|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Supplemental Table 1. Summary of angiogenesis-related genes | | | | | | | |  |
|  |  | **Chromosome** | | **Major/Minor** | **MAF** |  | **FDR HWE P** | |
| **Gene** | **Aliases** | **Location** | **dbSNP ID** | **Allele** | **NHW** | **HISP/NA** | **NHW** | **HISP/NA** |
| *DDIT4* | *Dig2, FLJ20500,* | 10pter-q26.12 | rs4747241 | C/T | 0.38 | 0.54 | 0.96 | 0.14 |
|  | *REDD-1, REDD1* | |  |  |  |  |  |  |
|  | *RP11-442H21.1* | |  |  |  |  |  |  |
|  | *RTP81* |  |  |  |  |  |  |  |
| *FLT1* | *FLT, VEGFR1* | 13q12 | rs2296189 | A/G | 0.19 | 0.12 | 0.96 | 0.14 |
|  |  |  | rs9554314 | A/C | 0.10 | 0.06 | 0.96 | 0.76 |
|  |  |  | rs12429309 | T/C | 0.20 | 0.41 | 0.88 | 0.15 |
|  |  |  | rs9513070 | A/G | 0.39 | 0.29 | 0.96 | 0.94 |
|  |  |  | rs9582036 | A/C | 0.28 | 0.19 | 0.96 | 0.42 |
|  |  |  | rs9554320 | C/A | 0.42 | 0.25 | 0.96 | 0.03 |
|  |  |  | rs9319425 | T/C | 0.46 | 0.46 | 0.99 | 0.39 |
|  |  |  | rs2296188 | C/T | 0.14 | 0.18 | 0.96 | 0.73 |
|  |  |  | rs7987291 | A/G | 0.20 | 0.13 | 0.62 | 0.71 |
|  |  |  | rs7987649 | A/G | 0.33 | 0.34 | 0.96 | 0.95 |
|  |  |  | rs942364 | G/A | 0.11 | 0.07 | 0.57 | 0.86 |
|  |  |  | rs3794400 | C/T | 0.16 | 0.32 | 0.68 | 0.34 |
|  |  |  | rs1408245 | C/G | 0.17 | 0.09 | 0.99 | 0.75 |
|  |  |  | rs2387632 | C/T | 0.33 | 0.40 | 0.93 | 0.09 |
|  |  |  | rs3936415 | G/A | 0.30 | 0.38 | 0.97 | 0.14 |
|  |  |  | rs9513085 | T/C | 0.18 | 0.12 | 0.86 | 0.98 |
|  |  |  | rs1324057 | C/T | 0.29 | 0.40 | 0.96 | 0.56 |
|  |  |  | rs7324547 | G/A | 0.22 | 0.36 | 0.86 | 0.32 |
|  |  |  | rs17086609 | A/G | 0.33 | 0.32 | 1.00 | 0.72 |
|  |  |  | rs9513088 | A/G | 0.35 | 0.42 | 0.93 | 0.70 |
|  |  |  | rs7995976 | C/A | 0.25 | 0.16 | 0.93 | 0.73 |
|  |  |  | rs3751395 | A/C | 0.55 | 0.29 | 0.90 | 0.15 |
|  |  |  | rs3751397 | A/T | 0.47 | 0.49 | 0.78 | 0.52 |
|  |  |  | rs7337610 | C/T | 0.40 | 0.49 | 0.96 | 0.81 |
|  |  |  | rs2296283 | C/T | 0.53 | 0.46 | 0.98 | 0.87 |
|  |  |  | rs9513095 | T/C | 0.32 | 0.19 | 0.93 | 0.51 |
|  |  |  | rs17537653 | G/A | 0.15 | 0.32 | 0.96 | 0.78 |
|  |  |  | rs11149523 | G/A | 0.34 | 0.25 | 1.00 | 0.94 |
|  |  |  | rs9551471 | A/G | 0.31 | 0.26 | 0.98 | 0.75 |
|  |  |  | rs2296285 | A/T | 0.34 | 0.21 | 0.96 | 0.62 |
|  |  |  | rs4771249 | C/G | 0.22 | 0.25 | 0.98 | 0.85 |
