# Web-based, Participant-driven Studies Yield Novel Genetic Associations for Common Traits

Eriksson, Macpherson, Tung, Hon, Naughton, Saxonov, Avey, Wojcicki, Pe'er, Mountain

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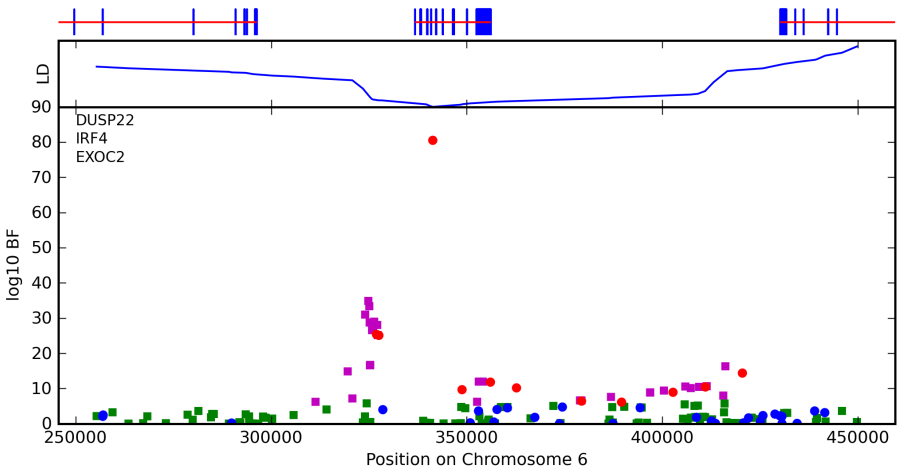
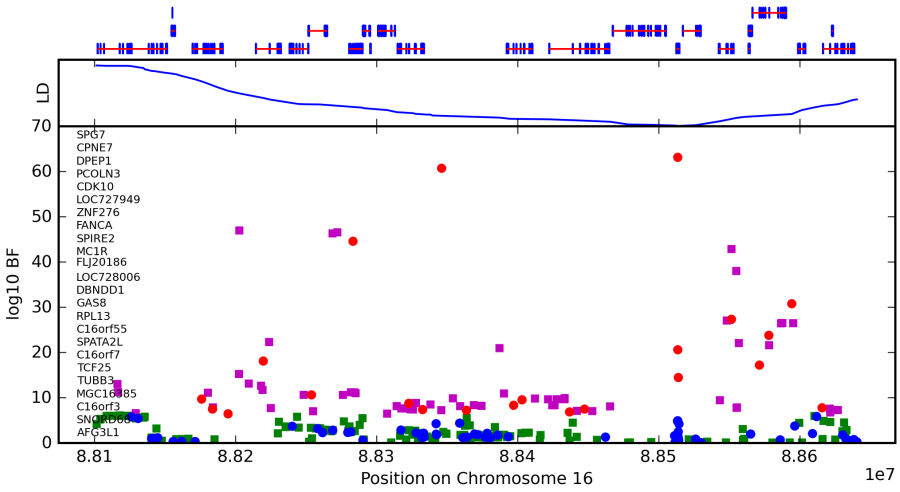
## S.6 Details for specific associations




(a) Bayes factors around IRF4

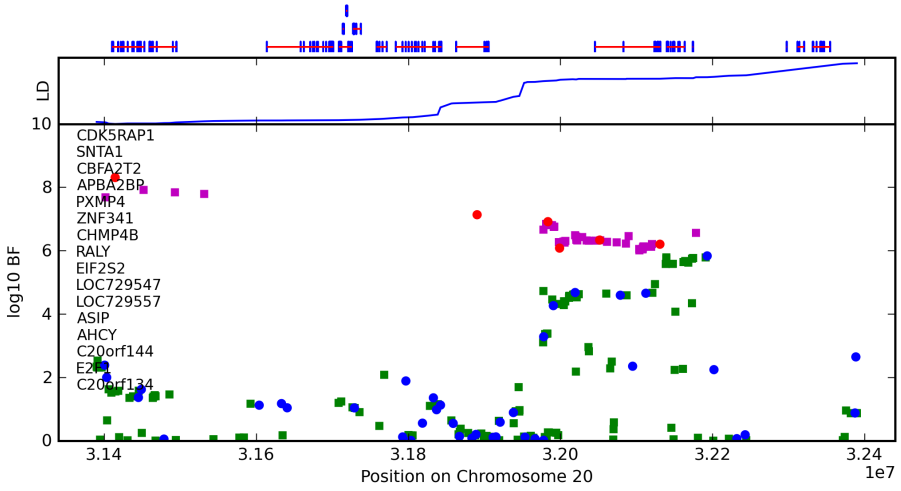



(b) Bayes factors around MC1R

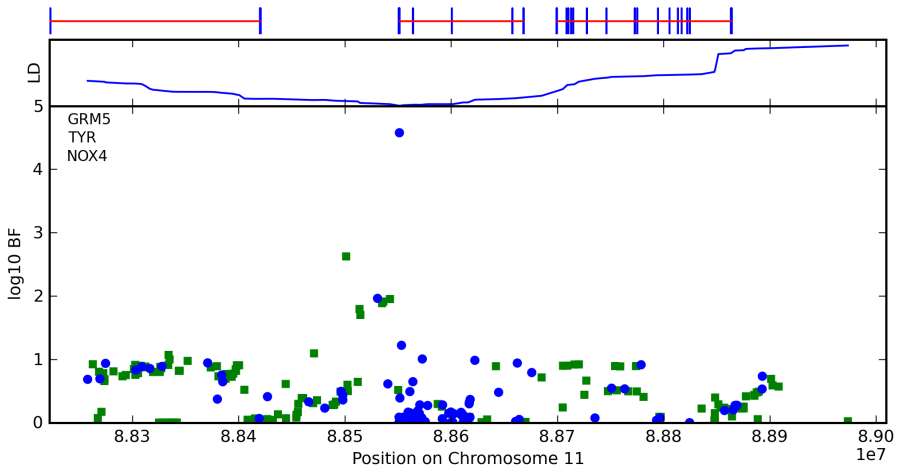
**Figure 1.** Bayes factors for freckling around *IRF4* and *MC1R*

| Phenotype | Size | Cases | Controls | Covariates | $\lambda$ | Top hit | # Loci | Loci |
|---|---|---|---|---|---|---|---|---|
| Eye color, blue to brown | 4402 | — | — | pca, sex, age | 1.00 | $> 300$ | 6 | OCA2/HERC2, SLC24A4, IRF4, SLC45A2, TYR, (TYRP1) |
| Freckles | 4405 | — | — | pca, sex, age | 1.01 | 90.68 | 5 | *IRF4*, MC1R, ASIP, **BNC2**, (TYR) |
| Hair color, blond to brown | 3044 | — | — | pca, sex, age | 1.01 | 87.07 | 5 | OCA2/HERC2, IRF4, SLC45A2, SLC24A4, MC1R |
| Red hair | 4422 | — | — | pca, sex, age | 1.01 | 86.28 | 2 | MC1R, ASIP |
| Eye color, green/blue | 2826 | 1505 | 1321 | sex, age | 1.00 | 51.52 | 3 | OCA2/HERC2, SLC24A4, TYR |
| Hair curl | 5385 | — | — | pca, sex, age | 1.02 | 41.80 | 3 | TCHH, **WNT10A**, (**OFCC1**) |
| Asparagus anosmia | 4742 | 1737 | 3005 | pca, age | 1.02 | 23.18 | 1 | **OR2M7** |
| Photic sneeze reflex | 5390 | 1750 | 3640 | age | 1.02 | 10.93 | 2 | **2q22.3**, (**NR2F2**) |
| Footedness | 3079 | — | — | pca, sex, age | 1.00 | 6.75 | 0 | |
| Attached earlobes | 3915 | 2940 | 975 | sex | 1.01 | 6.59 | 0 | |
| Morningness | 4264 | 2028 | 2237 | pca, sex, age | 1.01 | 6.50 | 0 | |
| Braces | 4011 | 1951 | 2062 | sex, age | 1.01 | 6.45 | 0 | |
| Optimism | 3936 | — | — | sex, age | 1.00 | 6.29 | 0 | |
| Astigmatism | 7701 | 3982 | 3727 | sex, age | 1.01 | 6.17 | 0 | |
| Prefer sweet snacks | 3100 | 1484 | 1616 | sex | 1.03 | 6.07 | 0 | |
| Wisdom teeth | 3983 | 1210 | 2773 | sex, age | 1.00 | 5.89 | 0 | |
| Cavities | 5366 | — | — | sex, age | 1.01 | 5.81 | 0 | |
| Glasses | 5386 | 947 | 4440 | sex, age | 1.00 | 5.76 | 0 | |
| Ocular dominance | 3126 | 1956 | 1170 | None | 1.00 | 5.70 | 0 | |
| Hand-clasp | 5256 | 2280 | 2977 | sex, age | 1.00 | 5.66 | 0 | |
| Motion sickness | 2987 | 963 | 2024 | sex, age | 1.02 | 5.55 | 0 | |
| Handedness | 4268 | — | — | sex, age | 1.00 | 5.30 | 0 | |

**Table 1. Statistics on the 22 studies (with or without associations reaching genome-wide significance).** Loci are called significant if they contain a SNP with $-\log_{10}$ p-value over 8.4 and suggestively significant if they have one between 7.1 and 8.4. Loci that were not previously associated with the given trait are in bold, those where we report a remapping of a previous hit are in italics, and suggestively significant loci are in parentheses. Size refers to the total number of individuals in the study. For binary traits, we additionally report the number of cases and controls . The listed covariates were included in the analysis (if "pca" is listed as a covariate the first five axes of genetic variation within northern Europe were used). The "top hit" refers to the largest $-\log_{10}$ p-value for the given trait. We report the genomic control inflation factor, $\lambda$, [1] for the analysis including covariates.




(a) Bayes factors around ASIP

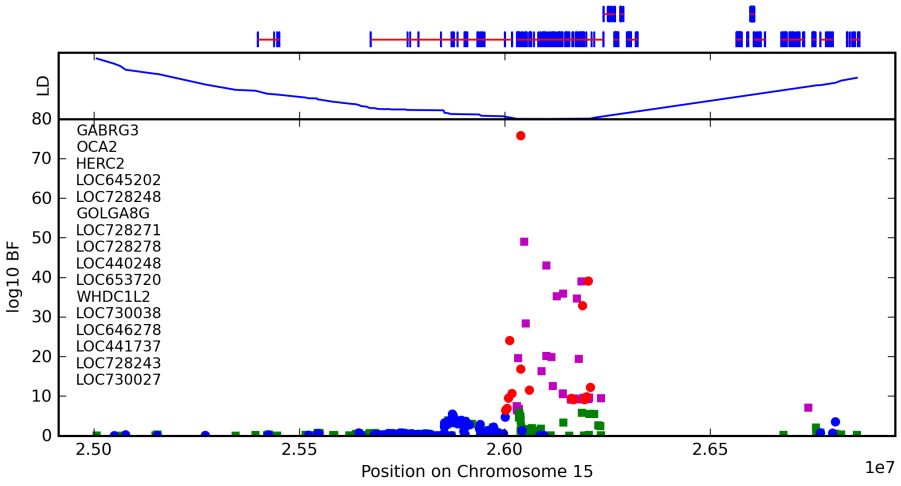



(b) Bayes factors around TYR

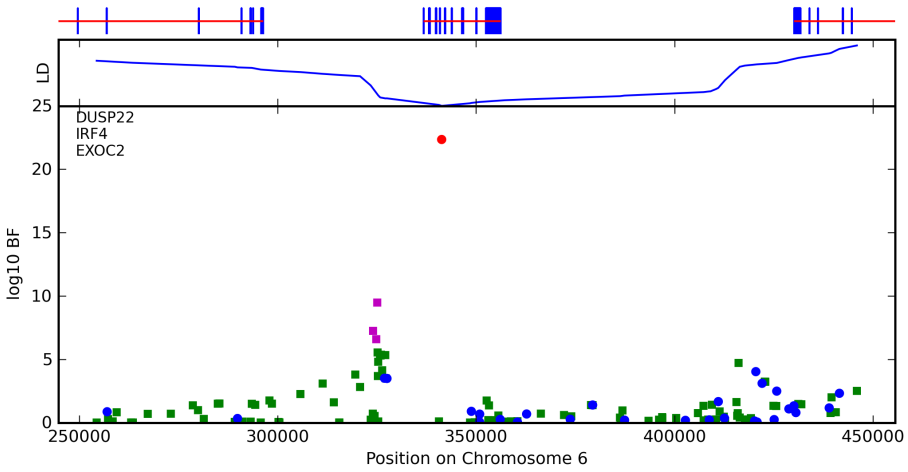
**Figure 2.** Bayes factors for freckling around *ASIP* and *TYR*

| | TT (%) | TC (%) | CC (%) |
|---|---|---|---|
| 0 | 391 (25.3) | 628 (29.9) | 233 (31.0) |
| 1 | 242 (15.6) | 375 (17.9) | 137 (18.2) |
| 2 | 267 (17.3) | 383 (18.3) | 151 (20.1) |
| 3 | 173 (11.2) | 227 (10.8) | 77 (10.2) |
| 4 | 108 (7.0) | 133 (6.3) | 37 (4.9) |
| 5 | 89 (5.8) | 88 (4.2) | 33 (4.4) |
| 6 | 65 (4.2) | 56 (2.7) | 20 (2.7) |
| 7 | 50 (3.2) | 48 (2.3) | 22 (2.9) |
| 8 | 42 (2.7) | 42 (2.0) | 9 (1.2) |
| 9 | 26 (1.7) | 25 (1.2) | 11 (1.5) |
| 10 | 20 (1.3) | 26 (1.2) | 7 (0.9) |
| 11 | 18 (1.2) | 17 (0.8) | 6 (0.8) |
| 12 | 20 (1.3) | 17 (0.8) | 2 (0.3) |
| 13 | 11 (0.7) | 9 (0.4) | 1 (0.1) |
| 14 | 11 (0.7) | 9 (0.4) | 4 (0.5) |
| 15 | 8 (0.5) | 6 (0.3) | 0 (0.0) |
| 16 | 6 (0.4) | 9 (0.4) | 2 (0.3) |

