **RERE** | 5 | 3 | 45 | 45 | 1.97E-02 | 1.43E-02 | 1.15E-02 |
| **EFR3A** | 5 | 3 | 87 | 87 | 2.15E-02 | 1.20E-02 | 1.07E-02 |
| **NACA2** | 2 | 2 | 80 | 80 | 9.86E-03 | 1.04E-02 | 1.26E-02 |
| **RNF150** | 2 | 2 | 131 | 130 | 4.46E-02 | 1.53E-02 | 1.02E-02 |
| **ADAM22** | 4 | 3 | 139 | 106 | 2.92E-02 | 3.36E-02 | 3.59E-02 |
| **GZMK** | 3 | 1 | 84 | 83 | 1.30E-02 | 1.30E-02 | 1.30E-02 |
| **GABRR2** | 7 | 7 | 73 | 73 | 2.58E-02 | 1.73E-02 | 1.21E-02 |
| **BAG6** | 2 | 2 | 59 | 59 | 4.39E-02 | 1.84E-02 | 1.19E-02 |
| **SYNE3** | 10 | 8 | 142 | 141 | 2.64E-02 | 2.16E-02 | 1.27E-02 |
| **PTGS1** | 9 | 5 | 170 | 170 | 7.25E-03 | 9.97E-03 | 1.06E-02 |
| **MIS18BP1** | 11 | 8 | 26 | 22 | 1.49E-02 | 2.13E-02 | 4.27E-02 |
| **CHRNA1** | 3 | 2 | 17 | 17 | 1.68E-02 | 1.01E-02 | 1.48E-02 |
| **SCPEP1** | 2 | 2 | 95 | 95 | 1.69E-02 | 1.93E-02 | 1.38E-02 |
| **YJEFN3** | 3 | 2 | 30 | 30 | 1.99E-02 | 1.85E-02 | 1.03E-02 |
| **SHCBP1L** | 6 | 6 | 23 | 23 | 1.37E-02 | 1.20E-02 | 1.48E-02 |
| **CHRNA9** | 8 | 7 | 49 | 48 | 1.16E-02 | 1.65E-02 | 1.53E-02 |
| **C6orf201** | 3 | 2 | 20 | 20 | 3.75E-02 | 2.36E-02 | 8.81E-03 |
| **NUF2** | 5 | 4 | 20 | 20 | 5.61E-03 | 8.35E-03 | 1.56E-02 |
| **UPB1** | 5 | 5 | 70 | 70 | 2.79E-02 | 2.05E-02 | 1.37E-02 |
| **RFXANK** | 4 | 3 | 88 | 88 | 1.87E-02 | 1.44E-02 | 1.34E-02 |
| **NARS** | 4 | 4 | 118 | 117 | 3.04E-02 | 2.36E-02 | 1.43E-02 |
| **SH3D19** | 6 | 5 | 217 | 215 | 2.62E-02 | 2.48E-02 | 1.58E-02 |
| **TECPR1** | 7 | 5 | 106 | 106 | 7.19E-03 | 8.33E-03 | 1.69E-02 |
| **CUEDC1** | 6 | 5 | 151 | 149 | 3.09E-02 | 2.82E-02 | 1.74E-02 |
| **GATA2** | 2 | 1 | 9 | 9 | 1.73E-02 | 1.73E-02 | 1.73E-02 |
| **OSBPL6** | 2 | 2 | 9 | 9 | 2.27E-02 | 2.27E-02 | 1.19E-02 |
| **EXOC1** | 2 | 1 | 9 | 9 | 1.73E-02 | 1.73E-02 | 1.73E-02 |
| **MYL5** | 3 | 3 | 53 | 53 | 5.14E-03 | 6.03E-03 | 1.76E-02 |
| **PCDHA1** | 7 | 5 | 105 | 104 | 1.64E-02 | 2.10E-02 | 1.91E-02 |
| **CRYGC** | 4 | 4 | 33 | 33 | 2.93E-02 | 2.34E-02 | 1.70E-02 |