|  |  |  | rs2256849 | A/G | 0.14 | 0.31 | 0.89 | 0.87 |
|  |  |  | rs12858139 | C/A | 0.44 | 0.50 | 0.96 | 0.83 |
|  |  |  | rs600640 | T/C | 0.36 | 0.34 | 0.93 | 0.97 |
|  |  |  | rs678714 | T/A | 0.10 | 0.09 | 0.89 | 0.98 |
| *HIF1A* | *HIF-1alpha,* | 14q21-q24 | rs1951795 | C/A | 0.18 | 0.16 | 0.82 | 0.29 |
|  | *HIF1* |  | rs2301113 | A/C | 0.23 | 0.21 | 0.96 | 0.50 |
|  | *MOP1* |  | rs11549465 | C/T | 0.10 | 0.07 | 0.93 | 0.97 |
|  | *PASD8* |  | rs6573399 | G/T | 0.14 | 0.11 | 0.92 | 0.91 |
| *KDR* | *CD309,* | 4q11-q12 | rs2305948 | C/T | 0.10 | 0.07 | 0.86 | 0.99 |
|  | *FLK1* |  | rs2219471 | A/G | 0.24 | 0.13 | 0.86 | 0.61 |
|  | *VEGFR* |  | rs11732292 | A/C | 0.36 | 0.54 | 0.97 | 0.01 |
|  | *VEGFR2* |  | rs12498529 | A/T | 0.18 | 0.19 | 0.98 | 0.57 |
|  |  |  | rs6828477 | T/C | 0.40 | 0.33 | 0.96 | 0.24 |
|  |  |  | rs2125489 | C/T | 0.12 | 0.06 | 0.98 | 0.59 |
|  |  |  | rs17709898 | A/G | 0.36 | 0.19 | 0.96 | 0.54 |
|  |  |  | rs7692791 | C/T | 0.54 | 0.41 | 0.96 | 0.91 |
|  |  |  | rs2071559 | T/C | 0.50 | 0.33 | 0.96 | 0.95 |
|  |  |  | rs12642307 | T/C | 0.27 | 0.24 | 0.97 | 0.89 |
|  |  |  | rs1531289 | G/A | 0.28 | 0.26 | 0.89 | 0.58 |
|  |  |  | rs12505758 | T/C | 0.11 | 0.16 | 1.00 | 0.94 |
|  |  |  | rs2034965 | G/A | 0.26 | 0.26 | 0.97 | 0.52 |
|  |  |  | rs11941492 | C/T | 0.22 | 0.25 | 0.98 | 0.45 |
|  |  |  | rs10020464 | C/T | 0.30 | 0.28 | 0.82 | 0.98 |
|  |  |  | rs2305949 | C/T | 0.21 | 0.11 | 0.97 | 0.59 |
|  |  |  | rs6837735 | C/T | 0.18 | 0.22 | 0.97 | 0.75 |
|  |  |  | rs1531290 | A/G | 0.49 | 0.30 | 0.93 | 0.11 |
|  |  |  | rs12502008 | G/T | 0.37 | 0.54 | 0.96 | 0.32 |
| *NOS2A* | *HEP-NOS,* | 17q11.2-q12 | rs7406657 | G/C | 0.25 | 0.32 | 1.00 | 0.82 |
|  | *INOS* |  | rs9906835 | A/G | 0.41 | 0.45 | 0.93 | 0.41 |
|  | *NOS* |  | rs2297516 | A/C | 0.40 | 0.40 | 0.96 | 0.46 |
|  | *NOS2* |  | rs2297518 | G/A | 0.19 | 0.14 | 0.96 | 0.83 |
|  |  |  | rs2274894 | G/T | 0.40 | 0.38 | 0.99 | 0.91 |
|  |  |  | rs2248814 | G/A | 0.40 | 0.38 | 0.98 | 0.83 |
|  |  |  | rs4795067 | A/G | 0.34 | 0.31 | 0.99 | 0.45 |
|  |  |  | rs3729508 | G/A | 0.41 | 0.30 | 0.89 | 0.09 |
|  |  |  | rs944725 | C/T | 0.41 | 0.40 | 0.96 | 0.30 |
|  |  |  | rs3794763 | G/A | 0.23 | 0.31 | 0.89 | 0.59 |
|  |  |  | rs8072199 | C/T | 0.45 | 0.24 | 0.99 | 0.06 |