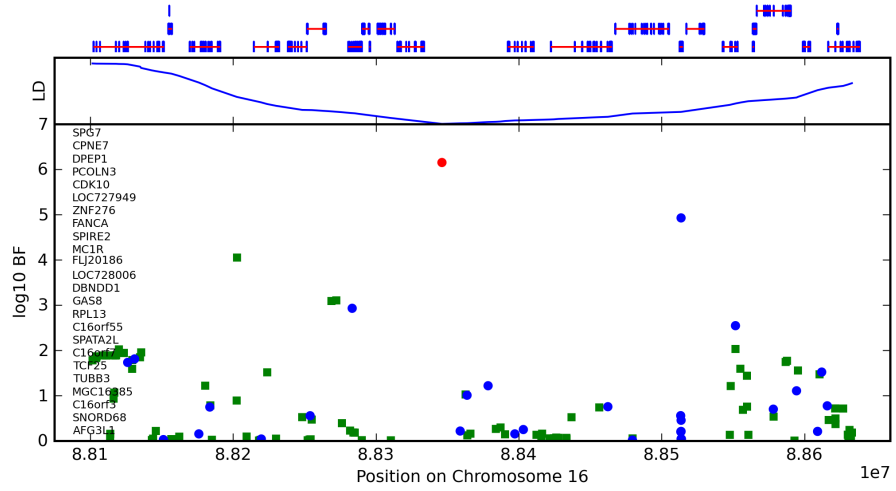
**Table 2. Counts for freckling versus genotype at rs2153271 (in *BNC2*).** Higher scores correspond to more freckles.



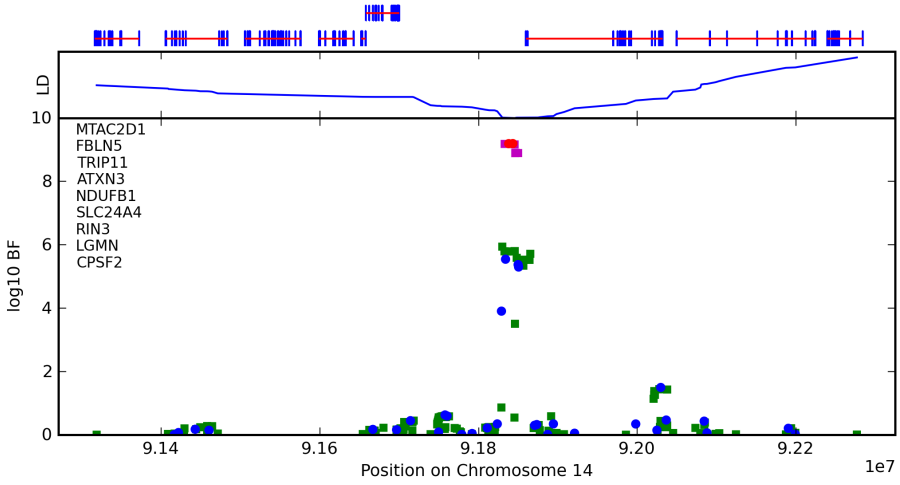

(a) Bayes factors around OCA2



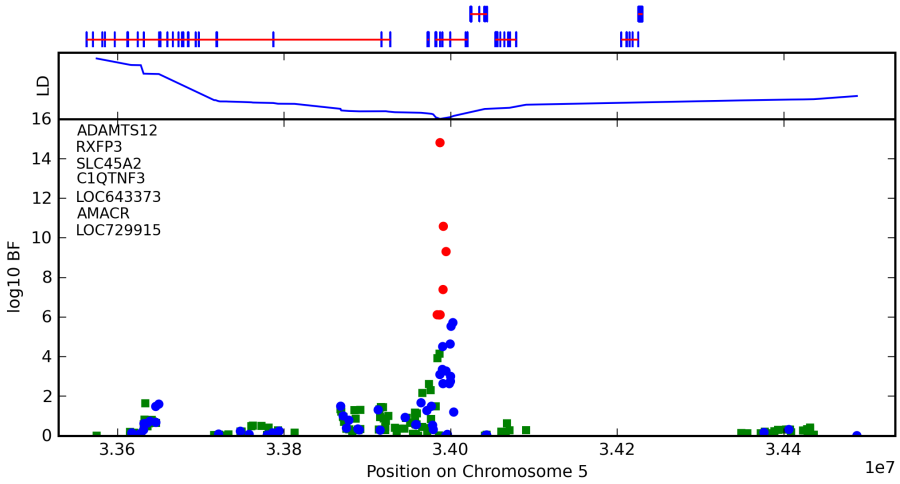

(b) Bayes factors around IRF4




(c) Bayes factors around MC1R

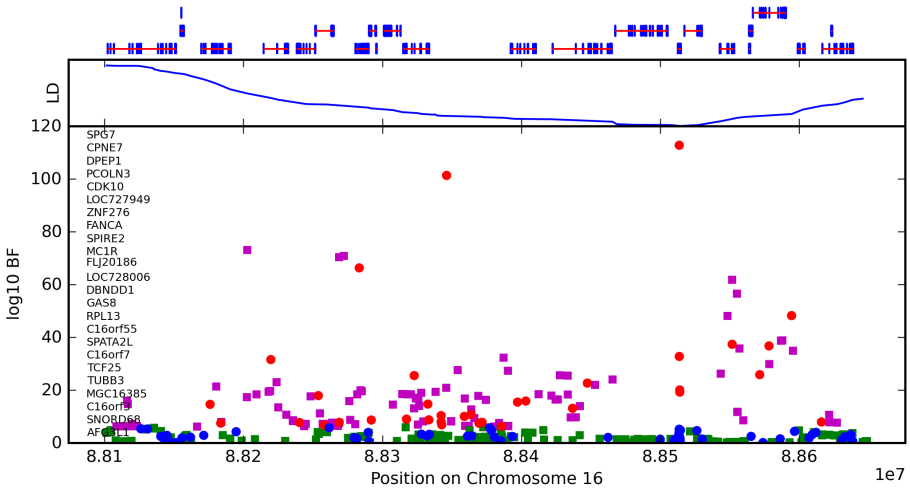



(d) Bayes factors around SLC24A4

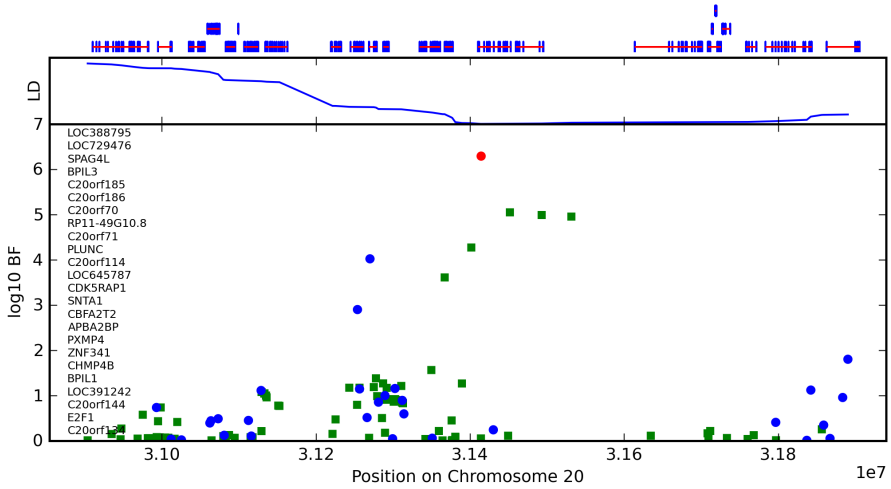



(e) Bayes factors around SLC45A2

**Figure 3.** Region plots for hair color, blond to brown

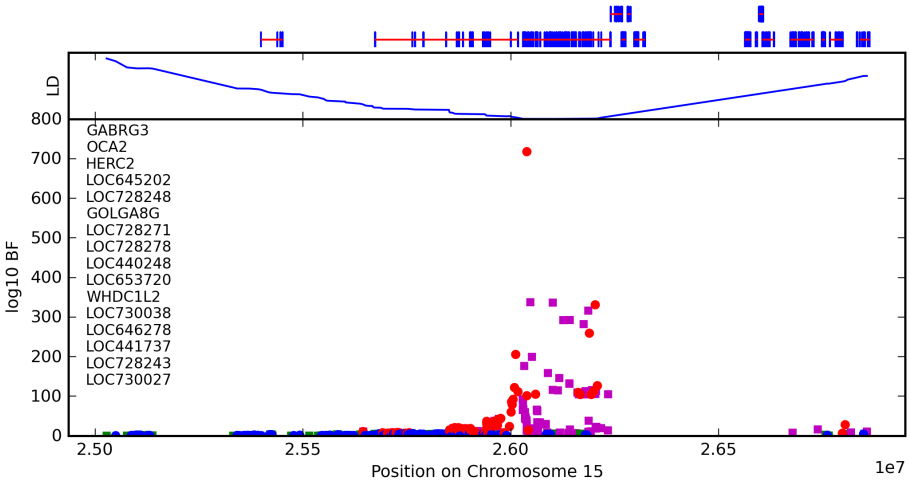



(a) Bayes factors around MC1R

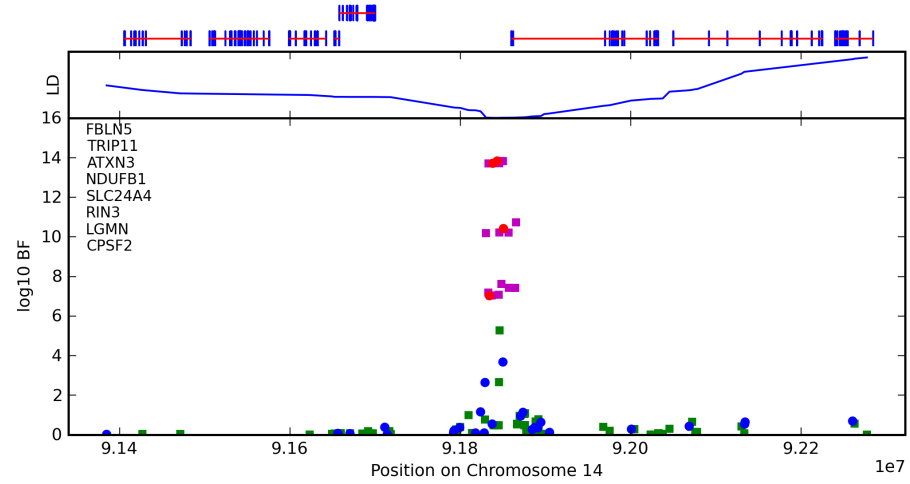



(b) Bayes factors around ASIP

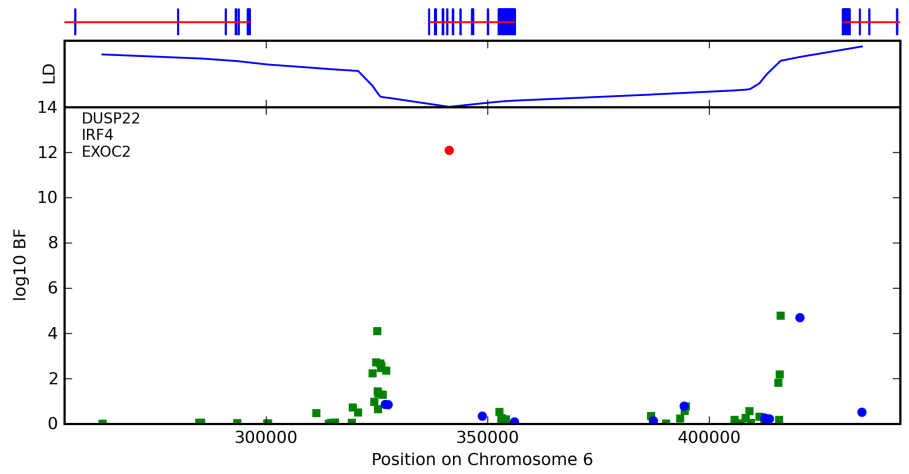
**Figure 4.** Region plots for red hair color



