**Supplementary Table 2.** Associations (95% Confidence Interval (CI) in brackets) between all 77 breast cancer susceptibility variants and percent dense area, dense area, and non-dense area

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Variant** | **Locus** | **Chr** | **Allelesc** | **AFa** | **Percent Density Beta Estimate (95% CI)b** | **Dense Area Beta Estimate (95% CI)b** | **Non-Dense Area Beta Estimate (95% CI)b** |
| rs616488 | *PEX14* | 1 | G/A | 0.66 | 0.008 (-0.033, 0.049) | 0.024 (-0.032, 0.081) | 0.047 (-0.015, 0.109) |
| rs11552449 | *PTPN22:BCL2L15:*  *AP4B1:DCLRE1B:HIPK1* | 1 | G/A | 0.16 | -0.027 (-0.085, 0.031) | -0.038 (-0.118, 0.042) | -0.045 (-0.133, 0.043) |
| rs11249433 | 1p11.2 | 1 | A/G | 0.39 | 0.053 (0.013, 0.093) | 0.067 (0.012, 0.122) | -0.039 (-0.099, 0.021) |
| rs6678914 | *LGR6* | 1 | A/G | 0.59 | 0.052 (0.013, 0.091) | 0.092 (0.038, 0.146) | -0.010 (-0.070, 0.050) |
| rs4245739 | *MDM4* | 1 | C/A | 0.74 | -0.012 (-0.056, 0.032) | -0.032 (-0.093, 0.029) | -0.041 (-0.108, 0.026)d |
| rs12710696 | 2p24.1 | 2 | G/A | 0.35 | -0.069 (-0.109, -0.028) | -0.098 (-0.154, -0.042) | 0.031 (-0.031, 0.093) |
| rs4849887 | 2q14.2 | 2 | A/G | 0.90 | -0.004 (-0.070, 0.062)d | -0.097 (-0.187, -0.006)d | -0.136 (-0.236, -0.036) |
| rs2016394 | *METAP1D:DLX1:DLX2* | 2 | A/G | 0.52 | 0.027 (-0.013, 0.068) | -0.004 (-0.059, 0.051) | -0.087 (-0.147, -0.026) |
| rs1550623 | *CDCA7* | 2 | G/A | 0.84 | -0.003 (-0.055, 0.050) | -0.031 (-0.103, 0.042) | -0.040 (-0.121, 0.040) |
| rs1045485 | *CASP8* | 2 | G/C | 0.86 | 0.005 (-0.051, 0.061)d | 0.007 (-0.071, 0.084) | -0.009 (-0.094, 0.076) |
| rs13387042 | 2q35 | 2 | G/A | 0.51 | -0.014 (-0.053, 0.024) | -0.026 (-0.079, 0.028) | -0.001 (-0.059, 0.058) |
| rs16857609 | *DIRC3* | 2 | G/A | 0.26 | 0.056 (0.012, 0.101)d | 0.087 (0.025, 0.149)d | -0.018 (-0.086, 0.050)d |
| rs6762644 | *ITPR1:EGOT* | 3 | A/G | 0.40 | 0.014 (-0.025, 0.054)d | 0.009 (-0.045, 0.063)d | -0.019 (-0.079, 0.041) |
| rs4973768 | *SLC4A7* | 3 | G/A | 0.48 | 0.035 (-0.004, 0.073) | 0.045 (-0.008, 0.099) | -0.037 (-0.095, 0.022) |
| rs12493607 | *TGFBR2* | 3 | C/G | 0.33 | -0.013 (-0.054, 0.027) | -0.015 (-0.070, 0.041) | 0.022 (-0.040, 0.083) |
| rs9790517 | *TET2* | 4 | G/A | 0.22 | 0.023 (-0.023, 0.070)d | 0.027 (-0.038, 0.091)d | -0.032 (-0.103, 0.039) |
| rs6828523 | *ADAM29* | 4 | A/C | 0.88 | 0.007 (-0.054, 0.067)d | -0.001 (-0.085, 0.082)d | -0.043 (-0.135, 0.050) |
