# **Supplementary Data**

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| **Table e-1** Replication study in African Americans for MS-associated SNPs in Europeans |
| rsID | Chr | GOI | African Americans | White Americans | Literaturesc | Meta-analysis |
| No. (%) of Allelea in | Ancestry-adjustedb | No. (%) of Allelea in | Ancestry-adjustedb | HETd | Global |
| MS | Control | OR [95% CI] | *p* | MS | Control | OR [95% CI] | *p* | OR [95% CI] | *p* | ORe [95% CI] |
| rs3129889 | 6 | *HLA-DRB1* | 175 (7.7) | 193 (4.9) | 1.65 [1.33−2.05] | 5.30E-06 | 282 (25.1) | 86 (9.4) | 3.33 [2.54−4.36] | 3.27E-18 | 2.97 [2.77−3.18] | 3.91E-07 | 2.23 [1.26−3.97] |
| rs7200786 | 16 | *CLEC16A*  | 711 (31.1) | 1045 (26.3) | 1.26 [1.12−1.41] | 6.43E-05 | 537 (47.4) | 439 (47.8) | 0.98 [0.83−1.17] | 0.863  | 1.15 [1.11−1.20] | 0.141  | 1.16 [1.12−1.20] |
| rs1335532 | 1 | *CD58*  | 1257 (55.1) | 1987 (50.5) | 1.21 [1.09−1.34] | 4.41E-04 | 1019 (89.9) | 789 (86.5) | 1.40 [1.07−1.85] | 0.016  | 1.18 [1.12−1.24] | 0.669  | 1.19 [1.13−1.24] |
| rs13333054 | 16 | *IRF8*  | 556 (24.4) | 829 (20.9) | 1.22 [1.08−1.37] | 0.002  | 267 (23.5) | 192 (20.9) | 1.16 [0.94−1.43] | 0.169  | 1.12 [1.08−1.17] | 0.182  | 1.13 [1.09−1.17] |
| rs180515 | 17 | *RPS6KB1*  | 661 (29.4) | 995 (25.8) | 1.20 [1.07−1.35] | 0.002  | 372 (33.3) | 301 (32.7) | 1.03 [0.85−1.24] | 0.764  | 1.05 [0.99−1.12] | 0.047  | 1.08 [1.02−1.14] |
| rs4613763 | 5 | *PTGER4*  | 496 (21.8) | 739 (18.6) | 1.22 [1.07−1.38] | 0.003  | 136 (12.0) | 114 (12.4) | 0.96 [0.74−1.25] | 0.778  | 1.21 [1.15−1.28] | 0.907  | 1.21 [1.15−1.27] |
| rs1800693 | 12 | *TNFRSF1A*  | 904 (40.9) | 1406 (37.1) | 1.17 [1.05−1.30] | 0.004  | 500 (44.5) | 385 (42.6) | 1.08 [0.91−1.29] | 0.388  | 1.12 [1.08−1.16] | 0.447  | 1.12 [1.09−1.16] |
| rs7238078 | 18 | *MALT1*  | 1746 (77.8) | 2931 (74.7) | 1.19 [1.05−1.34] | 0.007  | 862 (76.4) | 681 (75.2) | 1.08 [0.87−1.33] | 0.487  | 1.14 [1.06−1.23] | 0.556  | 1.15 [1.08−1.23] |
| rs669607 | 3 | *No gene*  | 429 (18.8) | 640 (16.1) | 1.21 [1.05−1.38] | 0.007  | 562 (49.6) | 425 (46.3) | 1.14 [0.96−1.36] | 0.140  | 1.15 [1.08−1.23] | 0.510  | 1.16 [1.09−1.23] |