|  |  |  | rs16949 | T/C | 0.24 | 0.15 | 0.96 | 0.59 |
|  |  |  | rs3730013 | C/T | 0.33 | 0.45 | 0.96 | 0.01 |
|  |  |  | rs10459953 | G/C | 0.36 | 0.28 | 0.97 | 0.86 |
|  |  |  | rs2779248 | T/C | 0.40 | 0.32 | 0.96 | 0.86 |
| *TEK* | *CD202B,* | 9p21 | rs4242698 | A/C | 0.32 | 0.37 | 0.98 | 0.26 |
|  | *TIE-2, TIE2* |  | rs7871178 | G/A | 0.46 | 0.48 | 0.54 | 0.97 |
|  | *VMCM* |  | rs10967750 | T/C | 0.33 | 0.40 | 0.96 | 0.52 |
|  | *VMCM1* |  | rs3818283 | C/T | 0.21 | 0.21 | 0.97 | 0.72 |
|  |  |  | rs669102 | G/A | 0.40 | 0.51 | 0.96 | 0.98 |
|  |  |  | rs7027647 | A/G | 0.24 | 0.40 | 0.84 | 0.73 |
|  |  |  | rs686256 | G/A | 0.45 | 0.45 | 0.96 | 0.52 |
|  |  |  | rs633903 | A/C | 0.24 | 0.11 | 0.98 | 0.11 |
|  |  |  | rs2152067 | A/C | 0.19 | 0.20 | 0.96 | 0.52 |
|  |  |  | rs10738763 | T/C | 0.22 | 0.30 | 0.23 | 0.97 |
|  |  |  | rs514643 | C/T | 0.22 | 0.21 | 0.96 | 0.42 |
|  |  |  | rs2273715 | A/G | 0.15 | 0.12 | 0.96 | 0.68 |
|  |  |  | rs12350649 | A/T | 0.13 | 0.29 | 0.94 | 0.24 |
|  |  |  | rs652010 | C/T | 0.15 | 0.16 | 0.96 | 0.82 |
|  |  |  | rs511586 | T/G | 0.23 | 0.20 | 0.97 | 0.75 |
|  |  |  | rs1178258 | A/T | 0.11 | 0.05 | 0.96 | 0.64 |
|  |  |  | rs17834811 | T/G | 0.30 | 0.24 | 0.62 | 0.51 |
|  |  |  | rs622232 | C/T | 0.43 | 0.34 | 0.96 | 0.79 |
|  |  |  | rs10967740 | G/A | 0.28 | 0.18 | 0.57 | 0.97 |
|  |  |  | rs664461 | T/C | 0.43 | 0.52 | 0.96 | 0.45 |
|  |  |  | rs12552228 | C/T | 0.13 | 0.16 | 0.97 | 0.79 |
|  |  |  | rs586441 | A/G | 0.13 | 0.11 | 0.96 | 0.77 |
|  |  |  | rs7042119 | C/T | 0.24 | 0.16 | 0.89 | 0.75 |
|  |  |  | rs2077317 | C/G | 0.15 | 0.27 | 0.96 | 0.95 |
|  |  |  | rs1413825 | G/A | 0.36 | 0.24 | 1.00 | 0.19 |
|  |  |  | rs10967753 | T/C | 0.49 | 0.40 | 0.96 | 0.92 |
|  |  |  | rs3824410 | C/A | 0.21 | 0.22 | 1.00 | 0.41 |
|  |  |  | rs666478 | A/G | 0.48 | 0.43 | 0.96 | 0.71 |
|  |  |  | rs7047856 | A/G | 0.34 | 0.32 | 0.70 | 0.79 |
|  |  |  | rs581724 | A/C | 0.56 | 0.45 | 0.96 | 0.93 |
|  |  |  | rs3780317 | G/A | 0.16 | 0.13 | 0.72 | 0.88 |
|  |  |  | rs2224529 | T/C | 0.36 | 0.47 | 0.98 | 0.43 |
|  |  |  | rs4879250 | C/T | 0.29 | 0.50 | 0.96 | 0.74 |
|  |  |  | rs3737188 | A/G | 0.23 | 0.16 | 0.96 | 0.62 |
|  |  |  | rs3737187 | G/A | 0.37 | 0.41 | 0.96 | 0.15 |
|  |  |  | rs534129 | A/G | 0.40 | 0.46 | 0.96 | 0.93 |
|  |  |  | rs617333 | G/T | 0.14 | 0.18 | 0.96 | 0.94 |