| rs2736108 | *TERT* | 5 | A/G | 0.70 | 0.004 (-0.04, 0.048)d | -0.008 (-0.069, 0.052) | 0.007 (-0.060, 0.073) |
| rs10069690 | *TERT* | 5 | G/A | 0.25 | 0.034 (-0.011, 0.080) | 0.037 (-0.026, 0.100) | -0.011 (-0.080, 0.058) |
| rs10941679 | 5p12 | 5 | A/G | 0.26 | 0.018 (-0.026, 0.062) | 0.041 (-0.019, 0.102) | -0.005 (-0.072, 0.062) |
| rs889312 | *MAP3K1* | 5 | A/C | 0.28 | 0.004 (-0.038, 0.047) | -0.022 (-0.080, 0.037) | -0.033 (-0.097, 0.032) |
| rs10472076 | *RAB3C* | 5 | A/G | 0.38 | 0.028 (-0.012, 0.068) | 0.027 (-0.028, 0.082)d | -0.018 (-0.079, 0.043)d |
| rs1353747 | *PDE4D* | 5 | C/A | 0.90 | 0.015 (-0.050, 0.080) | -0.032 (-0.122, 0.057) | -0.107 (-0.206, -0.009) |
| rs1432679 | *EBF1* | 5 | A/G | 0.44 | 0.087 (0.048, 0.126) | 0.093 (0.039, 0.146) | -0.106 (-0.165, -0.047) |
| rs11242675 | *FOXQ1* | 6 | A/G | 0.62 | 0.034 (-0.006, 0.074) | 0.032 (-0.024, 0.087) | -0.027 (-0.088, 0.034) |
| rs204247 | *RANBP9* | 6 | A/G | 0.45 | 0.020 (-0.018, 0.059) | 0.024 (-0.029, 0.077) | -0.016 (-0.075, 0.042) |
| rs17529111 | 6q14.1 | 6 | A/G | 0.22 | 0.011 (-0.036, 0.058) | 0.020 (-0.045, 0.085) | 0.007 (-0.064, 0.078) |
| rs3757318 | *ESR1* | 6 | G/A | 0.07 | 0.074 (-0.005, 0.152) | 0.190 (0.084, 0.297) | 0.117 (0.000, 0.233) |
| rs2046210 | *ESR1* | 6 | G/A | 0.34 | 0.098 (0.057, 0.139) | 0.137 (0.081, 0.193)d | -0.022 (-0.083, 0.040) |
| rs720475 | *ARHGEF5:NOBOX* | 7 | A/G | 0.75 | -0.017 (-0.062, 0.028) | 0.007 (-0.055, 0.069) | 0.064 (-0.004, 0.132) |
| rs9693444 | 8p12 | 8 | C/A | 0.32 | 0.054 (0.013, 0.095) | 0.072 (0.016, 0.129) | -0.059 (-0.121, 0.004)d |
| rs6472903 | 8q21.11 | 8 | C/A | 0.82 | 0.044 (-0.007, 0.095) | 0.049 (-0.022, 0.119) | -0.045 (-0.123, 0.033) |
| rs2943559 | *NHF4G* | 8 | A/G | 0.07 | 0.038 (-0.037, 0.113) | 0.071 (-0.033, 0.174) | 0.047 (-0.067, 0.161) |
| rs13281615 | 8q24 | 8 | A/G | 0.41 | -0.006 (-0.046, 0.033) | -0.008 (-0.063, 0.047) | -0.003 (-0.064, 0.057) |
| rs11780156 | *MIR1208* | 8 | G/A | 0.15 | 0.033 (-0.019, 0.086) | 0.051 (-0.022, 0.123) | -0.026 (-0.106, 0.054) |
| rs1011970 | *CDKN2A/B* | 9 | C/A | 0.17 | 0.016 (-0.036, 0.067) | 0.032 (-0.039, 0.104) | 0.035 (-0.043, 0.114) |
| rs10759243 | 9q31.2 | 9 | A/C | 0.71 | 0.014 (-0.029, 0.056) | 0.039 (-0.019, 0.098)d | 0.037 (-0.027, 0.102) |
| rs865686 | 9q31 | 9 | C/A | 0.62 | 0.033 (-0.007, 0.074)d | 0.017 (-0.039, 0.072) | -0.033 (-0.094, 0.028) |