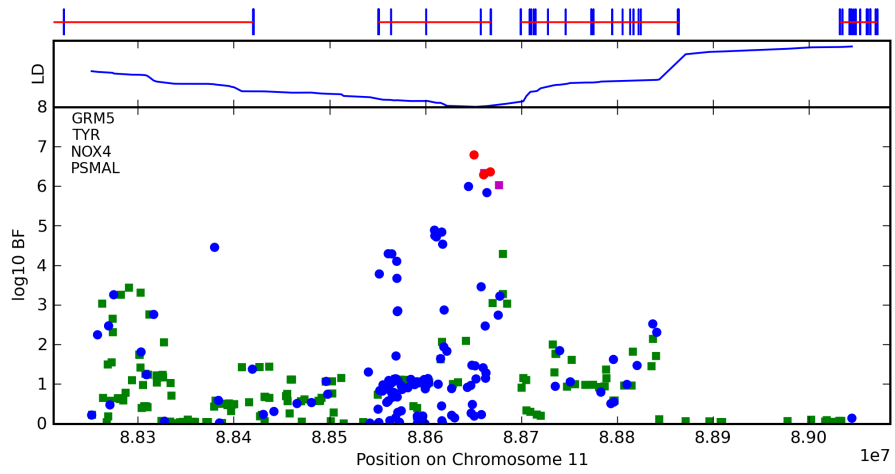

(a) Bayes factors around OCA2



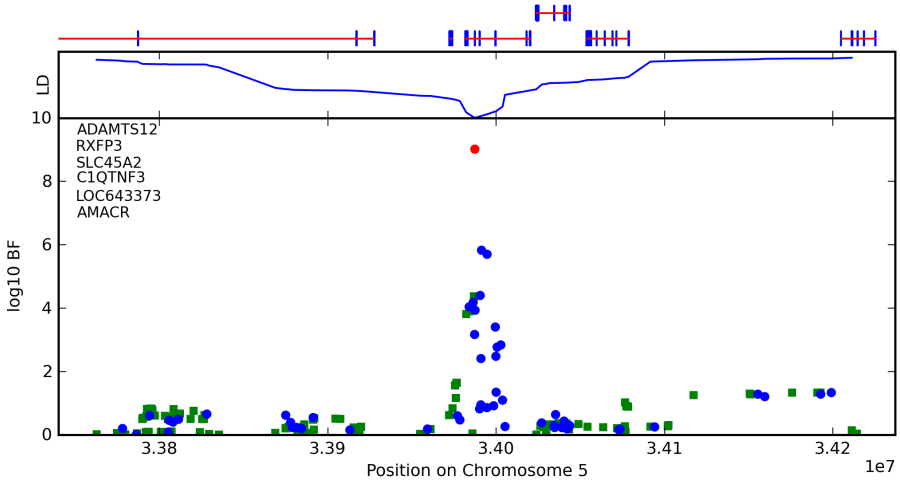

(b) Bayes factors around SLC24A4



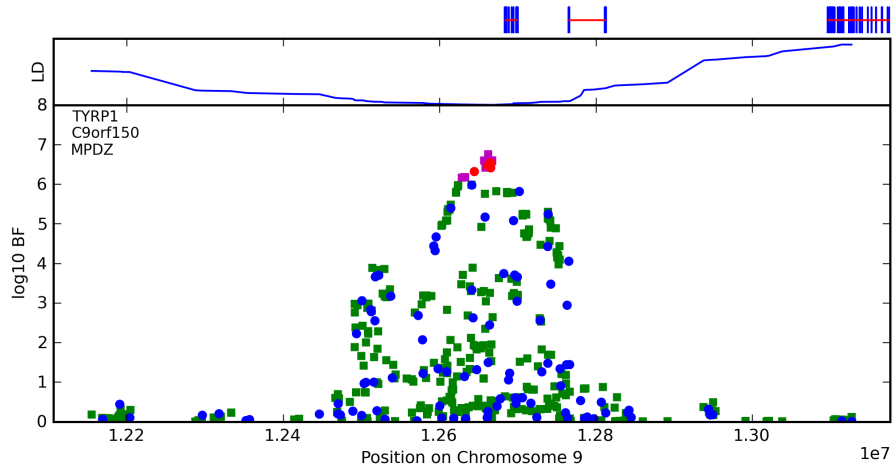

(c) Bayes factors around IRF4




(d) Bayes factors around TYR

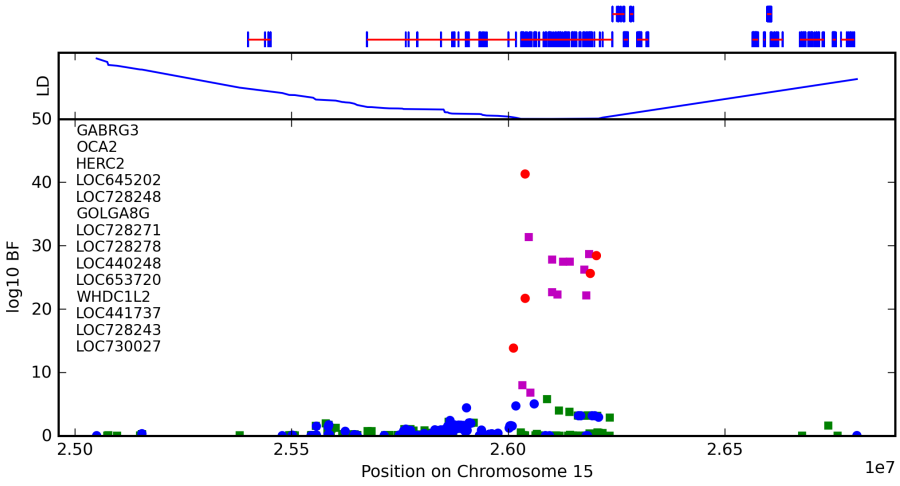



(e) Bayes factors around SLC45A2

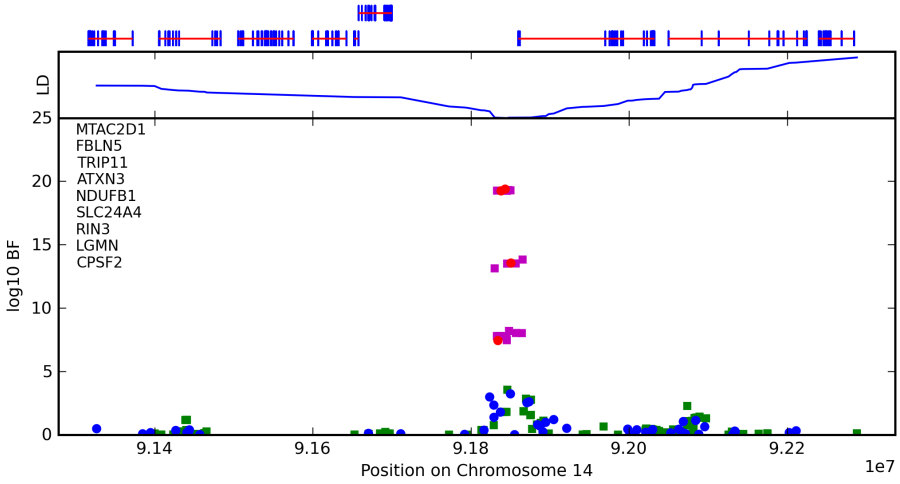



(f) Bayes factors around TYRP1

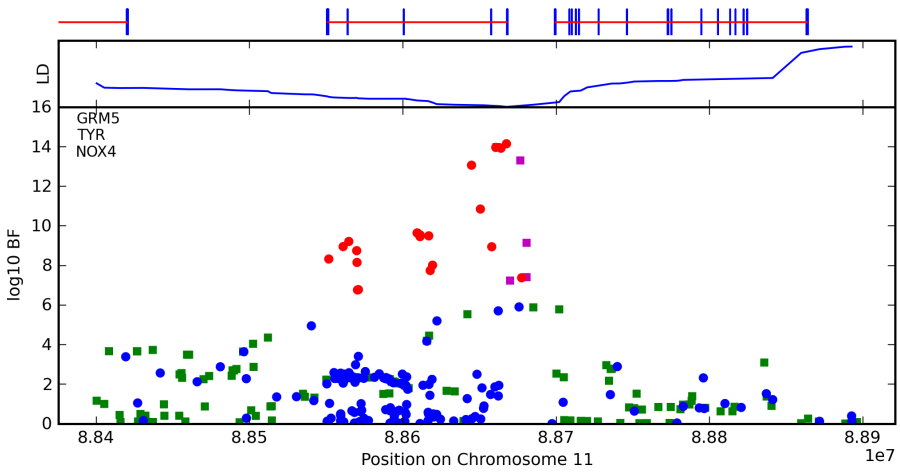
**Figure 5.** Region plots for eye color, blue to brown




(a) Bayes factors around OCA2




(b) Bayes factors around SLC24A4




(c) Bayes factors around TYR

**Figure 6.** Region plots for eye color, blue versus green

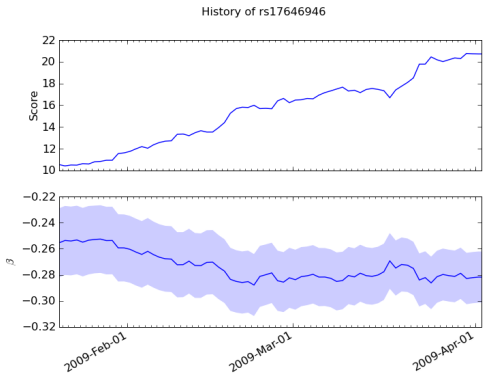



**Figure 7.** Association over time for rs17646946 and haircurl.

| SNP | Chr | Position | Locus | Alleles | MAF | Score | BF | $\beta$ (95% CI) | OR (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| rs17646946 | 1 | 150,329,391 | TCHH | G/A | 0.20 | 41.80 | 39.90 | -0.294 (-0.31 - -0.28) | — |
| rs3007671 | 1 | 150,265,971 | NBPF18P S100A11 | G/T | 0.26 | 27.22 | 24.89 | -0.215 (-0.24 - -0.19) | — |
| rs7349332 | 2 | 219,464,627 | WNT10A | C/T | 0.14 | 13.48 | 11.01 | 0.193 (0.15 - 0.24) | — |
| rs4845779 | 1 | 150,745,800 | CRNN LCE5A | C/T | 0.31 | 10.03 | 7.67 | 0.124 (0.10 - 0.15) | — |
| rs499697 | 1 | 150,759,778 | CRCT1 LCE3E | A/G | 0.29 | 9.95 | 7.61 | 0.126 (0.10 - 0.16) | — |
| rs3007684 | 1 | 150,301,054 | TCHH | T/G | 0.34 | 9.89 | 7.53 | 0.120 (0.10 - 0.14) | — |
| rs6723140 | 2 | 219,482,944 | WNT10A LOC391485 | T/C | 0.18 | 8.79 | 6.54 | 0.140 (0.13 - 0.15) | — |
| rs10177996 | 2 | 219,454,805 | WNT10A | T/C | 0.19 | 8.45 | 6.23 | 0.133 (0.12 - 0.15) | — |
| rs4672907 | 2 | 219,529,413 | LOC391485 | G/A | 0.17 | 8.24 | 6.05 | 0.136 (0.12 - 0.15) | — |
| rs1556547 | 6 | 10,378,363 | OFCC1 | A/G | 0.40 | 7.81 | 5.61 | -0.101 (-0.12 - -0.08) | — |
| rs11585118 | 1 | 17,478,361 | PADI3 | C/A | 0.16 | 7.65 | 5.50 | -0.133 (-0.15 - -0.12) | — |
| rs6587673 | 1 | 150,696,776 | CRNN LCE5A | A/G | 0.43 | 7.55 | 5.84 | 0.100 (0.08 - 0.12) | — |
| rs1333652 | 6 | 10,381,949 | OFCC1 | C/T | 0.40 | 7.54 | 5.38 | -0.100 (-0.12 - -0.08) | — |
| rs1556548 | 6 | 10,378,372 | OFCC1 | C/T | 0.40 | 7.54 | 5.38 | -0.100 (-0.12 - -0.08) | — |
| rs4240887 | 1 | 150,797,134 | CRCT1 LCE3E | G/A | 0.37 | 7.50 | 5.50 | 0.100 (0.08 - 0.12) | — |
| rs6700998 | 1 | 150,700,633 | CRNN LCE5A | G/T | 0.43 | 7.48 | 5.75 | 0.099 (0.08 - 0.12) | — |
| rs1333657 | 6 | 10,404,322 | OFCC1 | C/T | 0.37 | 7.42 | 5.39 | -0.100 (-0.12 - -0.08) | — |
| rs12116609 | 1 | 150,764,309 | CRCT1 LCE3E | T/C | 0.37 | 7.38 | 5.26 | 0.099 (0.08 - 0.12) | — |
| rs3753451 | 1 | 150,751,851 | LCE5A CRCT1 | G/T | 0.37 | 7.13 | 5.03 | 0.097 (0.07 - 0.12) | — |
| rs1053590 | 1 | 150,755,052 | CRCT1 | C/T | 0.37 | 7.09 | 5.00 | 0.097 (0.07 - 0.12) | — |
| rs2105117 | 1 | 150,750,753 | LCE5A | A/G | 0.38 | 7.01 | 4.97 | 0.097 (0.07 - 0.12) | — |