|  |  |  | rs7024846 | T/G | 0.55 | 0.43 | 0.96 | 0.70 |
|  |  |  | rs10812540 | G/A | 0.07 | 0.25 | 0.96 | 0.32 |
|  |  |  | rs1555454 | A/G | 0.19 | 0.17 | 0.86 | 0.62 |
| *VEGFA* | *MGC70609* | 6p12 | rs25648 | C/T | 0.16 | 0.17 | 0.96 | 0.58 |
|  | *VEGF* |  | rs833070 | G/A | 0.50 | 0.41 | 0.98 | 0.88 |
|  | *VEGF-A* |  | rs2146323 | C/A | 0.35 | 0.35 | 0.96 | 0.73 |
|  | *VPF* |  | rs3025010 | T/C | 0.37 | 0.37 | 0.97 | 0.25 |
|  |  |  | rs3025030 | G/C | 0.15 | 0.26 | 1.00 | 0.06 |
|  |  |  | rs3025033 | A/G | 0.17 | 0.29 | 0.99 | 0.32 |
|  |  |  | rs3025039 | C/T | 0.15 | 0.26 | 0.99 | 0.04 |
|  |  |  | rs3025040 | C/T | 0.15 | 0.26 | 1.00 | 0.04 |

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| Supplemental Table 2. Associations between *FLT1* and breast cancer risk by genetic admixture with significant SNPs but not-significant overall as determined by ARTP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  |  | Everyone | | | | | | 0 - 28% Native American Ancestry | | | | | | | 29 - 70% Native American Ancestry | | | | | | | | 71 - 100% Native American Ancestry | | | | | | | | |
|  |  | Controls | Cases | OR | | (95% CI) | | Controls | | Cases | OR | (95% CI) | | Controls | | Cases | | OR | | (95% CI) | | Controls | | Cases | | OR | | (95% CI) | | | |
| *FLT1* PARTP | |  |  |  | 0.40 | |  |  |  | |  | 0.18 |  | |  |  |  | | 0.52 | |  | |  | |  | |  | | 0.17 | |  | |
| (rs9582036) | |  |  |  |  | |  |  |  | |  |  |  | |  |  |  | |  | |  | |  | |  | |  | |  | |  | |
|  | AA/AC | 3914 | 3388 | 1.00 |  | |  | 1684 | 1612 | | 1.00 |  |  | | 1602 | 1340 | 1.00 | |  | |  | | 628 | | 436 | | 1.00 | |  |  |
|  | CC | 235 | 179 | 0.82 | (0.67, | | 1.00) | 157 | 129 | | 0.84 | (0.66, | 1.07) | | 77 | 49 | 0.74 | | (0.51, | | 1.07) | | 1 | | 1 | | 1.26 | | (0.08, | | 20.73) | |
| (rs9554320) | |  |  |  |  | |  |  |  | |  |  |  | |  |  |  | |  | |  | |  | |  | |  | |  | |  | |
|  | CC/CA | 3681 | 3189 | 1.00 |  | |  | 1508 | 1475 | | 1.00 |  |  | | 1548 | 1280 | 1.00 | |  | |  | | 625 | | 434 | | 1.00 | |  | |  | |
|  | AA | 469 | 380 | 0.85 | (0.73, | | 0.99) | 334 | 267 | | 0.80 | (0.67, | 0.96) | | 131 | 110 | 0.98 | | (0.75, | | 1.29) | | 4 | | 3 | | 0.95 | | (0.20, | | 4.59) | |
| (rs9319425) | |  |  |  |  | |  |  |  | |  |  |  | |  |  |  | |  | |  | |  | |  | |  | |  | |  | |