| rs2380205 | *ANKRD16* | 10 | A/G | 0.56 | -0.011 (-0.050, 0.028) | -0.004 (-0.058, 0.050) | 0.010 (-0.049, 0.070) |
| rs7072776 | *CHST9* | 10 | G/A | 0.29 | 0.034 (-0.008, 0.077) | 0.053 (-0.006, 0.111) | -0.022 (-0.086, 0.043) |
| rs11814448 | *DNAJC1* | 10 | A/C | 0.02 | 0.067 (-0.063, 0.196) | 0.060 (-0.119, 0.239) | 0.017 (-0.180, 0.214) |
| rs10995190 | *ZNF365* | 10 | A/G | 0.85 | 0.160 (0.105, 0.214) | 0.252 (0.177, 0.327) | -0.005 (-0.088, 0.078) |
| rs704010 | *ZMIZ1* | 10 | G/A | 0.38 | 0.007 (-0.033, 0.046) | 0.009 (-0.046, 0.063) | -0.005 (-0.066, 0.055) |
| rs7904519 | *TCF7L2* | 10 | A/G | 0.46 | -0.001 (-0.040, 0.037) | 0.002 (-0.051, 0.055)d | 0.009 (-0.050, 0.068) |
| rs11199914 | 10q23.12 | 10 | A/G | 0.68 | 0.023 (-0.018, 0.064) | 0.024 (-0.033, 0.081) | -0.048 (-0.110, 0.015) |
| rs2981579 | *FGFR2* | 10 | G/A | 0.40 | 0.007 (-0.032, 0.046)d | -0.004 (-0.058, 0.05)d | -0.036 (-0.096, 0.024) |
| rs2981582 | *FGFR2* | 10 | G/A | 0.38 | 0.023 (-0.017, 0.062)d | 0.014 (-0.041, 0.068) | -0.056 (-0.116, 0.004) |
| rs3817198 | *LSP1* | 11 | A/G | 0.31 | 0.087 (0.045, 0.129) | 0.156 (0.098, 0.214) | -0.001 (-0.065, 0.062) |
| rs3903072 | *DKFZp761E198:OVOL1:*  *SNX32:CFL1:MUS81* | 11 | A/C | 0.53 | -0.022 (-0.061, 0.016) | -0.014 (-0.067, 0.039) | 0.040 (-0.018, 0.099) |
| rs614367 | 11q13 | 11 | G/A | 0.15 | -0.009 (-0.062, 0.045) | -0.033 (-0.106, 0.041) | -0.022 (-0.103, 0.059) |
| rs554219 |  | 11 | C/G | 0.12 | -0.016 (-0.073, 0.042) | -0.031 (-0.11, 0.048) | 0.003 (-0.085, 0.090) |
| rs75915166 |  | 11 | C/A | 0.06 | -0.018 (-0.111, 0.075) | -0.091 (-0.216, 0.034)d | -0.075 (-0.207, 0.057) |
| rs11820646 | 11q24.3 | 11 | A/G | 0.60 | 0.026 (-0.013, 0.066) | 0.043 (-0.012, 0.097) | 0.012 (-0.048, 0.072) |
| rs12422552 | 12p13.1 | 12 | G/C | 0.25 | 0.063 (0.018, 0.107) | 0.071 (0.011, 0.132) | -0.045 (-0.113, 0.022) |
| rs10771399 | *PTHLH* | 12 | G/A | 0.88 | 0.039 (-0.022, 0.100) | 0.102 (0.018, 0.186) | 0.111 (0.018, 0.203) |
| rs17356907 | *NTN4* | 12 | G/A | 0.69 | 0.031 (-0.012, 0.073) | -0.012 (-0.071, 0.046) | -0.121 (-0.185, -0.056) |
| rs1292011 | 12q24 | 12 | G/A | 0.59 | -0.026 (-0.065, 0.014) | -0.018 (-0.072, 0.037) | 0.034 (-0.026, 0.094) |
| rs11571833 | *BRCA2:N4BP2L1:*  *N4BP2L2* | 13 | T/A | 0.01 | 0.172 (-0.022, 0.366) | 0.078 (-0.189, 0.346) | -0.323 (-0.618, -0.028) |
| rs2236007 | *PAX9:SLC25A21* | 14 | A/G | 0.79 | 0.042 (-0.007, 0.091) | 0.059 (-0.009, 0.126) | -0.047 (-0.121, 0.028) |