**Table 3.** All SNPs with scores over 7 for hair curl.

| SNP | Chr | Position | Locus | Alleles | MAF | Score | BF | $\beta$ (95% CI) | OR (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| rs4481887 | 1 | 246,563,486 | OR2M7 | G/A | 0.26 | 23.18 | 21.74 | -0.514 (-0.62 - -0.41) | 0.598 (0.54 - 0.66) |
| rs4309013 | 1 | 246,547,391 | OR2M7 | T/C | 0.27 | 22.27 | 20.78 | -0.496 (-0.60 - -0.40) | 0.609 (0.55 - 0.67) |
| rs4244187 | 1 | 246,560,134 | OR2M7 | C/T | 0.27 | 22.02 | 20.44 | -0.493 (-0.59 - -0.39) | 0.611 (0.55 - 0.68) |
| rs7555310 | 1 | 246,554,261 | OR2M7 | G/A | 0.27 | 21.72 | 20.18 | -0.489 (-0.59 - -0.39) | 0.613 (0.55 - 0.68) |
| rs6587440 | 1 | 246,482,285 | OR2M7 | G/A | 0.27 | 19.85 | 18.36 | -0.463 (-0.56 - -0.36) | 0.629 (0.57 - 0.70) |
| rs7550630 | 1 | 246,428,934 | OR2M7 | T/C | 0.23 | 14.69 | 12.29 | -0.415 (-0.52 - -0.31) | 0.660 (0.59 - 0.73) |
| rs4916113 | 1 | 246,443,915 | OR2M7 | T/C | 0.23 | 14.51 | 12.18 | -0.409 (-0.51 - -0.31) | 0.664 (0.60 - 0.74) |
| rs7349159 | 1 | 246,452,865 | OR2M7 | T/C | 0.25 | 13.22 | 11.15 | -0.378 (-0.48 - -0.28) | 0.686 (0.62 - 0.76) |
| rs4642918 | 1 | 246,477,680 | OR2M7 | T/G | 0.25 | 13.12 | 11.15 | -0.377 (-0.48 - -0.28) | 0.686 (0.62 - 0.76) |
| rs10788759 | 1 | 246,417,399 | OR2M7 | G/A | 0.35 | 8.75 | 6.63 | -0.274 (-0.36 - -0.18) | 0.760 (0.69 - 0.83) |
| rs9435891 | 1 | 246,411,221 | OR2M7 | C/T | 0.35 | 8.71 | 6.60 | -0.274 (-0.36 - -0.18) | 0.760 (0.69 - 0.83) |
| rs1544175 | 1 | 246,590,885 | OR2M7 | A/G | 0.47 | 8.10 | 5.99 | -0.257 (-0.34 - -0.17) | 0.773 (0.71 - 0.84) |
| rs4559542 | 1 | 246,556,603 | OR2M7 | T/C | 0.46 | 7.75 | 6.96 | -0.244 (-0.33 - -0.16) | 0.783 (0.72 - 0.85) |

**Table 4.** All SNPs with scores over 7 for asparagus anosmia.

| SNP | Chr | Position | Locus | Alleles | MAF | Score | BF | $\beta$ (95% CI) | OR (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| rs10427255 | 2 | 145,841,993 | 2q22.3 | T/C | 0.46 | 10.93 | 8.65 | 0.280 (0.20 - 0.36) | 1.323 (1.22 - 1.43) |
| rs4422110 | 2 | 145,831,368 | 2q22.3 | T/C | 0.47 | 10.58 | 8.24 | 0.275 (0.19 - 0.36) | 1.316 (1.21 - 1.43) |
| rs6721116 | 2 | 145,872,667 | 2q22.3 | G/A | 0.48 | 9.79 | 7.78 | 0.264 (0.18 - 0.34) | 1.302 (1.20 - 1.41) |
| rs1040173 | 2 | 145,836,981 | 2q22.3 | C/T | 0.46 | 8.54 | 6.18 | -0.246 (-0.33 - -0.16) | 0.782 (0.72 - 0.85) |
| rs1006134 | 2 | 145,852,089 | 2q22.3 | A/G | 0.45 | 8.42 | 6.07 | -0.245 (-0.33 - -0.16) | 0.783 (0.72 - 0.85) |
| rs17410058 | 2 | 145,851,244 | 2q22.3 | T/C | 0.31 | 7.99 | 5.78 | 0.252 (0.17 - 0.34) | 1.286 (1.18 - 1.40) |
| rs11856995 | 15 | 94,126,647 | NR2F2 | T/C | 0.30 | 7.13 | 5.71 | -0.244 (-0.33 - -0.15) | 0.784 (0.72 - 0.86) |

**Table 5.** All SNPs with scores over 7 for photic sneeze reflex.

| SNP | Chr | Position | Locus | Alleles | MAF | Score | BF | $\beta$ (95% CI) | OR (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| rs12203592 | 6 | 341,321 | IRF4 | C/T | 0.18 | 90.68 | 87.04 | 1.611 (1.48 - 1.74) | — |
| rs12931267 | 16 | 88,346,233 | MC1R | C/G | 0.08 | 61.08 | 60.89 | 1.875 (1.67 - 2.08) | — |
| rs258322 | 16 | 88,283,404 | MC1R | G/A | 0.10 | 44.31 | 44.28 | 1.446 (1.40 - 1.49) | — |
| rs4785763 | 16 | 88,594,437 | MC1R | C/A | 0.33 | 34.32 | 31.17 | 0.836 (0.78 - 0.89) | — |
| rs8049897 | 16 | 88,551,703 | MC1R | G/A | 0.15 | 29.79 | 27.76 | 1.033 (0.98 - 1.08) | — |
| rs4238833 | 16 | 88,578,190 | MC1R | T/G | 0.37 | 26.90 | 24.28 | 0.719 (0.66 - 0.78) | — |
| rs1805008 | 16 | 88,513,645 | MC1R | C/T | 0.07 | 23.18 | 21.05 | 1.212 (1.00 - 1.43) | — |
| rs4408545 | 16 | 88,571,529 | MC1R | C/T | 0.50 | 20.20 | 17.48 | -0.596 (-0.67 - -0.53) | — |
| rs164741 | 16 | 88,219,799 | MC1R | G/A | 0.30 | 20.13 | 17.38 | 0.641 (0.58 - 0.70) | — |
| rs12210050 | 6 | 420,489 | IRF4 | C/T | 0.18 | 18.58 | 15.87 | 0.712 (0.58 - 0.84) | — |
| rs1805009 | 16 | 88,514,047 | MC1R | G/C | 0.02 | 17.32 | 14.41 | 2.017 (1.97 - 2.06) | — |
| rs872071 | 6 | 356,064 | IRF4 | A/G | 0.49 | 14.38 | 12.52 | 0.508 (0.44 - 0.58) | — |
| rs2353033 | 16 | 87,913,062 | MC1R | T/C | 0.43 | 13.41 | 11.09 | 0.481 (0.42 - 0.55) | — |
| rs619865 | 20 | 33,331,111 | ASIP | G/A | 0.10 | 13.26 | 10.78 | 0.771 (0.72 - 0.82) | — |
| rs1540771 | 6 | 411,033 | IRF4 | C/T | 0.47 | 13.24 | 10.79 | 0.479 (0.41 - 0.55) | — |
| rs9378805 | 6 | 362,727 | IRF4 | A/C | 0.49 | 12.91 | 10.79 | 0.481 (0.41 - 0.55) | — |
| rs11547464 | 16 | 88,513,592 | MC1R | G/A | 0.01 | 12.85 | 9.91 | 2.430 (2.38 - 2.48) | — |
| rs3778607 | 6 | 348,799 | IRF4 | G/A | 0.47 | 12.67 | 10.65 | -0.471 (-0.54 - -0.40) | — |
| rs7188458 | 16 | 88,253,985 | MC1R | G/A | 0.44 | 12.33 | 10.49 | 0.465 (0.40 - 0.53) | — |
| rs291671 | 20 | 31,414,506 | ASIP | A/G | 0.10 | 12.04 | 9.89 | 0.772 (0.58 - 0.96) | — |
| rs4959270 | 6 | 402,748 | IRF4 | C/A | 0.50 | 11.93 | 9.53 | 0.451 (0.38 - 0.52) | — |
| rs352935 | 16 | 88,176,081 | MC1R | T/C | 0.48 | 11.71 | 9.37 | 0.450 (0.38 - 0.52) | — |
| rs7196459 | 16 | 88,668,978 | MC1R | G/T | 0.08 | 11.59 | 9.21 | 0.846 (0.63 - 1.07) | — |
| rs11861084 | 16 | 88,403,211 | MC1R | C/A | 0.41 | 11.27 | 8.90 | -0.445 (-0.51 - -0.38) | — |
| rs2241039 | 16 | 88,615,938 | MC1R | G/A | 0.38 | 10.98 | 8.59 | -0.456 (-0.52 - -0.39) | — |
| rs7204478 | 16 | 88,322,986 | MC1R | C/T | 0.45 | 10.61 | 8.40 | 0.427 (0.35 - 0.50) | — |
| rs6088316 | 20 | 31,890,503 | ASIP | A/G | 0.17 | 10.40 | 8.37 | 0.568 (0.43 - 0.71) | — |
| rs4911442 | 20 | 32,818,707 | ASIP | A/G | 0.12 | 10.24 | 7.98 | 0.629 (0.46 - 0.79) | — |
| rs464349 | 16 | 88,183,752 | MC1R | C/T | 0.48 | 10.20 | 7.89 | -0.412 (-0.49 - -0.34) | — |
| rs7195066 | 16 | 88,363,824 | MC1R | C/T | 0.32 | 10.12 | 7.76 | -0.449 (-0.55 - -0.35) | — |
| rs761238 | 20 | 31,983,649 | ASIP | T/G | 0.33 | 9.90 | 7.56 | 0.428 (0.37 - 0.49) | — |
| rs1800286 | 16 | 88,397,262 | MC1R | C/T | 0.41 | 9.85 | 7.62 | -0.413 (-0.50 - -0.33) | — |
| rs17305657 | 20 | 31,270,249 | ASIP | T/C | 0.09 | 9.82 | 7.56 | 0.697 (0.65 - 0.74) | — |
| rs4812405 | 20 | 34,709,999 | ASIP | C/A | 0.07 | 9.70 | 7.40 | 0.783 (0.74 - 0.83) | — |
| rs1474976 | 20 | 34,195,786 | ASIP | A/C | 0.11 | 9.50 | 7.23 | 0.620 (0.45 - 0.79) | — |
| rs2153271 | 9 | 16,854,521 | BNC2 | T/C | 0.41 | 9.40 | 7.28 | -0.402 (-0.47 - -0.34) | — |
| rs9328192 | 6 | 379,364 | IRF4 | A/G | 0.50 | 9.39 | 7.11 | 0.395 (0.32 - 0.47) | — |
| rs2284378 | 20 | 32,051,756 | ASIP | C/T | 0.33 | 9.22 | 6.93 | 0.415 (0.32 - 0.51) | — |
| rs6060612 | 20 | 33,853,941 | ASIP | G/A | 0.10 | 9.20 | 6.95 | 0.640 (0.59 - 0.69) | — |
| rs2268089 | 20 | 32,130,959 | ASIP | C/T | 0.33 | 9.08 | 6.79 | 0.411 (0.32 - 0.50) | — |
| rs1800359 | 16 | 88,332,762 | MC1R | G/A | 0.41 | 9.04 | 6.87 | -0.394 (-0.46 - -0.33) | — |
| rs11648785 | 16 | 88,612,062 | MC1R | C/T | 0.31 | 8.96 | 6.70 | -0.424 (-0.52 - -0.33) | — |
| rs4911379 | 20 | 31,998,966 | ASIP | C/A | 0.33 | 8.93 | 6.67 | 0.406 (0.35 - 0.46) | — |
| rs8060934 | 16 | 88,447,526 | MC1R | T/C | 0.48 | 8.86 | 6.60 | -0.390 (-0.46 - -0.32) | — |
| rs9405675 | 6 | 389,600 | IRF4 | A/G | 0.36 | 8.72 | 6.86 | -0.392 (-0.48 - -0.30) | — |
| rs154659 | 16 | 88,194,838 | MC1R | T/C | 0.25 | 8.62 | 6.45 | 0.433 (0.38 - 0.49) | — |
| rs463701 | 16 | 88,126,261 | MC1R | A/G | 0.45 | 8.53 | 6.41 | -0.380 (-0.46 - -0.30) | — |
| rs4911414 | 20 | 32,193,105 | ASIP | G/T | 0.34 | 8.52 | 6.26 | 0.393 (0.30 - 0.48) | — |
| rs12599531 | 16 | 88,436,902 | MC1R | C/T | 0.37 | 8.32 | 6.15 | -0.387 (-0.47 - -0.30) | — |
| rs382745 | 16 | 88,131,087 | MC1R | A/G | 0.44 | 8.28 | 6.16 | -0.372 (-0.45 - -0.29) | — |
| rs17396317 | 20 | 31,254,038 | ASIP | G/A | 0.12 | 7.99 | 5.80 | 0.544 (0.49 - 0.59) | — |
| rs950286 | 6 | 374,457 | IRF4 | G/A | 0.10 | 7.40 | 5.30 | -0.558 (-0.61 - -0.51) | — |
| rs1339548 | 9 | 16,836,323 | BNC2 | T/C | 0.33 | 7.39 | 5.66 | -0.367 (-0.43 - -0.31) | — |
| rs9405681 | 6 | 394,358 | IRF4 | C/T | 0.23 | 7.34 | 5.21 | -0.406 (-0.52 - -0.29) | — |
| rs2268086 | 20 | 32,112,399 | ASIP | G/A | 0.39 | 7.25 | 5.07 | 0.349 (0.29 - 0.41) | — |
| rs1042602 | 11 | 88,551,344 | TYR | C/A | 0.37 | 7.23 | 5.48 | -0.355 (-0.42 - -0.29) | — |
| rs4911145 | 20 | 32,078,884 | ASIP | G/A | 0.39 | 7.22 | 5.05 | 0.348 (0.28 - 0.41) | — |
| rs2424994 | 20 | 32,596,578 | ASIP | C/T | 0.17 | 7.22 | 5.32 | 0.461 (0.32 - 0.60) | — |
| rs9503644 | 6 | 360,406 | IRF4 | G/A | 0.14 | 7.11 | 4.99 | -0.484 (-0.53 - -0.43) | — |
| rs6060891 | 20 | 34,338,559 | ASIP | C/T | 0.28 | 7.01 | 4.98 | 0.372 (0.27 - 0.47) | — |