| rs2248359 | 20 | *CYP24A1*  | 894 (39.3) | 1427 (36.1) | 1.14 [1.03−1.27] | 0.013  | 660 (58.1) | 549 (59.9) | 0.93 [0.78−1.11] | 0.409  | 1.11 [1.04−1.19] | 0.675  | 1.12 [1.06−1.18] |
| rs2300603 | 14 | *BATF*  | 2039 (89.2) | 3606 (91.1) | 0.81 [0.68−0.96] | 0.017  | 856 (75.5) | 696 (76.0) | 0.97 [0.79−1.19] | 0.785  | 1.08 [1.01−1.16] | 0.002  | 0.95 [0.71−1.25] |
| rs11129295 | 3 | *EOMES*  | 826 (36.1) | 1318 (33.2) | 1.14 [1.02−1.27] | 0.020  | 495 (43.5) | 344 (37.5) | 1.27 [1.07−1.51] | 0.007  | 1.09 [1.02−1.16] | 0.489  | 1.10 [1.04−1.17] |
| rs4648356 | 1 | *MMEL1*  | 1270 (55.9) | 2073 (53.0) | 1.13 [1.02−1.25] | 0.024  | 797 (70.0) | 609 (66.6) | 1.17 [0.97−1.41] | 0.100  | 1.16 [1.12−1.21] | 0.637  | 1.16 [1.12−1.20] |
| rs12048904 | 1 | *VCAM1*  | 1690 (74.4) | 2829 (71.8) | 1.14 [1.02−1.28] | 0.027  | 467 (41.6) | 366 (40.1) | 1.06 [0.89−1.27] | 0.511  | 1.08 [1.01−1.15] | 0.418  | 1.09 [1.03−1.16] |
| rs13192841 | 6 | *OLIG3*  | 441 (19.3) | 679 (17.1) | 1.16 [1.01−1.32] | 0.032  | 339 (29.8) | 291 (31.7) | 0.92 [0.76−1.11] | 0.363  | 1.10 [1.06−1.15] | 0.457  | 1.10 [1.06−1.15] |
| rs10201872 | 2 | *SP140*  | 239 (10.5) | 354 (8.9) | 1.20 [1.01−1.44] | 0.040  | 207 (18.3) | 165 (17.9) | 1.03 [0.82−1.29] | 0.821  | 1.15 [1.06−1.24] | 0.667  | 1.16 [1.08−1.24] |
| rs2293152 | 17 | *STAT3* | 1948 (85.2) | 3303 (83.4) | 1.15 [1.00−1.33] | 0.054  | 686 (60.5) | 532 (57.8) | 1.12 [0.94−1.33] | 0.220  | 1.22 [1.14−1.32] | 0.470  | 1.21 [1.13−1.29] |
| rs10466829 | 12 | *CLECL1*  | 1517 (66.9) | 2551 (64.5) | 1.11 [1.00−1.24] | 0.057  | 623 (54.8) | 478 (52.0) | 1.12 [0.94−1.33] | 0.199  | 1.12 [1.05−1.19] | 0.888  | 1.12 [1.06−1.18] |
| rs1250542 | 10 | *ZMIZ1* | 511 (22.7) | 808 (20.6) | 1.13 [1.00−1.28] | 0.058  | 382 (34.0) | 324 (35.3) | 0.95 [0.79−1.14] | 0.563  | 1.15 [1.09−1.22] | 0.800  | 1.15 [1.09−1.21] |
| rs1520333 | 8 | *IL7*  | 1502 (65.8) | 2696 (68.1) | 0.90 [0.80−1.00] | 0.058  | 313 (27.7) | 265 (28.8) | 0.94 [0.78−1.14] | 0.548  | 1.11 [1.06−1.15] | 5.39E-04 | 1.01 [0.82−1.24] |
| rs874628 | 19 | *MPV17L2*  | 1837 (81.0) | 3118 (79.1) | 1.12 [0.99−1.27] | 0.081  | 810 (71.8) | 639 (70.1) | 1.09 [0.90−1.32] | 0.384  | 1.07 [1.00−1.14] | 0.525  | 1.08 [1.02−1.15] |