| rs2588809 | *RAD51L1* | 14 | A/G | 0.84 | 0.087 (0.033, 0.140) | 0.078 (0.003, 0.152) | -0.094 (-0.176, -0.012) |
| rs999737 | *RAD51L1* | 14 | A/G | 0.76 | 0.069 (0.023, 0.115) | 0.079 (0.016, 0.143) | -0.045 (-0.115, 0.025) |
| rs941764 | *CCDC88C* | 14 | A/G | 0.34 | -0.007 (-0.048, 0.034) | -0.002 (-0.059, 0.055) | 0.035 (-0.028, 0.097) |
| rs3803662 | *TOX3* | 16 | G/A | 0.26 | 0.045 (0.002, 0.088) | 0.059 (-0.001, 0.119) | -0.022 (-0.087, 0.044) |
| rs17817449 | *MIR1972-2:FTO* | 16 | C/A | 0.60 | 0.071 (0.031, 0.110) | 0.089 (0.034, 0.143) | -0.058 (-0.118, 0.002) |
| rs11075995 | *FTO:KIAA1752* | 16 | A/T | 0.23 | -0.036 (-0.082, 0.009) | -0.055 (-0.119, 0.008) | -0.003 (-0.073, 0.067) |
| rs13329835 | *CDYL2* | 16 | A/G | 0.22 | 0.009 (-0.038, 0.055) | 0.013 (-0.051, 0.077) | 0.006 (-0.064, 0.077) |
| rs6504950 | *COX11* | 17 | A/G | 0.74 | 0.055 (0.011, 0.099)d | 0.074 (0.013, 0.134)d | -0.036 (-0.103, 0.031) |
| rs527616 | 18q11.2 | 18 | G/C | 0.63 | 0.020 (-0.020, 0.060) | 0.019 (-0.036, 0.074) | -0.028 (-0.089, 0.033) |
| rs1436904 | 18q11.2 | 18 | C/A | 0.60 | 0.016 (-0.023, 0.056) | 0.021 (-0.034, 0.077)d | -0.019 (-0.080, 0.042) |
| rs8170 | *MERIT40* | 19 | G/A | 0.18 | 0.005 (-0.044, 0.055) | 0.003 (-0.066, 0.071) | -0.025 (-0.100, 0.051) |
| rs2363956 | *ANKLE1* | 19 | C/A | 0.49 | -0.002 (-0.041, 0.037) | -0.003 (-0.057, 0.051) | -0.017 (-0.077, 0.042) |
| rs4808801 | *SSBP4:ISYNA1:ELL* | 19 | G/A | 0.66 | 0.064 (0.023, 0.105)d | 0.086 (0.029, 0.143)d | -0.016 (-0.079, 0.046) |
| rs3760982 | *C19orf61:KCNN4:LYPD5:ZNF283* | 19 | G/A | 0.46 | 0.016 (-0.022, 0.055) | -0.004 (-0.057, 0.050) | -0.041 (-0.100, 0.017) |
| rs2823093 | *NRIP1* | 21 | A/G | 0.73 | -0.055 (-0.098, -0.012) | -0.066 (-0.126, -0.006) | 0.046 (-0.020, 0.112) |
| rs132390 | *EMID1:RHBDD3:EWSR1* | 22 | A/G | 0.04 | -0.001 (-0.105, 0.103) | 0.049 (-0.095, 0.192) | 0.158 (0.000, 0.316) |
| rs17879961 | *CHEK2* | 22 | A/G | 0.004 | 0.194 (-0.081, 0.469) | 0.091 (-0.289, 0.470) | -0.401 (-0.820, 0.018) |
| rs6001930 | *MKL1* | 22 | A/G | 0.10 | -0.064 (-0.127, -0.002) | -0.183 (-0.269, -0.096) | -0.232 (-0.327, -0.137) |

aRisk Allele Frequency (based on controls)

bOrdinal per risk allele estimate, Age, 1/BMI, study adjusted

cSecond allele is modeled allele (risk allele), the allele associated with increased risk of breast cancer

dp-value for between study heterogeneity of genotype effect<0.05