|  | TT | 1144 | 917 | 1.00 |  | |  | 526 | 494 | | 1.00 |  |  | | 462 | 310 | 1.00 | |  | |  | | 156 | | 113 | | 1.00 | |  | |  | |
|  | TC/CC | 2708 | 2289 | 1.06 | (0.96, | | 1.18) | 1235 | 1146 | | 0.99 | (0.85, | 1.15) | | 1036 | 855 | 1.25 | | (1.05, | | 1.49) | | 437 | | 288 | | 0.91 | | (0.68, | | 1.22) | |
| (rs3936415) | |  |  |  |  | |  |  |  | |  |  |  | |  |  |  | |  | |  | |  | |  | |  | |  | |  | |
|  | GG/GA | 3605 | 3173 | 1.00 |  | |  | 1663 | 1586 | | 1.00 |  |  | | 1432 | 1223 | 1.00 | |  | |  | | 510 | | 364 | | 1.00 | |  | |  | |
|  | AA | 545 | 396 | 0.85 | (0.74, | | 0.98) | 179 | 156 | | 0.91 | (0.72, | 1.14) | | 247 | 167 | 0.81 | | (0.66, | | 1.01) | | 119 | | 73 | | 0.86 | | (0.62, | | 1.19) | |
| (rs2296283) | |  |  |  |  | |  |  |  | |  |  |  | |  |  |  | |  | |  | |  | |  | |  | |  | |  | |
|  | CC/CT | 3146 | 2660 | 1.00 |  | |  | 1333 | 1234 | | 1.00 |  |  | | 1313 | 1054 | 1.00 | |  | |  | | 500 | | 372 | | 1.00 | |  | |  | |
|  | TT | 997 | 904 | 1.05 | (0.94, | | 1.16) | 507 | 504 | | 1.08 | (0.93, | 1.25) | | 363 | 335 | 1.14 | | (0.96, | | 1.35) | | 127 | | 65 | | 0.68 | | (0.49, | | 0.95) | |
| (rs4771249) | |  |  |  |  | |  |  |  | |  |  |  | |  |  |  | |  | |  | |  | |  | |  | |  | |  | |
|  | CC/CG | 3908 | 3365 | 1.00 |  | |  | 1753 | 1659 | | 1.00 |  |  | | 1572 | 1284 | 1.00 | |  | |  | | 583 | | 422 | | 1.00 | |  | |  | |
|  | GG | 242 | 203 | 1.00 | (0.83, | | 1.22) | 89 | 82 | | 0.97 | (0.71, | 1.33) | | 107 | 106 | 1.25 | | (0.94, | | 1.65) | | 46 | | 15 | | 0.47 | | (0.26, | | 0.87) | |
| (rs2256849) | |  |  |  |  | |  |  |  | |  |  |  | |  |  |  | |  | |  | |  | |  | |  | |  | |  | |
|  | AA/AG | 3871 | 3378 | 1.00 |  | |  | 1791 | 1716 | | 1.00 |  |  | | 1557 | 1291 | 1.00 | |  | |  | | 523 | | 371 | | 1.00 | |  | |  | |
|  | GG | 279 | 191 | 0.85 | (0.70, | | 1.04) | 51 | 26 | | 0.54 | (0.33, | 0.87) | | 122 | 99 | 1.01 | | (0.76, | | 1.34) | | 106 | | 66 | | 0.91 | | (0.64, | | 1.28) | |

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|  | | | | | | | | | | | | | | | | | | | | | | | | | | | |  | | |  | | | |  | | |  | | | | |  | |  | | | |  | | | | |  | | |  | |  | | |  |
|  | |  | | | Controls | | | ER + / PR + | | | | | | | | | | | ER + / PR - | | | | | | | | | | | | | ER - / PR + | | | | | | | | | | | | | | | ER - / PR - | | | | | | | | | | | | |