**Table 6.** All SNPs with scores over 7 for freckling.

| SNP | Chr | Position | Locus | Alleles | MAF | Score | BF | $\beta$ (95% CI) | OR (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| rs12913832 | 15 | 26,039,213 | OCA2/HERC2 | G/A | 0.23 | 87.07 | 85.76 | 0.974 (0.94 - 1.01) | — |
| rs1667394 | 15 | 26,203,777 | OCA2/HERC2 | T/C | 0.16 | 48.55 | 45.83 | 0.854 (0.82 - 0.89) | — |
| rs8039195 | 15 | 26,189,679 | OCA2/HERC2 | T/C | 0.14 | 40.89 | 38.40 | 0.834 (0.80 - 0.87) | — |
| rs4778241 | 15 | 26,012,308 | OCA2/HERC2 | C/A | 0.17 | 29.87 | 27.09 | 0.638 (0.60 - 0.67) | — |
| rs12203592 | 6 | 341,321 | IRF4 | C/T | 0.18 | 27.64 | 27.17 | 0.589 (0.50 - 0.68) | — |
| rs7183877 | 15 | 26,039,328 | OCA2/HERC2 | C/A | 0.08 | 21.15 | 18.47 | 0.759 (0.73 - 0.79) | — |
| rs16891982 | 5 | 33,987,450 | SLC45A2 | G/C | 0.03 | 19.41 | 16.76 | 1.104 (1.07 - 1.13) | — |
| rs16950987 | 15 | 26,199,823 | OCA2/HERC2 | G/A | 0.05 | 15.41 | 12.81 | 0.764 (0.73 - 0.80) | — |
| rs7495174 | 15 | 26,017,833 | OCA2/HERC2 | A/G | 0.06 | 15.20 | 12.56 | 0.711 (0.55 - 0.87) | — |
| rs8028689 | 15 | 26,162,483 | OCA2/HERC2 | T/C | 0.05 | 14.87 | 12.28 | 0.753 (0.72 - 0.78) | — |
| rs35391 | 5 | 33,991,430 | SLC45A2 | C/T | 0.02 | 14.62 | 11.84 | 1.128 (0.86 - 1.40) | — |
| rs11636232 | 15 | 26,060,221 | OCA2/HERC2 | C/T | 0.40 | 14.53 | 12.04 | -0.340 (-0.40 - -0.28) | — |
| rs4778138 | 15 | 26,009,415 | OCA2/HERC2 | A/G | 0.12 | 14.40 | 11.83 | 0.510 (0.40 - 0.62) | — |
| rs16950979 | 15 | 26,194,101 | OCA2/HERC2 | A/G | 0.05 | 14.25 | 11.69 | 0.743 (0.57 - 0.92) | — |
| rs2240204 | 15 | 26,167,627 | OCA2/HERC2 | G/A | 0.05 | 14.25 | 11.69 | 0.743 (0.71 - 0.77) | — |
| rs35390 | 5 | 33,991,083 | SLC45A2 | A/C | 0.02 | 13.78 | 11.05 | 1.104 (0.83 - 1.38) | — |
| rs12896399 | 14 | 91,843,416 | SLC24A4 | G/T | 0.44 | 12.34 | 9.83 | -0.308 (-0.36 - -0.26) | — |
| rs4904866 | 14 | 91,838,256 | SLC24A4 | C/T | 0.44 | 12.15 | 9.65 | -0.306 (-0.36 - -0.25) | — |
| rs35408 | 5 | 34,000,695 | SLC45A2 | T/C | 0.02 | 11.19 | 8.63 | 0.964 (0.93 - 0.99) | — |
| rs35412 | 5 | 34,002,902 | SLC45A2 | G/C | 0.02 | 11.19 | 8.63 | 0.964 (0.93 - 0.99) | — |
| rs7174027 | 15 | 26,002,360 | OCA2/HERC2 | G/A | 0.09 | 10.07 | 7.72 | 0.474 (0.44 - 0.51) | — |
| rs35394 | 5 | 33,984,076 | SLC45A2 | T/C | 0.02 | 9.85 | 7.32 | 1.027 (1.00 - 1.06) | — |
| rs35398 | 5 | 33,987,583 | SLC45A2 | G/T | 0.02 | 9.85 | 7.32 | 1.027 (0.72 - 1.33) | — |
| rs40132 | 5 | 33,986,460 | SLC45A2 | A/G | 0.02 | 9.65 | 7.13 | 1.020 (0.71 - 1.33) | — |
| rs12931267 | 16 | 88,346,233 | MC1R | C/G | 0.08 | 9.48 | 7.33 | -0.556 (-0.72 - -0.39) | — |
| rs4778211 | 15 | 25,872,900 | OCA2/HERC2 | C/A | 0.16 | 8.14 | 5.95 | 0.342 (0.31 - 0.38) | — |
| rs12210050 | 6 | 420,489 | IRF4 | C/T | 0.18 | 8.14 | 5.95 | 0.309 (0.22 - 0.39) | — |
| rs4904868 | 14 | 91,850,754 | SLC24A4 | C/T | 0.45 | 7.89 | 5.68 | 0.245 (0.19 - 0.30) | — |
| rs26722 | 5 | 33,999,627 | SLC45A2 | C/T | 0.02 | 7.75 | 5.41 | 0.873 (0.58 - 1.17) | — |
| rs17128162 | 14 | 91,850,110 | SLC24A4 | G/A | 0.11 | 7.51 | 5.44 | -0.378 (-0.41 - -0.35) | — |
| rs4904864 | 14 | 91,834,272 | SLC24A4 | G/A | 0.35 | 7.48 | 5.32 | 0.250 (0.21 - 0.29) | — |
| rs6918152 | 6 | 487,159 | LOC730077 | G/A | 0.38 | 7.07 | 4.91 | -0.240 (-0.28 - -0.20) | — |
| rs9392056 | 6 | 463,078 | EXOC2 | A/G | 0.38 | 7.03 | 4.87 | -0.238 (-0.30 - -0.18) | — |

**Table 7.** All SNPs with scores over 7 for haircolor.

| SNP | Chr | Position | Locus | Alleles | MAF | Score | BF | $\beta$ (95% CI) | OR (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| rs12931267 | 16 | 88,346,233 | MC1R | C/G | 0.08 | 86.28 | 89.80 | 0.556 (0.51 - 0.61) | — |
| rs258322 | 16 | 88,283,404 | MC1R | G/A | 0.10 | 56.77 | 57.53 | 0.410 (0.40 - 0.42) | — |
| rs4785763 | 16 | 88,594,437 | MC1R | C/A | 0.33 | 49.68 | 48.61 | 0.252 (0.24 - 0.27) | — |
| rs4238833 | 16 | 88,578,190 | MC1R | T/G | 0.37 | 42.77 | 41.02 | 0.228 (0.21 - 0.24) | — |
| rs8049897 | 16 | 88,551,703 | MC1R | G/A | 0.15 | 42.38 | 40.65 | 0.309 (0.30 - 0.32) | — |
| rs1805008 | 16 | 88,513,645 | MC1R | C/T | 0.07 | 37.48 | 36.19 | 0.387 (0.33 - 0.44) | — |
| rs164741 | 16 | 88,219,799 | MC1R | G/A | 0.30 | 34.29 | 32.12 | 0.211 (0.20 - 0.23) | — |
| rs4408545 | 16 | 88,571,529 | MC1R | C/T | 0.50 | 24.23 | 22.14 | -0.164 (-0.18 - -0.15) | — |
| rs7204478 | 16 | 88,322,986 | MC1R | C/T | 0.45 | 21.90 | 20.79 | 0.157 (0.14 - 0.18) | — |
| rs7188458 | 16 | 88,253,985 | MC1R | G/A | 0.44 | 20.14 | 17.91 | 0.151 (0.13 - 0.17) | — |
| rs11861084 | 16 | 88,403,211 | MC1R | C/A | 0.41 | 19.09 | 16.35 | -0.147 (-0.16 - -0.13) | — |
| rs1800286 | 16 | 88,397,262 | MC1R | C/T | 0.41 | 18.63 | 15.96 | -0.145 (-0.17 - -0.12) | — |
| rs1800359 | 16 | 88,332,762 | MC1R | G/A | 0.41 | 17.90 | 15.21 | -0.142 (-0.16 - -0.13) | — |
| rs1805009 | 16 | 88,514,047 | MC1R | G/C | 0.02 | 17.43 | 14.48 | 0.508 (0.50 - 0.52) | — |
| rs352935 | 16 | 88,176,081 | MC1R | T/C | 0.48 | 17.37 | 15.66 | 0.139 (0.12 - 0.16) | — |
| rs8060934 | 16 | 88,447,526 | MC1R | T/C | 0.48 | 16.24 | 14.43 | -0.135 (-0.15 - -0.12) | — |
| rs2241039 | 16 | 88,615,938 | MC1R | G/A | 0.38 | 15.39 | 12.92 | -0.137 (-0.15 - -0.12) | — |
| rs291671 | 20 | 31,414,506 | ASIP | A/G | 0.10 | 14.70 | 12.45 | 0.215 (0.17 - 0.26) | — |
| rs12599531 | 16 | 88,436,902 | MC1R | C/T | 0.37 | 14.15 | 11.76 | -0.129 (-0.15 - -0.11) | — |
| rs2353033 | 16 | 87,913,062 | MC1R | T/C | 0.43 | 13.93 | 11.55 | 0.123 (0.11 - 0.14) | — |
| rs2159116 | 16 | 88,359,011 | MC1R | C/A | 0.17 | 12.58 | 10.37 | 0.157 (0.14 - 0.17) | — |
| rs8058895 | 16 | 88,342,308 | MC1R | T/C | 0.17 | 12.56 | 10.38 | 0.157 (0.14 - 0.17) | — |
| rs17305657 | 20 | 31,270,249 | ASIP | T/C | 0.09 | 12.31 | 9.89 | 0.197 (0.19 - 0.21) | — |
| rs460879 | 16 | 88,240,390 | MC1R | C/T | 0.46 | 11.77 | 9.38 | -0.113 (-0.13 - -0.09) | — |
| rs7196459 | 16 | 88,668,978 | MC1R | G/T | 0.08 | 11.31 | 8.94 | 0.208 (0.15 - 0.26) | — |
| rs7195066 | 16 | 88,363,824 | MC1R | C/T | 0.32 | 11.10 | 8.69 | -0.118 (-0.14 - -0.09) | — |
| rs459920 | 16 | 88,258,328 | MC1R | T/C | 0.45 | 10.77 | 8.35 | -0.108 (-0.12 - -0.09) | — |
| rs464349 | 16 | 88,183,752 | MC1R | C/T | 0.48 | 10.75 | 8.32 | -0.106 (-0.12 - -0.09) | — |
| rs619865 | 20 | 33,331,111 | ASIP | G/A | 0.10 | 9.89 | 7.59 | 0.165 (0.15 - 0.18) | — |
| rs9936896 | 16 | 88,596,560 | MC1R | T/C | 0.20 | 9.87 | 7.59 | 0.129 (0.12 - 0.14) | — |
| rs447735 | 16 | 88,261,850 | MC1R | T/C | 0.44 | 9.85 | 7.49 | -0.103 (-0.12 - -0.09) | — |
| rs2306633 | 16 | 87,882,779 | MC1R | G/A | 0.26 | 9.10 | 6.84 | -0.112 (-0.13 - -0.10) | — |
| rs17396317 | 20 | 31,254,038 | ASIP | G/A | 0.12 | 9.00 | 6.90 | 0.145 (0.13 - 0.16) | — |
| rs6500437 | 16 | 88,317,399 | MC1R | T/C | 0.30 | 8.58 | 6.71 | 0.105 (0.09 - 0.12) | — |
| rs11648785 | 16 | 88,612,062 | MC1R | C/T | 0.31 | 8.47 | 6.21 | -0.103 (-0.13 - -0.08) | — |
| rs4347628 | 16 | 88,098,136 | MC1R | C/T | 0.44 | 8.42 | 6.28 | -0.095 (-0.11 - -0.07) | — |
| rs2016571 | 16 | 88,371,777 | MC1R | G/C | 0.31 | 8.20 | 6.15 | 0.102 (0.09 - 0.12) | — |
| rs463701 | 16 | 88,126,261 | MC1R | A/G | 0.45 | 8.07 | 6.02 | -0.092 (-0.11 - -0.07) | — |
| rs1061646 | 16 | 88,333,478 | MC1R | G/A | 0.31 | 8.04 | 6.13 | 0.100 (0.09 - 0.11) | — |
| rs3785275 | 16 | 88,369,530 | MC1R | C/G | 0.31 | 7.87 | 5.88 | 0.099 (0.07 - 0.12) | — |
| rs382745 | 16 | 88,131,087 | MC1R | A/G | 0.44 | 7.86 | 5.82 | -0.091 (-0.11 - -0.07) | — |
| rs16966142 | 16 | 88,378,534 | MC1R | C/T | 0.09 | 7.85 | 5.71 | -0.168 (-0.22 - -0.11) | — |
| rs2378249 | 20 | 32,681,751 | ASIP | A/G | 0.16 | 7.77 | 5.62 | 0.121 (0.09 - 0.16) | — |
| rs2378199 | 20 | 32,650,141 | ASIP | C/T | 0.16 | 7.71 | 5.56 | 0.121 (0.09 - 0.16) | — |
| rs4812405 | 20 | 34,709,999 | ASIP | C/A | 0.07 | 7.42 | 5.47 | 0.170 (0.16 - 0.18) | — |
| rs7189734 | 16 | 88,328,051 | MC1R | G/A | 0.25 | 7.39 | 5.36 | 0.101 (0.09 - 0.12) | — |
| rs1800345 | 16 | 88,342,718 | MC1R | C/T | 0.31 | 7.34 | 5.30 | 0.096 (0.07 - 0.12) | — |
| rs4911442 | 20 | 32,818,707 | ASIP | A/G | 0.12 | 7.23 | 5.27 | 0.131 (0.09 - 0.17) | — |
| rs7361656 | 20 | 33,192,808 | ASIP | T/G | 0.24 | 7.11 | 5.52 | 0.099 (0.09 - 0.11) | — |
| rs6500452 | 16 | 88,386,006 | MC1R | T/C | 0.31 | 7.02 | 4.96 | 0.094 (0.08 - 0.11) | — |

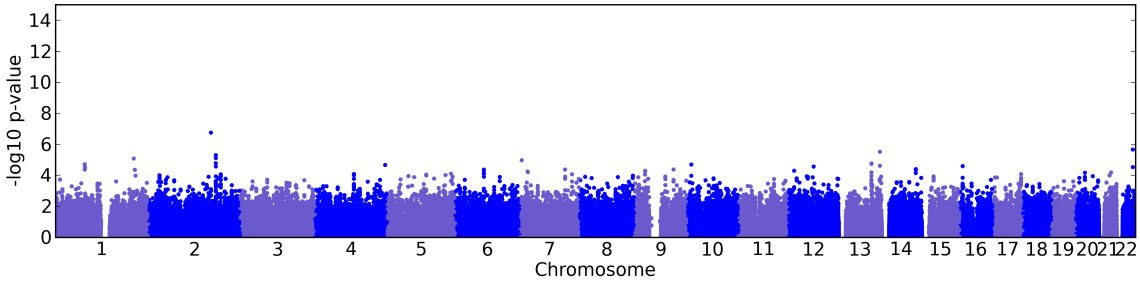
**Table 8.** All SNPs with scores over 7 for red hair.

| SNP | Chr | Position | Locus | Alleles | MAF | Score | BF | $\beta$ (95% CI) | OR (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| rs12913832 | 15 | 26,039,213 | OCA2/HERC2 | G/A | 0.23 | > 300 | > 300 | 2.491 (2.47 - 2.51) | — |
| rs1667394 | 15 | 26,203,777 | OCA2/HERC2 | T/C | 0.16 | > 300 | > 300 | 2.176 (2.15 - 2.20) | — |
| rs8039195 | 15 | 26,189,679 | OCA2/HERC2 | T/C | 0.14 | 291.35 | 293.35 | 2.088 (2.06 - 2.12) | — |
| rs4778241 | 15 | 26,012,308 | OCA2/HERC2 | C/A | 0.17 | 232.34 | 230.88 | 1.692 (1.66 - 1.72) | — |
| rs4778138 | 15 | 26,009,415 | OCA2/HERC2 | A/G | 0.12 | 135.65 | 131.98 | 1.529 (1.43 - 1.63) | — |
| rs16950987 | 15 | 26,199,823 | OCA2/HERC2 | G/A | 0.05 | 125.44 | 121.47 | 2.169 (2.14 - 2.20) | — |
| rs7495174 | 15 | 26,017,833 | OCA2/HERC2 | A/G | 0.06 | 124.09 | 120.23 | 2.032 (1.88 - 2.18) | — |
| rs8028689 | 15 | 26,162,483 | OCA2/HERC2 | T/C | 0.05 | 122.42 | 118.46 | 2.156 (2.13 - 2.18) | — |
| rs7183877 | 15 | 26,039,328 | OCA2/HERC2 | C/A | 0.08 | 120.28 | 116.87 | 1.759 (1.73 - 1.79) | — |
| rs2240204 | 15 | 26,167,627 | OCA2/HERC2 | G/A | 0.05 | 117.51 | 113.57 | 2.127 (2.10 - 2.16) | — |
| rs16950979 | 15 | 26,194,101 | OCA2/HERC2 | A/G | 0.05 | 117.42 | 113.48 | 2.127 (1.96 - 2.29) | — |
| rs11636232 | 15 | 26,060,221 | OCA2/HERC2 | C/T | 0.40 | 115.29 | 113.62 | -0.936 (-0.99 - -0.89) | — |
| rs7174027 | 15 | 26,002,360 | OCA2/HERC2 | G/A | 0.09 | 96.16 | 92.37 | 1.471 (1.44 - 1.50) | — |
| rs6497253 | 15 | 25,962,144 | OCA2/HERC2 | G/A | 0.21 | 43.47 | 40.32 | 0.710 (0.68 - 0.74) | — |
| rs1470608 | 15 | 25,961,716 | OCA2/HERC2 | G/T | 0.14 | 42.49 | 39.33 | 0.839 (0.74 - 0.94) | — |
| rs7170869 | 15 | 25,962,343 | OCA2/HERC2 | A/G | 0.14 | 42.01 | 38.89 | 0.836 (0.73 - 0.94) | — |
| rs4778232 | 15 | 25,955,360 | OCA2/HERC2 | C/T | 0.21 | 38.75 | 35.90 | 0.663 (0.58 - 0.74) | — |
| rs749846 | 15 | 25,942,585 | OCA2/HERC2 | C/A | 0.14 | 34.53 | 31.70 | 0.772 (0.74 - 0.81) | — |
| rs1448485 | 15 | 25,956,336 | OCA2/HERC2 | G/T | 0.12 | 33.58 | 30.51 | 0.785 (0.67 - 0.90) | — |
| rs1597196 | 15 | 25,968,517 | OCA2/HERC2 | G/T | 0.17 | 31.88 | 28.81 | 0.648 (0.56 - 0.74) | — |
| rs8024968 | 15 | 25,957,284 | OCA2/HERC2 | C/T | 0.10 | 30.02 | 27.01 | 0.802 (0.68 - 0.92) | — |
| rs16950821 | 15 | 25,957,102 | OCA2/HERC2 | G/A | 0.10 | 29.69 | 26.69 | 0.797 (0.77 - 0.83) | — |
| rs7179994 | 15 | 25,997,365 | OCA2/HERC2 | A/G | 0.13 | 28.05 | 25.07 | 0.669 (0.57 - 0.77) | — |
| rs4778211 | 15 | 25,872,900 | OCA2/HERC2 | C/A | 0.16 | 27.02 | 24.36 | 0.628 (0.60 - 0.66) | — |
| rs7170451 | 15 | 25,865,819 | OCA2/HERC2 | G/A | 0.27 | 26.48 | 23.52 | 0.503 (0.47 - 0.54) | — |
| rs1800407 | 15 | 25,903,913 | OCA2/HERC2 | C/T | 0.08 | 23.49 | 20.78 | 0.823 (0.68 - 0.97) | — |
| rs3794604 | 15 | 25,945,660 | OCA2/HERC2 | C/T | 0.10 | 23.37 | 20.52 | 0.699 (0.58 - 0.82) | — |
| rs1448488 | 15 | 25,890,452 | OCA2/HERC2 | T/C | 0.28 | 23.16 | 20.33 | 0.465 (0.43 - 0.50) | — |
| rs1800411 | 15 | 25,885,516 | OCA2/HERC2 | A/G | 0.28 | 22.98 | 20.15 | 0.464 (0.40 - 0.53) | — |
| rs12910433 | 15 | 25,902,239 | OCA2/HERC2 | A/G | 0.29 | 22.40 | 19.61 | 0.456 (0.39 - 0.52) | — |
| rs1900758 | 15 | 25,903,692 | OCA2/HERC2 | T/C | 0.29 | 22.29 | 19.54 | 0.464 (0.43 - 0.50) | — |
| rs4778220 | 15 | 25,894,733 | OCA2/HERC2 | A/G | 0.17 | 20.58 | 17.83 | 0.531 (0.44 - 0.62) | — |
| rs728405 | 15 | 25,873,448 | OCA2/HERC2 | A/C | 0.22 | 19.91 | 17.34 | 0.466 (0.39 - 0.54) | — |
| rs1037208 | 15 | 25,904,952 | OCA2/HERC2 | T/G | 0.17 | 19.90 | 17.16 | 0.516 (0.48 - 0.55) | — |
| rs11635884 | 15 | 26,042,564 | OCA2/HERC2 | T/C | 0.01 | 19.30 | 15.10 | 2.635 (2.61 - 2.66) | — |
| rs2594935 | 15 | 25,858,633 | OCA2/HERC2 | G/A | 0.29 | 19.23 | 16.47 | 0.417 (0.38 - 0.45) | — |
| rs2703952 | 15 | 25,855,576 | OCA2/HERC2 | T/G | 0.16 | 17.06 | 14.68 | 0.495 (0.46 - 0.53) | — |
| rs12896399 | 14 | 91,843,416 | SLC24A4 | G/T | 0.44 | 15.95 | 13.49 | -0.343 (-0.39 - -0.29) | — |
| rs4904866 | 14 | 91,838,256 | SLC24A4 | C/T | 0.44 | 15.81 | 13.35 | -0.342 (-0.39 - -0.29) | — |
| rs12203592 | 6 | 341,321 | IRF4 | C/T | 0.18 | 14.69 | 13.26 | -0.424 (-0.51 - -0.34) | — |
| rs1800404 | 15 | 25,909,368 | OCA2/HERC2 | T/C | 0.21 | 14.47 | 11.91 | 0.411 (0.38 - 0.44) | — |
| rs7178315 | 15 | 25,911,504 | OCA2/HERC2 | C/T | 0.21 | 14.20 | 11.64 | 0.407 (0.32 - 0.49) | — |
| rs977589 | 15 | 25,853,198 | OCA2/HERC2 | C/T | 0.47 | 13.76 | 11.19 | -0.322 (-0.37 - -0.27) | — |
| rs4904868 | 14 | 91,850,754 | SLC24A4 | C/T | 0.45 | 13.49 | 10.95 | 0.317 (0.27 - 0.37) | — |
| rs2871875 | 15 | 25,938,449 | OCA2/HERC2 | G/A | 0.24 | 12.57 | 10.14 | 0.361 (0.33 - 0.40) | — |
| rs16891982 | 5 | 33,987,450 | SLC45A2 | G/C | 0.03 | 11.83 | 9.42 | 0.840 (0.81 - 0.87) | — |
| rs1107267 | 15 | 25,645,234 | OCA2/HERC2 | G/A | 0.26 | 11.76 | 10.33 | 0.338 (0.30 - 0.37) | — |
| rs3930739 | 15 | 25,713,937 | OCA2/HERC2 | C/T | 0.46 | 11.38 | 8.96 | -0.288 (-0.34 - -0.24) | — |
| rs17565953 | 15 | 25,692,250 | OCA2/HERC2 | G/T | 0.40 | 10.94 | 8.68 | -0.289 (-0.34 - -0.23) | — |
| rs8036718 | 15 | 25,727,152 | OCA2/HERC2 | G/A | 0.38 | 10.63 | 8.39 | -0.284 (-0.32 - -0.24) | — |
| rs6497238 | 15 | 25,727,373 | OCA2/HERC2 | T/C | 0.38 | 10.43 | 8.18 | -0.281 (-0.32 - -0.24) | — |
| rs7496968 | 15 | 25,984,569 | OCA2/HERC2 | A/G | 0.11 | 9.88 | 8.09 | 0.430 (0.31 - 0.55) | — |
| rs11631195 | 15 | 25,695,483 | OCA2/HERC2 | G/A | 0.37 | 9.27 | 7.05 | -0.266 (-0.31 - -0.23) | — |
| rs4904864 | 14 | 91,834,272 | SLC24A4 | G/A | 0.35 | 9.17 | 6.90 | 0.272 (0.23 - 0.31) | — |
| rs13329466 | 15 | 25,950,357 | OCA2/HERC2 | G/A | 0.23 | 9.10 | 6.91 | -0.301 (-0.34 - -0.27) | — |
| rs4778192 | 15 | 25,753,656 | OCA2/HERC2 | T/C | 0.47 | 8.66 | 6.39 | -0.248 (-0.29 - -0.20) | — |
| rs977588 | 15 | 25,852,901 | OCA2/HERC2 | A/C | 0.41 | 8.55 | 6.48 | 0.252 (0.20 - 0.31) | — |
| rs1393350 | 11 | 88,650,694 | TYR | G/A | 0.27 | 8.49 | 6.25 | -0.278 (-0.32 - -0.24) | — |
| rs438702 | 15 | 26,798,209 | OCA2/HERC2 | T/C | 0.40 | 8.49 | 6.22 | 0.255 (0.21 - 0.30) | — |
| rs4778189 | 15 | 25,745,823 | OCA2/HERC2 | G/A | 0.47 | 8.43 | 6.21 | -0.245 (-0.29 - -0.20) | — |
| rs2311469 | 15 | 25,742,663 | OCA2/HERC2 | G/T | 0.47 | 8.35 | 6.12 | -0.243 (-0.29 - -0.19) | — |
| rs35391 | 5 | 33,991,430 | SLC45A2 | C/T | 0.02 | 8.08 | 5.78 | 0.814 (0.54 - 1.08) | — |
| rs8035334 | 15 | 25,753,962 | OCA2/HERC2 | G/A | 0.48 | 8.02 | 5.95 | -0.239 (-0.29 - -0.19) | — |
| rs35390 | 5 | 33,991,083 | SLC45A2 | A/C | 0.02 | 7.86 | 5.58 | 0.811 (0.54 - 1.08) | — |
| rs1847134 | 11 | 88,644,901 | TYR | A/C | 0.32 | 7.57 | 5.40 | -0.249 (-0.31 - -0.19) | — |
| rs10960751 | 9 | 12,665,264 | TYRP1 | C/T | 0.37 | 7.54 | 5.35 | 0.240 (0.18 - 0.30) | — |
| rs1408799 | 9 | 12,662,097 | TYRP1 | C/T | 0.31 | 7.42 | 5.39 | 0.251 (0.19 - 0.32) | — |
| rs2594909 | 15 | 25,824,657 | OCA2/HERC2 | T/C | 0.41 | 7.27 | 5.10 | -0.231 (-0.27 - -0.19) | — |
| rs35408 | 5 | 34,000,695 | SLC45A2 | T/C | 0.02 | 7.27 | 5.06 | 0.765 (0.73 - 0.80) | — |
| rs35412 | 5 | 34,002,902 | SLC45A2 | G/C | 0.02 | 7.12 | 4.92 | 0.756 (0.73 - 0.79) | — |
| rs1137134 | 9 | 12,702,157 | TYRP1 C9orf150 | A/G | 0.40 | 7.10 | 4.94 | 0.228 (0.17 - 0.28) | — |
| rs2703936 | 15 | 25,831,670 | OCA2/HERC2 | A/C | 0.41 | 7.06 | 4.91 | -0.228 (-0.28 - -0.17) | — |