| **CD300LF** | 3 | 1 | 130 | 130 | 1.61E-02 | 1.61E-02 | 1.61E-02 |
| **LIFR** | 10 | 6 | 36 | 36 | 3.86E-02 | 3.26E-02 | 2.40E-02 |
| **NPFFR2** | 6 | 4 | 43 | 43 | 3.20E-02 | 2.55E-02 | 1.75E-02 |
| **GIN1** | 2 | 2 | 43 | 43 | 3.00E-02 | 2.73E-02 | 1.74E-02 |
| **BLK** | 6 | 3 | 20 | 20 | 3.51E-02 | 2.81E-02 | 2.23E-02 |
| **ZDHHC4** | 4 | 4 | 20 | 19 | 4.49E-02 | 3.19E-02 | 2.87E-02 |
| **FAM26E** | 3 | 3 | 119 | 119 | 1.95E-02 | 2.06E-02 | 1.77E-02 |
| **GGA2** | 3 | 2 | 28 | 28 | 2.88E-02 | 1.57E-02 | 1.54E-02 |
| **SDAD1** | 6 | 6 | 138 | 138 | 4.17E-02 | 2.25E-02 | 1.63E-02 |
| **EFCAB12** | 6 | 6 | 40 | 40 | 3.64E-02 | 2.82E-02 | 1.92E-02 |
| **HIRA** | 3 | 2 | 86 | 86 | 2.15E-02 | 1.97E-02 | 1.87E-02 |
| **DHRS3** | 3 | 3 | 42 | 42 | 1.16E-02 | 1.34E-02 | 2.11E-02 |
| **MRPS28** | 3 | 3 | 12 | 12 | 1.89E-02 | 2.43E-02 | 1.89E-02 |
| **SPESP1** | 2 | 2 | 47 | 47 | 1.19E-02 | 1.32E-02 | 2.13E-02 |
| **UBQLN1** | 2 | 1 | 12 | 12 | 1.89E-02 | 1.89E-02 | 1.89E-02 |
| **OXTR** | 3 | 3 | 54 | 54 | 2.83E-02 | 2.15E-02 | 1.97E-02 |
| **TEX14** | 10 | 5 | 101 | 101 | 3.57E-02 | 3.35E-02 | 2.09E-02 |
| **DUSP22** | 5 | 5 | 54 | 54 | 1.38E-02 | 2.09E-02 | 2.15E-02 |
| **LCORL** | 2 | 2 | 24 | 24 | 1.69E-02 | 1.64E-02 | 2.19E-02 |
| **ILVBL** | 8 | 7 | 24 | 24 | 2.49E-02 | 2.08E-02 | 2.29E-02 |
| **ABCC2** | 16 | 12 | 139 | 132 | 1.55E-02 | 2.53E-02 | 3.42E-02 |
| **GPR37** | 2 | 2 | 24 | 24 | 2.33E-02 | 2.46E-02 | 1.72E-02 |
| **ITGB8** | 2 | 2 | 27 | 27 | 2.60E-02 | 2.83E-02 | 2.79E-02 |
| **TRIM41** | 5 | 4 | 83 | 83 | 3.44E-02 | 3.52E-02 | 2.27E-02 |
| **SLC7A7** | 5 | 3 | 15 | 15 | 1.98E-02 | 2.43E-02 | 1.84E-02 |
| **TPH1** | 6 | 5 | 21 | 21 | 1.77E-02 | 2.42E-02 | 2.79E-02 |
| **HGSNAT** | 3 | 2 | 109 | 109 | 3.18E-02 | 2.01E-02 | 1.92E-02 |
| **SPA17** | 2 | 2 | 44 | 44 | 4.06E-02 | 2.30E-02 | 2.16E-02 |
| **CLDND1** | 2 | 1 | 41 | 41 | 2.30E-02 | 2.30E-02 | 2.30E-02 |
| **CWC22** | 3 | 3 | 132 | 132 | 3.60E-02 | 1.79E-02 | 1.24E-02 |
| **HPD** | 2 | 2 | 58 | 58 | 2.66E-02 | 2.58E-02 | 2.29E-02 |
| **PPP1R3A** | 8 | 5 | 34 | 34 | 1.70E-02 | 2.19E-02 | 3.18E-02 |
| **MLYCD** | 3 | 3 | 102 | 101 | 4.66E-03 | 6.25E-03 | 3.13E-02 |
| **NFATC2** | 4 | 3 | 34 | 33 | 2.21E-02 | 2.20E-02 | 3.65E-02 |
| **COCH** | 3 | 3 | 18 | 18 | 4.83E-02 | 4.51E-02 | 3.43E-02 |
| **XAB2** | 3 | 3 | 84 | 84 | 3.06E-02 | 2.54E-02 | 2.36E-02 |
| **GFM1** | 9 | 7 | 106 | 105 | 3.17E-02 | 3.33E-02 | 2.53E-02 |
| **TFPI** | 3 | 3 | 7 | 7 | 8.79E-03 | 1.07E-02 | 3.43E-02 |
| **GARNL3** | 4 | 2 | 7 | 7 | 1.57E-02 | 1.57E-02 | 3.82E-02 |
| **CYB5R3** | 4 | 3 | 62 | 62 | 3.75E-02 | 3.34E-02 | 2.52E-02 |
| **CIR1** | 2 | 1 | 7 | 7 | 2.70E-02 | 2.70E-02 | 2.70E-02 |
| **FLOT2** | 2 | 2 | 7 | 7 | 1.57E-02 | 1.57E-02 | 3.82E-02 |
| **RXFP2** | 2 | 2 | 7 | 7 | 1.57E-02 | 1.57E-02 | 3.82E-02 |
| **TAS2R5** | 3 | 3 | 7 | 7 | 1.55E-02 | 1.74E-02 | 4.10E-02 |
| **RAD54L** | 8 | 6 | 7 | 7 | 9.27E-03 | 1.29E-02 | 4.10E-02 |
| **RAD51B** | 6 | 3 | 7 | 7 | 4.51E-02 | 4.12E-02 | 2.87E-02 |
| **SNX14** | 3 | 3 | 7 | 7 | 2.93E-02 | 2.93E-02 | 3.82E-02 |
| **ATP5G3** | 2 | 2 | 84 | 84 | 1.74E-02 | 2.06E-02 | 2.82E-02 |
| **IBTK** | 3 | 3 | 73 | 72 | 3.10E-02 | 3.09E-02 | 2.78E-02 |
| **SERPINB8** | 6 | 5 | 95 | 94 | 5.43E-03 | 7.09E-03 | 3.41E-02 |
| **BBOF1** | 3 | 3 | 114 | 114 | 4.91E-02 | 2.42E-02 | 2.22E-02 |
| **CNGA3** | 8 | 5 | 112 | 111 | 4.81E-02 | 3.65E-02 | 2.55E-02 |
| **SNRK** | 3 | 3 | 66 | 65 | 1.93E-02 | 2.96E-02 | 3.02E-02 |
| **HSDL1** | 2 | 2 | 145 | 143 | 4.76E-02 | 2.66E-02 | 2.46E-02 |
| **SPARCL1** | 7 | 3 | 88 | 88 | 3.09E-02 | 2.98E-02 | 2.70E-02 |
| **XRN1** | 3 | 2 | 59 | 58 | 4.75E-02 | 3.87E-02 | 3.09E-02 |
| **TNFRSF18** | 7 | 5 | 94 | 93 | 3.02E-02 | 4.19E-02 | 3.38E-02 |
| **RBL2** | 4 | 4 | 81 | 81 | 4.58E-02 | 3.68E-02 | 2.88E-02 |
| **LDLRAD1** | 4 | 2 | 133 | 133 | 1.81E-02 | 1.89E-02 | 3.25E-02 |
| **C1orf112** | 3 | 2 | 35 | 35 | 4.32E-02 | 3.93E-02 | 2.60E-02 |
| **SCN5A** | 10 | 7 | 127 | 127 | 3.10E-02 | 4.21E-02 | 3.63E-02 |
| **OR9G4** | 3 | 2 | 16 | 16 | 4.46E-02 | 3.94E-02 | 2.20E-02 |
| **NEFM** | 7 | 6 | 49 | 49 | 3.89E-02 | 4.57E-02 | 3.38E-02 |
| **COG5** | 8 | 8 | 22 | 22 | 2.47E-02 | 2.95E-02 | 3.76E-02 |
| **DNPEP** | 3 | 2 | 10 | 10 | 3.90E-02 | 3.90E-02 | 2.00E-02 |
| **ZNF684** | 3 | 2 | 10 | 10 | 3.61E-02 | 3.79E-02 | 2.95E-02 |
| **CHRNA2** | 2 | 2 | 16 | 16 | 4.46E-02 | 3.94E-02 | 2.20E-02 |
| **STRIP2** | 3 | 2 | 67 | 67 | 2.75E-02 | 2.91E-02 | 3.43E-02 |
| **ACD** | 2 | 1 | 24 | 24 | 3.55E-02 | 3.55E-02 | 3.55E-02 |
| **STPG1** | 2 | 2 | 51 | 50 | 4.89E-02 | 4.07E-02 | 3.70E-02 |
| **PCDHA7** | 4 | 4 | 38 | 38 | 3.27E-02 | 4.69E-02 | 4.32E-02 |
| **FARP1** | 8 | 6 | 19 | 19 | 1.73E-02 | 2.29E-02 | 4.52E-02 |
| **BRPF3** | 5 | 4 | 19 | 19 | 2.77E-02 | 3.93E-02 | 4.34E-02 |
| **DNAAF2** | 4 | 4 | 97 | 95 | 3.77E-02 | 4.20E-02 | 3.93E-02 |
| **KCNH5** | 3 | 3 | 13 | 13 | 3.09E-02 | 3.75E-02 | 2.82E-02 |
| **DCLK2** | 3 | 1 | 13 | 13 | 2.95E-02 | 2.95E-02 | 2.95E-02 |
| **FAM227B** | 6 | 3 | 13 | 13 | 2.54E-02 | 2.66E-02 | 3.75E-02 |
| **ZNF184** | 2 | 1 | 13 | 13 | 2.95E-02 | 2.95E-02 | 2.95E-02 |
| **PACRGL** | 2 | 2 | 86 | 85 | 4.35E-02 | 4.03E-02 | 3.83E-02 |
| **SLC8A1** | 5 | 2 | 86 | 86 | 4.11E-02 | 3.80E-02 | 3.61E-02 |
| **CDCA7L** | 2 | 2 | 46 | 46 | 2.95E-02 | 3.14E-02 | 3.82E-02 |
| **TBC1D7** | 4 | 4 | 175 | 172 | 2.94E-02 | 4.18E-02 | 3.62E-02 |
| **GTF3A** | 2 | 1 | 64 | 63 | 4.06E-02 | 4.06E-02 | 4.06E-02 |
| **UNC45B** | 7 | 6 | 90 | 89 | 1.45E-02 | 2.52E-02 | 4.57E-02 |
| **ZBTB11** | 2 | 1 | 15 | 15 | 4.20E-02 | 4.20E-02 | 4.20E-02 |
| **FOPNL** | 2 | 2 | 15 | 15 | 3.83E-02 | 4.20E-02 | 4.20E-02 |
| **TNFRSF4** | 3 | 3 | 119 | 119 | 2.69E-02 | 2.88E-02 | 4.23E-02 |
| **ORC3** | 4 | 4 | 29 | 29 | 5.88E-03 | 8.82E-03 | 4.25E-02 |
| **NPR3** | 2 | 1 | 23 | 23 | 3.14E-02 | 3.14E-02 | 3.14E-02 |