| rs12722489 | 10 | *IL2RA* | 2213 (97.0) | 3811 (96.2) | 1.28 [0.96−1.72] | 0.094  | 991 (87.4) | 779 (85.2) | 1.19 [0.93−1.53] | 0.166  | 1.23 [1.15−1.33] | 0.795  | 1.23 [1.15−1.32] |
| rs4680534 | 3 | *IL12A* | 1067 (46.7) | 1763 (44.5) | 1.09 [0.99−1.21] | 0.095  | 432 (38.1) | 335 (36.4) | 1.07 [0.90−1.28] | 0.435  | 1.12 [1.06−1.18] | 0.640  | 1.11 [1.06−1.17] |
| rs9282641 | 3 | *CD86*  | 2197 (96.7) | 3756 (95.9) | 1.27 [0.96−1.68] | 0.097  | 1038 (92.0) | 825 (90.5) | 1.21 [0.89−1.64] | 0.224  | 1.20 [1.07−1.34] | 0.713  | 1.21 [1.09−1.34] |
| rs140522 | 22 | *SCO2*  | 1122 (49.3) | 2035 (51.4) | 0.92 [0.83−1.02] | 0.116  | 369 (32.5) | 309 (33.6) | 0.95 [0.79−1.15] | 0.604  | 1.12 [1.05−1.20] | 0.002  | 1.02 [0.84−1.24] |
| rs8070463 | 17 | *TBKBP1/TBX21* | 805 (35.4) | 1462 (37.2) | 0.92 [0.83−1.03] | 0.148  | 605 (53.2) | 437 (47.9) | 1.22 [1.03−1.45] | 0.021  | 1.15 [1.10−1.22] | 2.59E-04 | 1.03 [0.83−1.29] |
| rs17066096 | 6 | *IL22RA2*  | 344 (15.2) | 544 (13.9) | 1.11 [0.96−1.28] | 0.170  | 302 (26.8) | 214 (23.6) | 1.20 [0.97−1.48] | 0.094  | 1.14 [1.06−1.22] | 0.744  | 1.13 [1.06−1.21] |
| rs1738074 | 6 | *TAGAP*  | 798 (35.1) | 1314 (33.4) | 1.08 [0.97−1.20] | 0.172  | 674 (59.2) | 503 (54.9) | 1.19 [1.00−1.42] | 0.050  | 1.14 [1.07−1.22] | 0.397  | 1.12 [1.06−1.19] |
| rs9596270 | 13 | *Intergenic* | 2205 (96.5) | 3789 (95.9) | 1.21 [0.92−1.60] | 0.180  | 1058 (93.8) | 844 (92.5) | 1.22 [0.86−1.73] | 0.261  | 1.35 [1.19−1.52] | 0.478  | 1.33 [1.19−1.48] |
| rs6062314 | 20 | *TNFRSF6B* | 1832 (80.6) | 3108 (79.3) | 1.09 [0.95−1.24] | 0.208  | 1051 (92.8) | 836 (92.3) | 1.09 [0.77−1.53] | 0.625  | 1.14 [1.00−1.29] | 0.633  | 1.12 [1.02−1.22] |
| rs2293370 | 3 | *TMEM39A*  | 1841 (81.4) | 3151 (80.1) | 1.09 [0.95−1.24] | 0.222  | 933 (82.7) | 738 (81.6) | 1.07 [0.85−1.35] | 0.537  | 1.16 [1.11−1.22] | 0.388  | 1.15 [1.10−1.20] |
| rs9891119 | 17 | *STAT3*  | 967 (42.9) | 1618 (41.4) | 1.06 [0.96−1.18] | 0.253  | 440 (39.2) | 311 (34.0) | 1.25 [1.04−1.50] | 0.016  | 1.10 [1.06−1.14] | 0.507  | 1.10 [1.06−1.13] |
| rs2283792 | 22 | *MAPK1*  | 1425 (62.4) | 2418 (61.0) | 1.06 [0.96−1.18] | 0.264  | 641 (56.5) | 502 (54.8) | 1.07 [0.90−1.27] | 0.449  | 1.12 [1.05−1.18] | 0.363  | 1.11 [1.05−1.16] |