|  | |  | | | N | | | N | | | OR | | | | (95% CI) | | | | N | | | OR | | | | (95% CI) | | | | | | N | | | | OR | | | | | (95% CI) | | | | | | N | | | | OR | | | | (95% CI) | | | | |
| *FLT1* PARTP: | |  | |  | | |  | | |  | | | 0.50 | | | | |  | | |  | | |  | 0.17 | | | | |  | | | |  | | | | |  | | 0.22 | | | | |  | | | |  | | 0.17 | | | | | |
| (rs2296189) | |  | |  | | |  | | |  | | |  | |  | | |  | | |  | | |  |  | | | | |  | | | |  | | | | |  | |  | | | | |  | | | |  | |  | | | | | |
|  | | AA | | | 2220 | | | 874 | | | 1.00 | | |  | | |  | | 165 | | | 1.00 | | | |  | | |  | | | 31 | | | | 1.00 | | | |  | | | |  | | | 319 | | | | 1.00 | | | |  | | | | |  |  | | |
|  | | AG/GG | | | 944 | | | 422 | | | 1.09 | | | (0.95, | | | 1.26) | | 70 | | | 0.96 | | | | (0.71, | | | 1.29) | | | 12 | | | | 0.95 | | | | (0.48, | | | | 1.87) | | | 96 | | | | 0.71 | | | | (0.56, | | | | | 0.91) | | | |
| (rs9513070) | |  | |  | | |  | | |  | | |  | |  | | |  | | |  | | |  |  | | | | |  | | | |  | | | | |  | |  | | | | |  | | | |  | | |  | | | | |
|  | | AA | | | 1318 | | | 528 | | | 1.00 | | |  | | |  | | 77 | | | 1.00 | | | |  | | |  | | | 13 | | | | 1.00 | | | |  | | | |  | | | 172 | | | | 1.00 | | | |  | | | | |  |  | | |
|  | | AG | | | 1431 | | | 574 | | | 0.97 | | | (0.84, | | | 1.12) | | 117 | | | 1.37 | | | | (1.02, | | | 1.85) | | | 22 | | | | 1.65 | | | | (0.82, | | | | 3.30) | | | 183 | | | | 0.99 | | | | (0.80, | | | | | 1.24) | | | |
|  | | GG | | | 416 | | | 196 | | | 1.11 | | | (0.91, | | | 1.36) | | 41 | | | 1.61 | | | | (1.08, | | | 2.40) | | | 8 | | | | 2.10 | | | | (0.85, | | | | 5.18) | | | 60 | | | | 1.12 | | | | (0.81, | | | | | 1.54) | | | |
| (rs3794400) | |  | |  | | |  | | |  | | |  | |  | | |  | | |  | | |  |  | | | | |  | | | |  | | | | |  | |  | | | | |  | | | |  | | |  | | | | |
|  | | CC | | | 1910 | | | 758 | | | 1.00 | | |  | | |  | | 153 | | | 1.00 | | | |  | | |  | | | 17 | | | | 1.00 | | | |  | | | |  | | | 256 | | | | 1.00 | | | |  | | | | |  |  | | |
|  | | CT/TT | | | 1255 | | | 540 | | | 1.15 | | | (1.00, | | | 1.31) | | 82 | | | 0.83 | | | | (0.62, | | | 1.10) | | | 26 | | | | 2.29 | | | | (1.22, | | | | 4.30) | | | 159 | | | | 0.93 | | | | (0.75, | | | | | 1.16) | | | |

Adjusted for age, study, reference year BMI, parity, and genetic admixture.