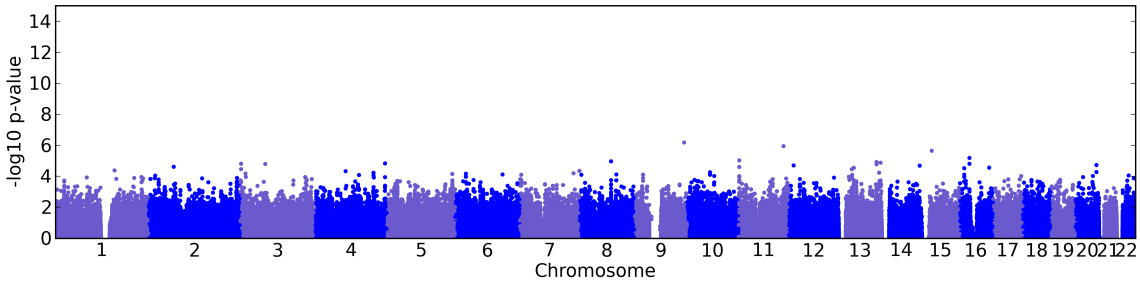
**Table 9.** All SNPs with scores over 7 for eye color.

| SNP | Chr | Position | Locus | Alleles | MAF | Score | BF | $\beta$ (95% CI) | OR (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| rs12913832 | 15 | 26,039,213 | OCA2/HERC2 | G/A | 0.23 | 51.52 | 41.34 | 2.131 (1.79 - 2.47) | 8.425 (5.99 - 11.84) |
| rs1667394 | 15 | 26,203,777 | OCA2/HERC2 | T/C | 0.16 | 36.09 | 28.45 | 1.944 (1.58 - 2.31) | 6.985 (4.85 - 10.06) |
| rs8039195 | 15 | 26,189,679 | OCA2/HERC2 | T/C | 0.14 | 32.86 | 25.63 | 1.910 (1.54 - 2.29) | 6.753 (4.64 - 9.83) |
| rs7183877 | 15 | 26,039,328 | OCA2/HERC2 | C/A | 0.08 | 29.54 | 21.57 | 2.275 (1.77 - 2.78) | 9.732 (5.86 - 16.16) |
| rs12896399 | 14 | 91,843,416 | SLC24A4 | G/T | 0.44 | 22.82 | 19.49 | -0.546 (-0.66 - -0.44) | 0.579 (0.52 - 0.65) |
| rs4904866 | 14 | 91,838,256 | SLC24A4 | C/T | 0.44 | 22.72 | 19.39 | -0.545 (-0.65 - -0.44) | 0.580 (0.52 - 0.65) |
| rs4778241 | 15 | 26,012,308 | OCA2/HERC2 | C/A | 0.17 | 17.26 | 13.85 | 0.886 (0.68 - 1.10) | 2.426 (1.96 - 2.99) |
| rs4904868 | 14 | 91,850,754 | SLC24A4 | C/T | 0.45 | 16.80 | 13.61 | 0.471 (0.36 - 0.58) | 1.602 (1.43 - 1.79) |
| rs1847134 | 11 | 88,644,901 | TYR | A/C | 0.32 | 14.95 | 13.13 | -0.461 (-0.57 - -0.35) | 0.631 (0.56 - 0.71) |
| rs1393350 | 11 | 88,650,694 | TYR | G/A | 0.27 | 12.86 | 10.86 | -0.444 (-0.56 - -0.33) | 0.642 (0.57 - 0.72) |
| rs10765198 | 11 | 88,609,422 | TYR | T/C | 0.29 | 11.55 | 9.75 | -0.414 (-0.53 - -0.30) | 0.661 (0.59 - 0.74) |
| rs1827430 | 11 | 88,658,088 | TYR | A/G | 0.38 | 10.97 | 8.93 | -0.377 (-0.49 - -0.27) | 0.686 (0.61 - 0.77) |
| rs11018528 | 11 | 88,570,025 | TYR | A/G | 0.30 | 10.48 | 8.73 | -0.391 (-0.51 - -0.27) | 0.676 (0.60 - 0.76) |
| rs4904864 | 14 | 91,834,272 | SLC24A4 | G/A | 0.35 | 10.07 | 7.48 | 0.375 (0.26 - 0.49) | 1.455 (1.30 - 1.63) |
| rs7120151 | 11 | 88,380,027 | TYR | G/A | 0.29 | 9.61 | 8.19 | -0.375 (-0.49 - -0.26) | 0.687 (0.61 - 0.77) |
| rs1806319 | 11 | 88,677,584 | TYR | T/C | 0.37 | 9.35 | 7.37 | -0.348 (-0.46 - -0.24) | 0.706 (0.63 - 0.79) |
| rs1800407 | 15 | 25,903,913 | OCA2/HERC2 | C/T | 0.08 | 8.70 | 5.46 | 0.743 (0.49 - 0.99) | 2.102 (1.63 - 2.70) |
| rs7495174 | 15 | 26,017,833 | OCA2/HERC2 | A/G | 0.06 | 7.58 | 4.70 | 1.303 (0.79 - 1.81) | 3.679 (2.21 - 6.12) |
| rs1391880 | 11 | 88,035,044 | TYR | A/G | 0.30 | 7.43 | 6.06 | -0.318 (-0.43 - -0.20) | 0.728 (0.65 - 0.82) |

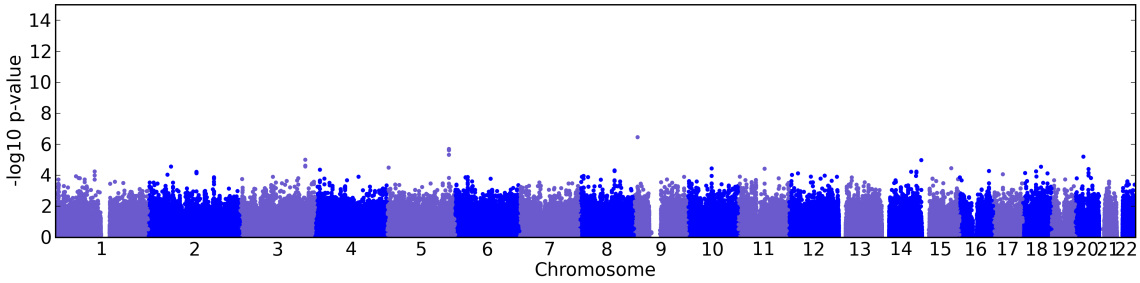
**Table 10.** All SNPs with scores over 7 for eye color, green versus blue.



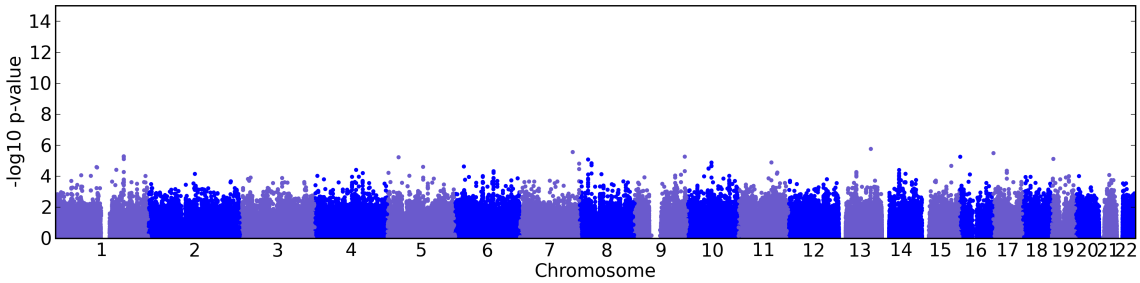

(a) Footedness



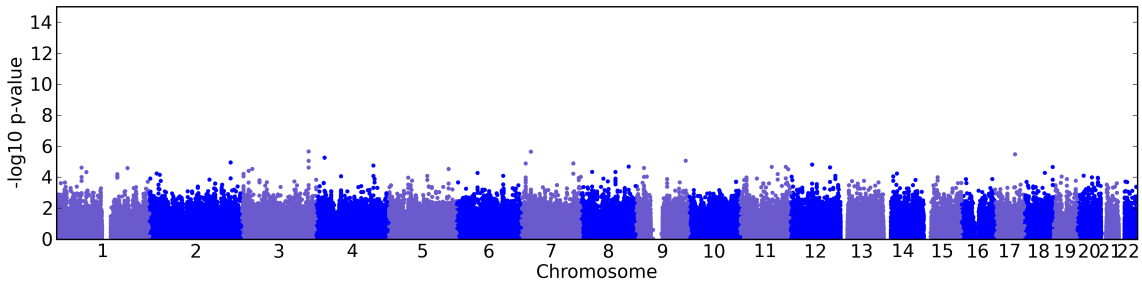

(b) Astigmatism



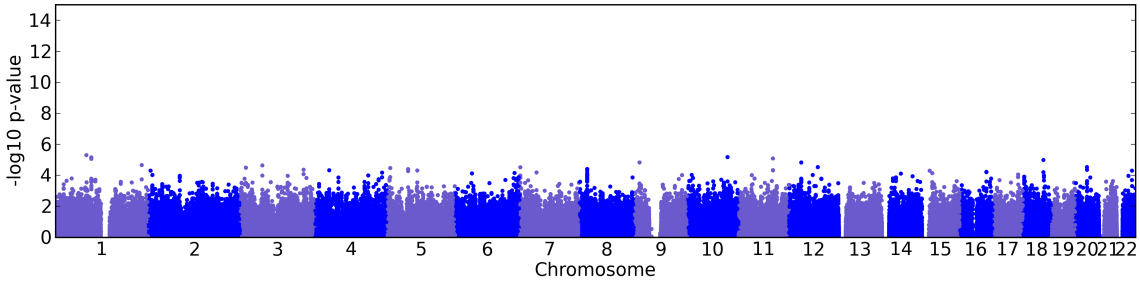

(c) Braces



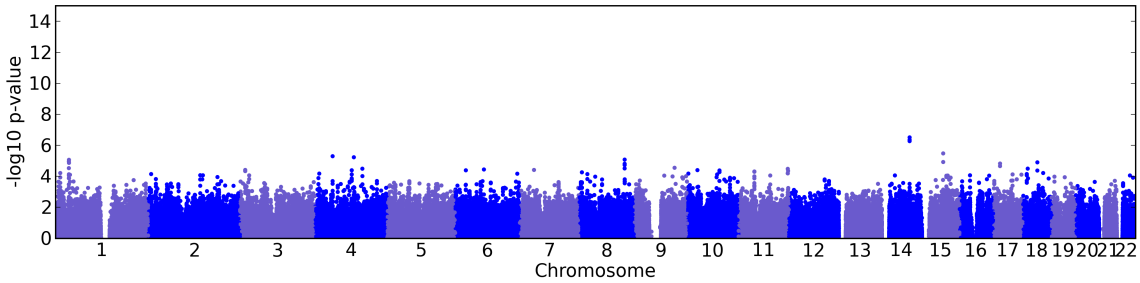

(d) Glasses



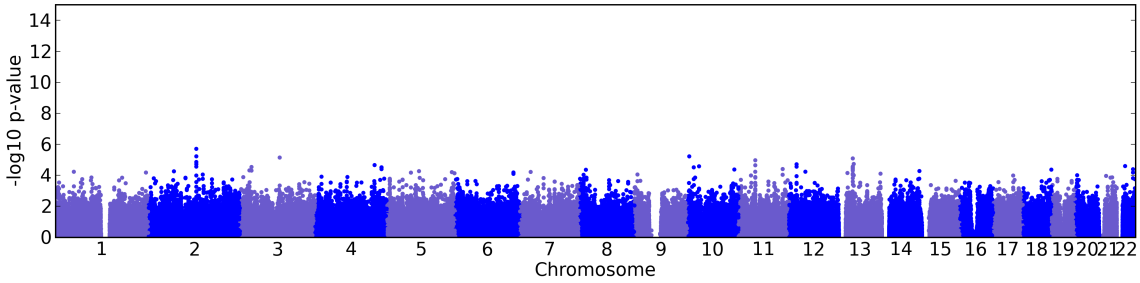

(e) Hand clasp



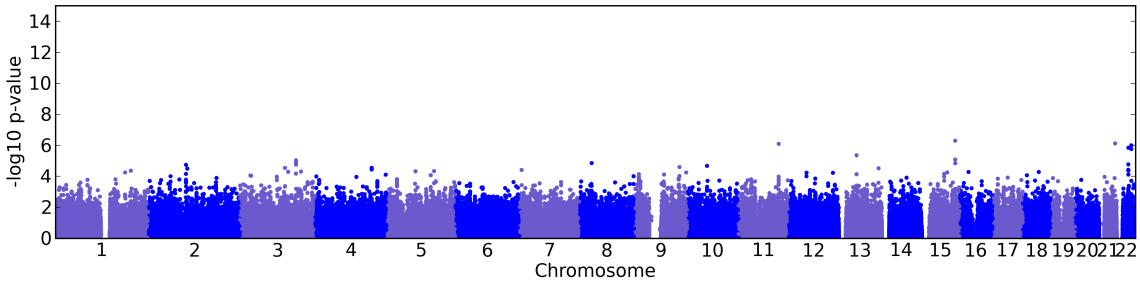

(f) Handedness



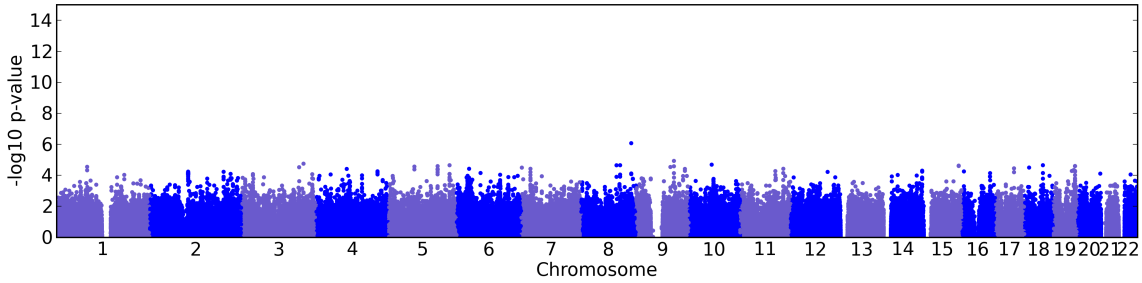

(g) Morningness



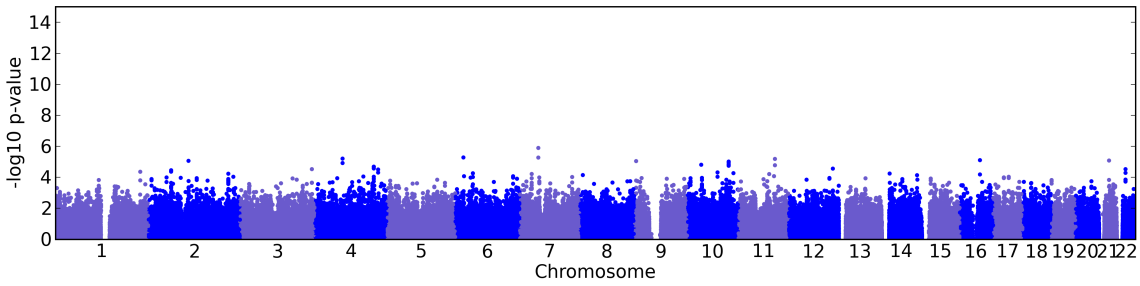

(h) Ocular dominance



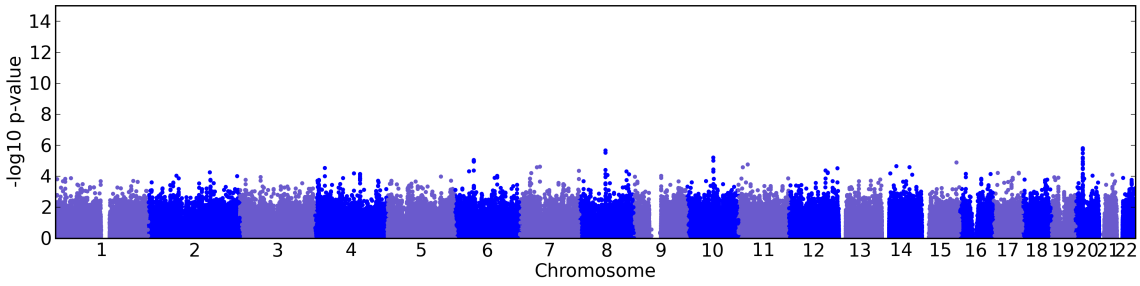

(i) Optimism



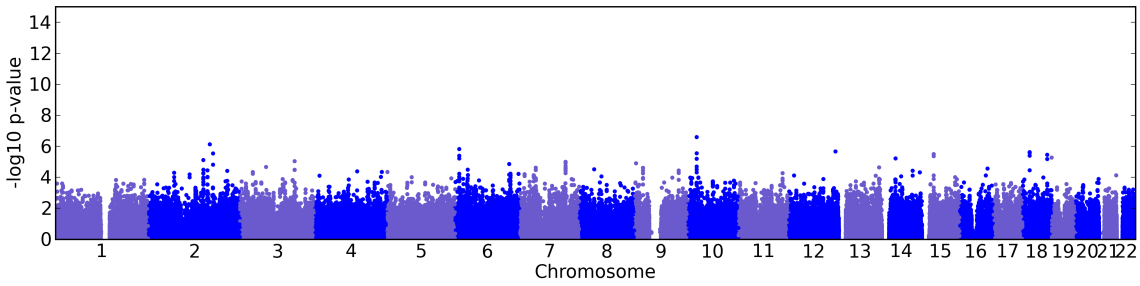

(j) Sweet tooth



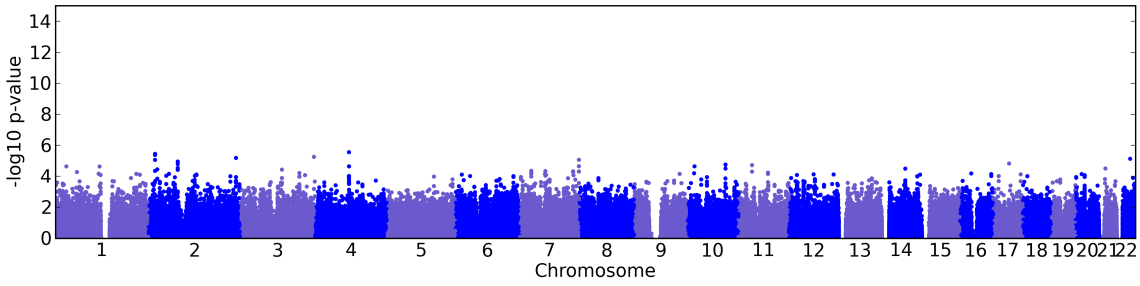

(k) Wisdom teeth




(l) Cavities




(m) Earlobe

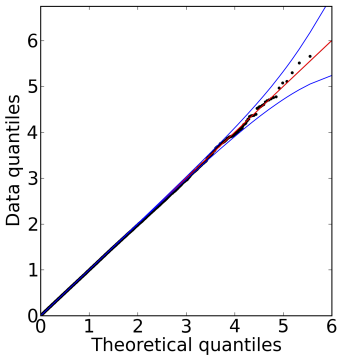



(n) Motion sickness

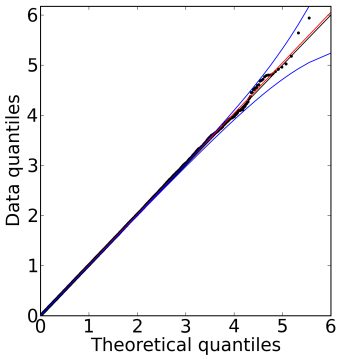
**Figure 8.** Manhattan plots for traits not included elsewhere.

# References

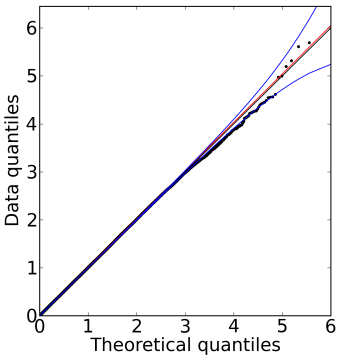
1. Devlin B, Roeder K (1999) Genomic control for association studies. Biometrics 55: 997–1004.



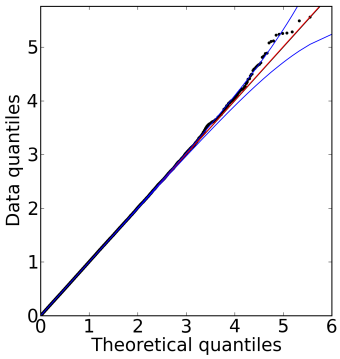

(a) Footedness



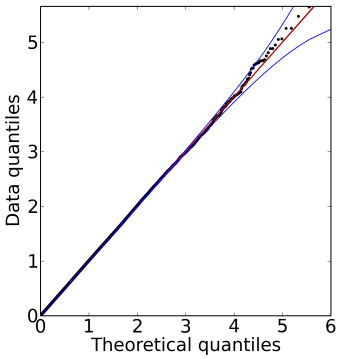

(b) Astigmatism



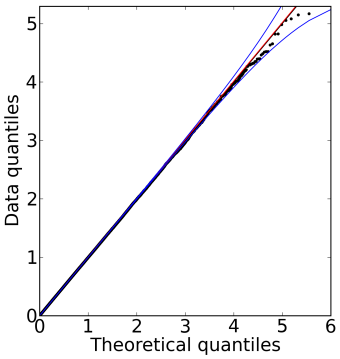

(c) Braces



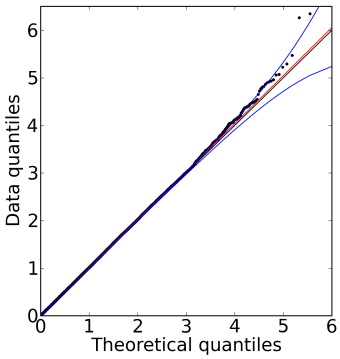

(d) Glasses



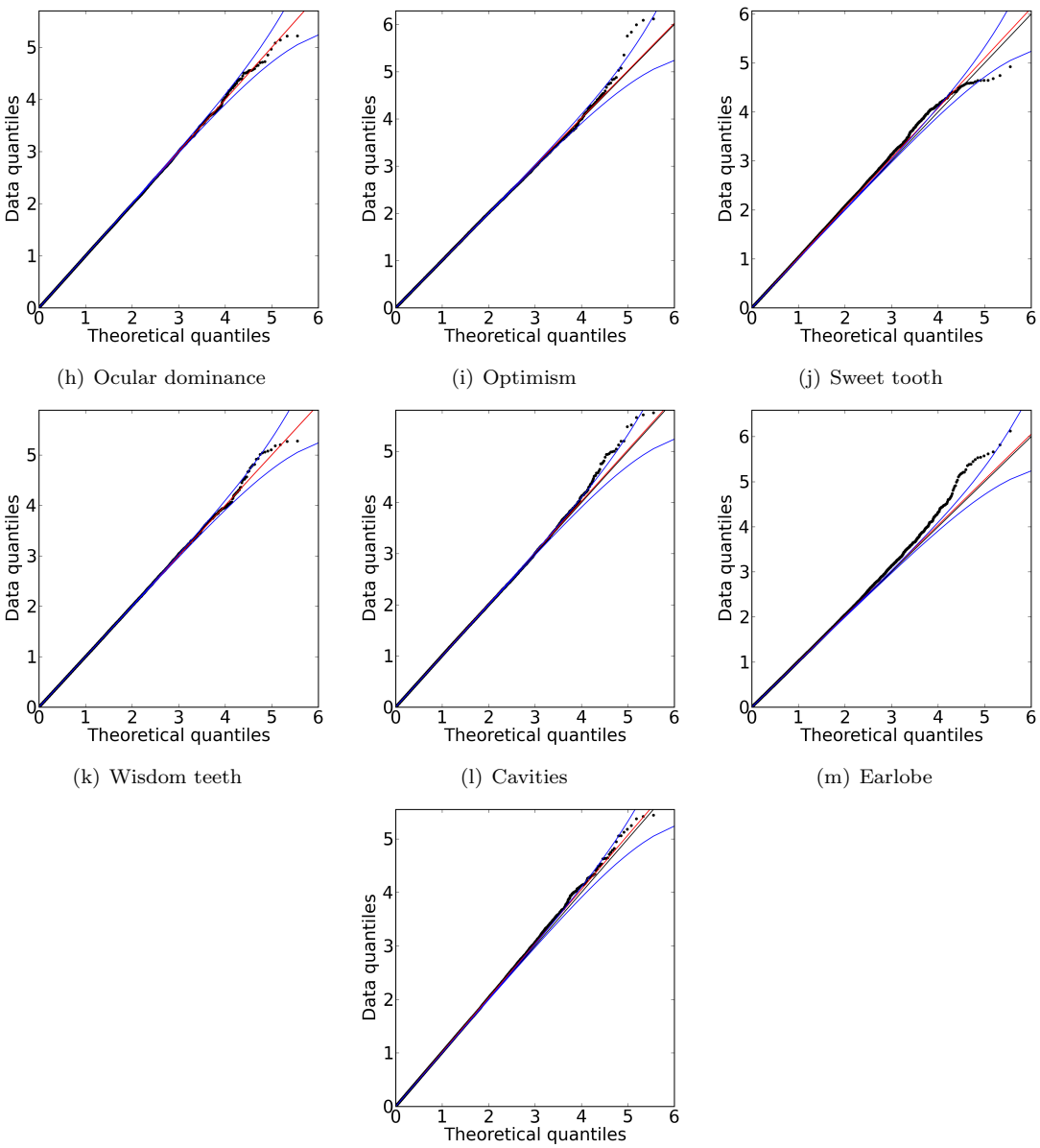

(e) Hand clasp




(f) Handedness




(g) Morningness




(h) Ocular dominance (i) Optimism (j) Sweet tooth

(k) Wisdom teeth (l) Cavities (m) Earlobe

(n) Motion sickness

**Figure 9.** Quantile-quantile plots for traits not included elsewhere.