| rs6074022 | 20 | *CD40* | 170 (7.4) | 266 (6.7) | 1.12 [0.91−1.37] | 0.284  | 336 (29.7) | 222 (24.2) | 1.32 [1.08−1.61] | 0.006  | 1.15 [1.08−1.21] | 0.807  | 1.15 [1.09−1.21] |
| rs11581062 | 1 | *VCAM1*  | 741 (32.5) | 1236 (31.3) | 1.06 [0.95−1.19] | 0.297  | 356 (31.3) | 272 (29.8) | 1.08 [0.89−1.30] | 0.448  | 1.07 [0.99−1.15] | 0.892  | 1.07 [1.00−1.14] |
| rs11810217 | 1 | *EVI5*  | 272 (11.9) | 435 (11.0) | 1.09 [0.93−1.27] | 0.301  | 299 (26.3) | 249 (27.1) | 0.95 [0.78−1.17] | 0.659  | 1.15 [1.11−1.20] | 0.513  | 1.15 [1.10−1.19] |
| rs7191700 | 16 | *TNP2* | 1850 (81.3) | 3174 (80.2) | 1.07 [0.94−1.22] | 0.309  | 779 (68.6) | 617 (67.4) | 1.06 [0.88−1.27] | 0.568  | 1.15 [1.09−1.22] | 0.320  | 1.14 [1.08−1.20] |
| rs7595037 | 2 | *PLEK*  | 1210 (53.4) | 2061 (52.1) | 1.05 [0.95−1.17] | 0.325  | 668 (59.0) | 524 (57.5) | 1.06 [0.89−1.27] | 0.500  | 1.15 [1.08−1.22] | 0.140  | 1.12 [1.07−1.18] |
| rs763361 | 18 | *CD226* | 1558 (68.3) | 2749 (69.5) | 0.95 [0.85−1.06] | 0.345  | 548 (48.3) | 440 (48.0) | 1.01 [0.85−1.20] | 0.901  | 1.06 [1.00−1.12] | 0.084  | 1.04 [0.99−1.09] |
| rs802734 | 6 | *THEMIS*  | 1983 (87.2) | 3401 (86.4) | 1.08 [0.92−1.26] | 0.354  | 818 (73.3) | 635 (71.0) | 1.13 [0.92−1.40] | 0.242  | 1.13 [1.05−1.21] | 0.607  | 1.12 [1.05−1.20] |
| rs4902647 | 14 | *ZFP36L1*  | 1434 (62.9) | 2527 (64.1) | 0.95 [0.85−1.06] | 0.356  | 598 (52.7) | 447 (48.6) | 1.18 [0.99−1.40] | 0.062  | 1.13 [1.07−1.20] | 0.006  | 1.04 [0.88−1.24] |
| rs650258 | 11 | *CD6*  | 1495 (66.5) | 2548 (65.4) | 1.05 [0.94−1.17] | 0.365  | 723 (64.9) | 579 (63.8) | 1.05 [0.87−1.26] | 0.599  | 1.12 [1.08−1.16] | 0.272  | 1.11 [1.08−1.15] |
| rs1077667 | 19 | *TNFSF14*  | 2039 (89.4) | 3505 (88.7) | 1.07 [0.91−1.26] | 0.416  | 940 (83.0) | 758 (82.8) | 1.02 [0.80−1.30] | 0.852  | 1.14 [1.03−1.27] | 0.521  | 1.12 [1.02−1.22] |
| rs630923 | 11 | *CXCR5*  | 2209 (96.6) | 3822 (96.3) | 1.12 [0.84−1.48] | 0.446  | 964 (85.2) | 761 (82.7) | 1.19 [0.94−1.50] | 0.144  | 1.13 [1.03−1.24] | 0.953  | 1.13 [1.03−1.23] |
| rs6897932 | 5 | *IL7R*  | 2044 (89.4) | 3520 (88.9) | 1.06 [0.90−1.25] | 0.512  | 891 (78.6) | 671 (72.9) | 1.38 [1.12−1.69] | 0.003  | 1.11 [1.06−1.16] | 0.596  | 1.11 [1.06−1.16] |
| rs7592330 | 2 | *PLEK* | 1137 (49.9) | 1937 (49.0) | 1.03 [0.93−1.15] | 0.515  | 670 (59.0) | 528 (57.4) | 1.06 [0.89−1.27] | 0.492  | 1.15 [1.09−1.22] | 0.072  | 1.12 [1.07−1.18] |
| rs8112449 | 19 | *TYK2*  | 1613 (71.3) | 2792 (70.5) | 1.04 [0.93−1.16] | 0.524  | 756 (66.7) | 630 (68.9) | 0.90 [0.74−1.08] | 0.265  | 1.10 [1.06−1.14] | 0.345  | 1.09 [1.06−1.13] |
| rs6718520 | 2 | *THADA* | 324 (14.2) | 584 (14.7) | 0.95 [0.82−1.11] | 0.542  | 535 (47.4) | 407 (44.5) | 1.13 [0.95−1.36] | 0.171  | 1.17 [1.11−1.23] | 0.011  | 1.15 [1.09−1.20] |
| rs354031 | 7 | *ZNF767*  | 417 (18.5) | 696 (17.8) | 1.04 [0.91−1.19] | 0.545  | 273 (24.6) | 251 (27.7) | 0.86 [0.70−1.04] | 0.127  | 1.14 [1.07−1.22] | 0.228  | 1.12 [1.06−1.19] |
| rs3118470 | 10 | *IL2RA*  | 374 (16.4) | 624 (15.8) | 1.04 [0.91−1.20] | 0.555  | 371 (33.6) | 290 (31.9) | 1.08 [0.90−1.30] | 0.407  | 1.12 [1.08−1.17] | 0.313  | 1.11 [1.07−1.16] |
| rs7923837 | 10 | *HHEX*  | 2068 (90.7) | 3575 (90.3) | 1.06 [0.88−1.26] | 0.556  | 712 (62.8) | 584 (63.6) | 0.96 [0.80−1.16] | 0.695  | 1.09 [1.03−1.16] | 0.772  | 1.09 [1.03−1.15] |
| rs7090512 | 10 | *IL2RA*  | 942 (41.4) | 1608 (40.8) | 1.03 [0.92−1.14] | 0.606  | 372 (33.0) | 278 (30.8) | 1.11 [0.91−1.34] | 0.302  | 1.21 [1.13−1.31] | 0.015  | 1.15 [1.08−1.22] |
| rs17174870 | 2 | *MERTK*  | 1847 (80.9) | 3185 (80.3) | 1.03 [0.91−1.18] | 0.615  | 891 (78.4) | 687 (74.7) | 1.22 [1.00−1.49] | 0.051  | 1.15 [1.06−1.23] | 0.149  | 1.12 [1.05−1.19] |
| rs11154801 | 6 | *MYB*  | 284 (12.5) | 508 (12.9) | 0.96 [0.82−1.12] | 0.622  | 416 (36.7) | 315 (34.5) | 1.10 [0.92−1.32] | 0.304  | 1.09 [1.02−1.16] | 0.140  | 1.07 [1.01−1.14] |
| rs10866713 | 5 | *IL12B* | 337 (14.8) | 603 (15.2) | 0.96 [0.84−1.11] | 0.623  | 257 (22.7) | 199 (21.6) | 1.07 [0.86−1.32] | 0.548  | 1.17 [1.10−1.25] | 0.011  | 1.13 [1.07−1.20] |
| rs7089861 | 10 | *IL2RA* | 1410 (62.5) | 2408 (61.9) | 1.03 [0.92−1.14] | 0.645  | 852 (75.5) | 666 (72.7) | 1.16 [0.95−1.42] | 0.145  | 1.19 [1.11−1.27] | 0.025  | 1.14 [1.08−1.21] |
| rs2019960 | 8 | *PVT1*  | 929 (40.6) | 1584 (40.1) | 1.02 [0.92−1.14] | 0.660  | 263 (23.2) | 189 (20.5) | 1.16 [0.94−1.43] | 0.158  | 1.16 [1.08−1.24] | 0.048  | 1.12 [1.05−1.18] |
| rs4285028 | 3 | *CD86*  | 2057 (90.1) | 3557 (89.7) | 1.04 [0.87−1.23] | 0.662  | 812 (71.5) | 649 (70.5) | 1.04 [0.87−1.26] | 0.650  | 1.09 [1.02−1.16] | 0.618  | 1.08 [1.02−1.15] |
| rs12212193 | 6 | *BACH2*  | 742 (32.7) | 1275 (32.2) | 1.02 [0.92−1.14] | 0.683  | 529 (46.6) | 409 (44.7) | 1.08 [0.90−1.28] | 0.410  | 1.08 [1.02−1.15] | 0.362  | 1.07 [1.01−1.12] |
| rs1132200 | 3 | *TMEM39A* | 2212 (96.7) | 3818 (96.5) | 1.06 [0.80−1.40] | 0.706  | 968 (85.2) | 776 (84.9) | 1.02 [0.80−1.30] | 0.860  | 1.11 [1.03−1.19] | 0.755  | 1.11 [1.03−1.19] |
| rs2744148 | 16 | *SOX8*  | 349 (15.3) | 592 (15.0) | 1.03 [0.89−1.19] | 0.708  | 220 (19.3) | 150 (16.4) | 1.22 [0.97−1.54] | 0.083  | 1.12 [1.03−1.22] | 0.329  | 1.10 [1.02−1.18] |
| rs12466022 | 2 | *No gene*  | 1454 (64.2) | 2516 (63.8) | 1.02 [0.91−1.14] | 0.737  | 832 (73.5) | 661 (72.2) | 1.07 [0.88−1.30] | 0.501  | 1.16 [1.08−1.24] | 0.057  | 1.12 [1.06−1.19] |
| rs2243123 | 3 | *IL12A*  | 426 (18.7) | 726 (18.4) | 1.02 [0.89−1.17] | 0.775  | 295 (26.3) | 269 (29.3) | 0.86 [0.71−1.04] | 0.129  | 1.09 [1.05−1.14] | 0.362  | 1.08 [1.04−1.13] |
| rs7522462 | 1 | *KIF21B*  | 1951 (86.2) | 3370 (85.9) | 1.02 [0.88−1.18] | 0.779  | 875 (77.4) | 659 (72.4) | 1.30 [1.06−1.59] | 0.011  | 1.11 [1.06−1.15] | 0.276  | 1.10 [1.06−1.15] |
| rs2546890 | 5 | *IL12B*  | 902 (39.6) | 1578 (39.9) | 0.99 [0.89−1.09] | 0.797  | 610 (53.6) | 440 (47.8) | 1.27 [1.06−1.51] | 0.008  | 1.15 [1.09−1.22] | 0.011  | 1.11 [1.06−1.17] |
| rs949143 | 12 | *MPHOSPH9*  | 1862 (81.9) | 3230 (81.7) | 1.02 [0.89−1.16] | 0.825  | 369 (32.5) | 293 (32.1) | 1.02 [0.85−1.22] | 0.862  | 1.08 [1.04−1.12] | 0.415  | 1.08 [1.04−1.11] |
| rs1323292 | 1 | *RGS1*  | 2164 (94.9) | 3754 (94.8) | 1.03 [0.81−1.30] | 0.828  | 945 (83.3) | 754 (82.1) | 1.09 [0.86−1.37] | 0.484  | 1.12 [1.07−1.18] | 0.497  | 1.12 [1.06−1.17] |
| rs228614 | 4 | *NFKB1*  | 1008 (44.4) | 1752 (44.6) | 0.99 [0.89−1.10] | 0.881  | 633 (56.4) | 476 (52.3) | 1.19 [0.99−1.42] | 0.061  | 1.09 [1.03−1.16] | 0.120  | 1.07 [1.01−1.12] |
| rs10411936 | 19 | *EPS15L1* | 1139 (50.2) | 1976 (50.4) | 0.99 [0.90−1.10] | 0.893  | 348 (30.7) | 239 (26.1) | 1.26 [1.03−1.53] | 0.021  | 1.16 [1.10−1.23] | 0.007  | 1.08 [0.92−1.26] |
| rs2303759 | 19 | *DKKL1*  | 680 (29.8) | 1172 (29.7) | 1.01 [0.90−1.12] | 0.898  | 303 (26.7) | 250 (27.2) | 0.97 [0.80−1.18] | 0.768  | 1.11 [1.03−1.19] | 0.158  | 1.08 [1.02−1.15] |
| rs2119704 | 14 | *GALC*  | 1852 (81.2) | 3219 (81.2) | 0.99 [0.87−1.13] | 0.920  | 1064 (93.5) | 854 (92.8) | 1.11 [0.79−1.58] | 0.544  | 1.12 [1.00−1.26] | 0.166  | 1.06 [0.97−1.16] |
| rs2028597 | 3 | *CBLB*  | 2177 (96.6) | 3775 (96.5) | 1.01 [0.77−1.34] | 0.926  | 1041 (92.5) | 836 (92.1) | 1.05 [0.76−1.45] | 0.751  | 1.13 [1.06−1.21] | 0.440  | 1.12 [1.05−1.20] |
| rs4410871 | 8 | *MYC*  | 1897 (83.1) | 3297 (83.2) | 1.00 [0.87−1.14] | 0.972  | 853 (75.1) | 645 (70.1) | 1.28 [1.05−1.55] | 0.012  | 1.09 [1.02−1.17] | 0.265  | 1.07 [1.01−1.14] |
| rs12368653 | 12 | *CYP27B1*  | 674 (29.7) | 1166 (29.6) | 1.00 [0.89−1.12] | 0.980  | 602 (53.0) | 459 (49.9) | 1.13 [0.95−1.34] | 0.163  | 1.11 [1.06−1.15] | 0.094  | 1.10 [1.06−1.14] |
| rs2523393 | 6 | *HLA-B* | 1583 (69.4) | 2749 (69.5) | 1.00 [0.89−1.12] | 0.999  | 700 (61.5) | 491 (53.5) | 1.38 [1.16−1.65] | 3.17E-04 | 1.21 [1.15−1.28] | 0.003  | 1.11 [0.92−1.33] |
| AIM = ancestry informative marker; Chr = chromosome; GOI = Gene of interest; HET = heterogeneity; MS = multiple sclerosis; OR = odds ratio; PC = principal component; SNP = single nucleotide polymorphism. |
| a The Allele frequency of the one reported to be a risk allele in Europeans. |
| b Adjusted by PC1 values. For those individuals without PC1 values due to missing genotype for at least one AIMSNP, the mean PC1 values of the individual’s population were applied. |
| c Ref.8, 11 |
| d Cochrane Heterogeneity Q test. |
| e For SNPs of which *p* values of Cochrane Heterogeneity Q test were lower than 0.01, a random effect model was applied to calculate the global odds ratio and 95% CIs, otherwise a fixed effect model was applied.  |

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| **Table e-2** Heterogeneity test of the effect size of *HLA-DRB1\*15* alleles between African American MS and white American MS |
| Allele | African Americans | White Americans | Meta-Analysis |
| MS(n = 941) | Control (n = 1,594) | OR | 95% CI | *p* | MS(n = 551) | