**Suppl 2.** Characteristics of GWAS-identified depression-associated genetic instruments

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **SNP** | **Chromosome** | **Position** | **Effect allele** | **Other allele** | **Effect allele frequency** | **Beta** | **Standard Error** | ***P*-value** | ***F*-statistic**  |
| rs1002656 | 1 | 37192741 | T | C | 0.7033 | -0.0266 | 0.0038 | 3.74E-12 | 147.7 |
| rs10789214 | 1 | 67146817 | T | C | 0.5661 | 0.0193 | 0.0035 | 4.44E-08 | 91.5 |
| rs10890020 | 1 | 73668836 | A | G | 0.5156 | -0.0277 | 0.0035 | 4.03E-15 | 191.8 |
| rs10913112 | 1 | 175913828 | T | C | 0.3767 | -0.0264 | 0.0036 | 3.40E-13 | 163.8 |
| rs113188507 | 1 | 80809636 | A | G | 0.2838 | 0.0221 | 0.0039 | 1.87E-08 | 99.3 |
| rs11579246 | 1 | 50559162 | A | G | 0.9067 | 0.0381 | 0.0061 | 5.71E-10 | 122.9 |
| rs1466887 | 1 | 37709328 | T | C | 0.5511 | -0.0199 | 0.0036 | 4.12E-08 | 98.0 |
| rs169235 | 1 | 181740924 | A | G | 0.7530 | -0.0229 | 0.0041 | 2.98E-08 | 97.6 |
| rs17641524 | 1 | 197704717 | T | C | 0.2091 | -0.0320 | 0.0043 | 1.52E-13 | 169.5 |
| rs1890946 | 1 | 52342427 | T | C | 0.4671 | -0.0235 | 0.0035 | 2.68E-11 | 137.6 |
| rs2568958 | 1 | 72765116 | A | G | 0.6156 | 0.0373 | 0.0036 | 8.47E-25 | 329.6 |
| rs301799 | 1 | 8489302 | T | C | 0.5694 | -0.0250 | 0.0035 | 1.36E-12 | 153.3 |
| rs72710803 | 1 | 177428018 | A | C | 0.9121 | -0.0410 | 0.0062 | 5.29E-11 | 134.9 |
| rs12052908 | 2 | 22503044 | A | T | 0.5325 | -0.0220 | 0.0035 | 4.44E-10 | 120.6 |
| rs1226412 | 2 | 157111313 | T | C | 0.7917 | 0.0256 | 0.0043 | 3.46E-09 | 108.1 |
| rs1568452 | 2 | 58012833 | T | C | 0.3851 | 0.0248 | 0.0036 | 8.12E-12 | 145.7 |
| rs62188629 | 2 | 208044470 | A | G | 0.3136 | 0.0236 | 0.0038 | 7.13E-10 | 120.0 |
| rs7585722 | 2 | 86819128 | T | C | 0.8458 | -0.0269 | 0.0048 | 2.68E-08 | 94.4 |
| rs1095626 | 3 | 157977962 | T | C | 0.5799 | -0.0264 | 0.0035 | 7.13E-14 | 169.9 |
| rs13084037 | 3 | 49214066 | A | G | 0.7740 | -0.0245 | 0.0042 | 7.08E-09 | 105.1 |
| rs141954845 | 3 | 61192911 | A | G | 0.3880 | 0.0229 | 0.0037 | 8.15E-10 | 124.6 |
| rs4346585 | 3 | 44736493 | T | C | 0.6960 | -0.0236 | 0.0038 | 7.13E-10 | 117.9 |
| rs6783233 | 3 | 117509984 | T | C | 0.2833 | 0.0218 | 0.0039 | 2.90E-08 | 96.5 |
| rs7624336 | 3 | 53244151 | T | G | 0.2087 | 0.0238 | 0.0043 | 3.96E-08 | 93.6 |
| rs34937911 | 4 | 42110353 | T | C | 0.8838 | 0.0304 | 0.0055 | 4.13E-08 | 95.0 |
| rs35553410 | 4 | 131237381 | T | C | 0.7462 | -0.0244 | 0.0040 | 1.42E-09 | 112.8 |
| rs45510091 | 4 | 123186393 | A | G | 0.9472 | 0.0448 | 0.0080 | 1.83E-08 | 100.4 |
| rs7659414 | 4 | 177350956 | A | C | 0.5782 | -0.0201 | 0.0035 | 1.20E-08 | 98.6 |
| rs7685686 | 4 | 3207142 | A | G | 0.5753 | 0.0202 | 0.0036 | 2.57E-08 | 99.8 |
| rs10061069 | 5 | 93071630 | C | G | 0.2212 | -0.0275 | 0.0042 | 8.15E-11 | 130.4 |
| rs11135349 | 5 | 164523472 | A | C | 0.4713 | -0.0295 | 0.0035 | 6.04E-17 | 217.0 |
| rs30266 | 5 | 103972357 | A | G | 0.3296 | 0.0308 | 0.0037 | 1.45E-16 | 209.8 |
| rs3099439 | 5 | 87545318 | T | C | 0.5288 | -0.0276 | 0.0035 | 5.05E-15 | 190.0 |
| rs60157091 | 5 | 61509655 | T | C | 0.5150 | 0.0200 | 0.0035 | 1.42E-08 | 100.0 |
| rs1933802 | 6 | 105365891 | C | G | 0.4536 | -0.0223 | 0.0035 | 2.57E-10 | 123.3 |
| rs200949 | 6 | 27835435 | A | G | 0.8744 | 0.0480 | 0.0053 | 2.53E-19 | 253.3 |
| rs2029865 | 6 | 165121844 | A | T | 0.4534 | -0.0201 | 0.0035 | 1.20E-08 | 100.2 |
| rs2876520 | 6 | 142996618 | C | G | 0.5271 | -0.0230 | 0.0036 | 2.29E-10 | 131.9 |
| rs725616 | 6 | 147950422 | T | C | 0.3644 | 0.0204 | 0.0036 | 1.87E-08 | 96.4 |
| rs7758630 | 6 | 101387304 | A | T | 0.4051 | -0.0225 | 0.0036 | 5.56E-10 | 122.1 |
| rs9363467 | 6 | 66565703 | T | C | 0.6035 | 0.0237 | 0.0036 | 6.44E-11 | 134.5 |
| rs16887442 | 7 | 82936909 | T | C | 0.4347 | 0.0203 | 0.0035 | 8.62E-09 | 101.3 |
| rs2043539 | 7 | 12253880 | A | G | 0.4177 | 0.0273 | 0.0035 | 9.89E-15 | 181.4 |
| rs2247523 | 7 | 82454404 | C | G | 0.5319 | -0.0207 | 0.0035 | 4.38E-09 | 106.8 |
| rs3823624 | 7 | 2110346 | T | C | 0.8067 | 0.0272 | 0.0045 | 1.99E-09 | 115.4 |
| rs58104186 | 7 | 109099919 | A | G | 0.4689 | 0.0237 | 0.0035 | 1.82E-11 | 140.0 |
| rs7807677 | 7 | 117502574 | T | C | 0.5505 | 0.0237 | 0.0035 | 1.82E-11 | 139.1 |
| rs67436663 | 8 | 71347626 | C | G | 0.2402 | -0.0259 | 0.0042 | 9.37E-10 | 122.5 |
| rs7837935 | 8 | 65562019 | T | G | 0.1522 | -0.0292 | 0.0049 | 3.34E-09 | 110.1 |
| rs10817969 | 9 | 119731045 | T | G | 0.7173 | 0.0261 | 0.0039 | 3.11E-11 | 138.2 |
| rs1354115 | 9 | 2983774 | A | C | 0.6243 | 0.0210 | 0.0036 | 7.08E-09 | 103.5 |
| rs1982277 | 9 | 11513019 | T | C | 0.7594 | 0.0279 | 0.0041 | 1.45E-11 | 142.3 |
| rs263645 | 9 | 17016503 | A | T | 0.5438 | 0.0221 | 0.0035 | 3.70E-10 | 121.2 |
| rs2670139 | 9 | 126634255 | T | C | 0.7609 | -0.0266 | 0.0041 | 1.21E-10 | 128.8 |
| rs34653192 | 9 | 31124452 | C | G | 0.3196 | -0.0229 | 0.0038 | 2.23E-09 | 114.1 |
| rs3793577 | 9 | 23737627 | A | G | 0.4665 | -0.0229 | 0.0035 | 8.41E-11 | 130.6 |
| rs59283172 | 9 | 25232978 | A | G | 0.1069 | -0.0329 | 0.0057 | 1.02E-08 | 103.4 |
| rs7030813 | 9 | 36999369 | T | C | 0.3736 | 0.0253 | 0.0036 | 3.07E-12 | 149.9 |
| rs913930 | 9 | 120484009 | A | G | 0.6433 | -0.0208 | 0.0037 | 2.42E-08 | 99.3 |
| rs1021363 | 10 | 106610839 | A | G | 0.3547 | 0.0303 | 0.0037 | 4.41E-16 | 210.3 |
| rs997934 | 10 | 1795194 | T | C | 0.3795 | 0.0198 | 0.0036 | 4.81E-08 | 92.4 |
| rs1448938 | 11 | 30892824 | A | G | 0.4171 | 0.0214 | 0.0035 | 1.30E-09 | 111.4 |
| rs198457 | 11 | 61471678 | T | C | 0.1925 | -0.0292 | 0.0046 | 2.99E-10 | 132.6 |
| rs2187490 | 11 | 118713180 | T | G | 0.9106 | -0.0338 | 0.0061 | 3.82E-08 | 93.1 |
| rs2509805 | 11 | 57650796 | T | C | 0.3209 | 0.0220 | 0.0038 | 9.17E-09 | 105.5 |
| rs57344483 | 11 | 127022560 | A | G | 0.9259 | -0.0380 | 0.0068 | 1.82E-08 | 99.1 |
| rs58621819 | 11 | 65314830 | A | T | 0.7903 | -0.0245 | 0.0043 | 1.57E-08 | 99.5 |
| rs61902811 | 11 | 113370758 | A | G | 0.3682 | -0.0257 | 0.0036 | 1.40E-12 | 153.8 |
| rs7117514 | 11 | 70544937 | A | G | 0.5417 | -0.0204 | 0.0035 | 7.29E-09 | 103.4 |
| rs7932640 | 11 | 88744425 | T | C | 0.4417 | 0.0281 | 0.0035 | 1.62E-15 | 194.9 |
| rs10774600 | 12 | 110741356 | T | C | 0.1656 | -0.0267 | 0.0048 | 3.39E-08 | 98.6 |
| rs3213572 | 12 | 121205078 | A | G | 0.4745 | 0.0217 | 0.0035 | 7.61E-10 | 117.5 |
| rs56314503 | 12 | 84465022 | T | G | 0.7487 | -0.0254 | 0.0040 | 2.95E-10 | 121.5 |
| rs78337797 | 12 | 23987925 | T | G | 0.8781 | 0.0306 | 0.0055 | 3.37E-08 | 100.3 |
| rs1343605 | 13 | 53647048 | A | C | 0.3840 | 0.0313 | 0.0036 | 6.23E-18 | 231.9 |
| rs1409379 | 13 | 31907741 | T | C | 0.7641 | 0.0249 | 0.0041 | 1.67E-09 | 111.8 |
| rs4772087 | 13 | 99115041 | T | C | 0.3732 | 0.0227 | 0.0036 | 3.91E-10 | 120.6 |
| rs9545360 | 13 | 80826373 | A | C | 0.1807 | -0.0271 | 0.0046 | 5.02E-09 | 108.8 |
| rs9592461 | 13 | 66941792 | A | G | 0.4874 | 0.0216 | 0.0035 | 9.10E-10 | 116.6 |
| rs10149470 | 14 | 104017953 | A | G | 0.4869 | -0.0267 | 0.0035 | 3.72E-14 | 178.2 |
| rs1045430 | 14 | 75130235 | T | G | 0.4792 | -0.0253 | 0.0035 | 7.31E-13 | 159.9 |
| rs1152578 | 14 | 64697037 | T | C | 0.4357 | -0.0218 | 0.0035 | 6.36E-10 | 116.9 |
| rs1956373 | 14 | 60141822 | T | G | 0.7436 | -0.0226 | 0.0040 | 2.06E-08 | 97.4 |
| rs61990288 | 14 | 42074726 | A | G | 0.5083 | -0.0260 | 0.0035 | 1.68E-13 | 169.1 |
| rs34488670 | 15 | 47684936 | T | C | 0.7887 | -0.0252 | 0.0043 | 6.03E-09 | 105.9 |
| rs8037355 | 15 | 37643831 | T | C | 0.5556 | -0.0233 | 0.0035 | 3.94E-11 | 134.1 |
| rs12923444 | 16 | 21639710 | A | C | 0.5625 | -0.0214 | 0.0035 | 1.30E-09 | 112.8 |
| rs56887639 | 16 | 13755530 | A | G | 0.7264 | -0.0278 | 0.0039 | 1.51E-12 | 153.7 |
| rs7193263 | 16 | 6315880 | A | G | 0.6679 | -0.0239 | 0.0038 | 4.33E-10 | 126.8 |
| rs7198928 | 16 | 7666402 | T | C | 0.6159 | 0.0239 | 0.0036 | 4.45E-11 | 135.2 |
| rs7200826 | 16 | 13066833 | T | C | 0.2551 | 0.0280 | 0.0040 | 3.74E-12 | 149.1 |
| rs75581564 | 17 | 27363750 | A | G | 0.1165 | 0.0301 | 0.0054 | 3.17E-08 | 93.3 |
| rs12966052 | 18 | 52751639 | C | G | 0.1805 | -0.0314 | 0.0046 | 1.25E-11 | 145.9 |
| rs12967143 | 18 | 53099012 | C | G | 0.6984 | -0.0312 | 0.0038 | 3.70E-16 | 205.2 |
| rs12967855 | 18 | 35138245 | A | G | 0.3295 | 0.0265 | 0.0037 | 1.18E-12 | 155.3 |
| rs62091461 | 18 | 52488672 | T | C | 0.2274 | -0.0254 | 0.0042 | 1.95E-09 | 113.4 |
| rs7227069 | 18 | 50731802 | A | G | 0.4326 | 0.0238 | 0.0035 | 1.50E-11 | 139.1 |
| rs7241572 | 18 | 77580712 | A | G | 0.2010 | 0.0280 | 0.0044 | 2.70E-10 | 126.0 |
| rs33431 | 19 | 30939989 | T | C | 0.6144 | 0.0198 | 0.0036 | 4.81E-08 | 92.9 |
| rs12624433 | 20 | 44680853 | A | G | 0.2584 | 0.0233 | 0.0040 | 7.44E-09 | 104.1 |
| rs143186028 | 20 | 39997404 | T | G | 0.1778 | 0.0277 | 0.0046 | 2.29E-09 | 112.2 |
| rs5995992 | 22 | 41487218 | T | C | 0.7155 | -0.0266 | 0.0039 | 1.30E-11 | 144.1 |
| F-statistic was calculated using the following formulas: F=R^2 (n-2)⁄(1-R^2) and R^2=2×MAF×(1-MAF)×β^2, where F represents F-statistic, R^2 represents the phenotypic variance explained by a genetic instrument, N is the sample size, β is the estimated genetic association of SNP with the exposure, MAF is the minor allele frequency. SNP: single nucleotide polymorphisms. |