| **ZBTB6** | 3 | 3 | 79 | 79 | 2.79E-02 | 3.01E-02 | 4.18E-02 |
| **ATP6V1B2** | 2 | 1 | 5 | 5 | 4.24E-02 | 4.24E-02 | 4.24E-02 |
| **VGLL4** | 3 | 3 | 5 | 5 | 3.59E-02 | 3.59E-02 | 4.90E-02 |
| **SRGAP3** | 3 | 1 | 5 | 5 | 4.24E-02 | 4.24E-02 | 4.24E-02 |
| **TMEM217** | 3 | 1 | 5 | 5 | 4.24E-02 | 4.24E-02 | 4.24E-02 |
| **ZNF416** | 4 | 2 | 5 | 5 | 4.92E-02 | 4.92E-02 | 1.96E-02 |
| **TNNT2** | 3 | 3 | 5 | 5 | 1.63E-02 | 1.63E-02 | 2.94E-02 |
| **MRPS27** | 7 | 7 | 36 | 36 | 3.35E-02 | 4.44E-02 | 4.07E-02 |
| **RETSAT** | 6 | 4 | 36 | 36 | 3.76E-02 | 3.99E-02 | 3.57E-02 |
| **YBEY** | 6 | 5 | 43 | 43 | 2.20E-02 | 3.55E-02 | 4.42E-02 |
| **BUB1** | 5 | 4 | 102 | 102 | 2.33E-02 | 3.29E-02 | 4.70E-02 |
| **PDGFC** | 2 | 2 | 96 | 95 | 4.92E-02 | 4.58E-02 | 4.36E-02 |
| **TTI1** | 10 | 7 | 49 | 49 | 2.86E-02 | 4.67E-02 | 4.62E-02 |
| **BRD7** | 2 | 2 | 54 | 54 | 2.29E-02 | 2.62E-02 | 4.86E-02 |
| **SLAMF9** | 2 | 1 | 21 | 21 | 4.76E-02 | 4.76E-02 | 4.76E-02 |
| **CERS2** | 4 | 4 | 8 | 8 | 4.23E-02 | 4.23E-02 | 4.66E-02 |
| **ADAM18** | 9 | 6 | 11 | 11 | 3.97E-02 | 4.59E-02 | 2.83E-02 |
| **MEIOB** | 2 | 2 | 2060 | 1884 | 4.88E-02 | 2.25E-02 | 1.60E-02 |
| **INPP5A** | 4 | 3 | 4003 | 3414 | 2.93E-02 | 1.30E-02 | 8.08E-03 |
| **C6orf47** | 2 | 2 | 1035 | 995 | 3.85E-02 | 4.45E-02 | 3.42E-02 |
| **IP6K3** | 17 | 14 | 2626 | 2066 | 9.55E-03 | 1.37E-02 | 3.16E-02 |
| **ZFYVE27** | 5 | 3 | 5796 | 4462 | 1.40E-02 | 1.69E-02 | 2.56E-02 |
| **EYS** | 11 | 8 | 4709 | 3820 | 2.84E-03 | 3.71E-03 | 5.62E-03 |
| **TONSL** | 7 | 6 | 4961 | 3917 | 1.81E-02 | 2.08E-02 | 4.86E-02 |
| **RNF213** | 44 | 33 | 2330 | 2097 | 4.63E-02 | 2.60E-02 | 1.68E-02 |
| **PLCE1** | 20 | 16 | 8607 | 5721 | 4.30E-02 | 7.73E-03 | 4.58E-03 |
| **LVRN** | 12 | 8 | 3572 | 3103 | 1.86E-02 | 6.60E-03 | 4.16E-03 |

N.Marker.All: number of SNPs in the gene; N.Marker.Test: number of SNPs used for the test; MAC: minor allele count; M: number of individuals with minor alleles.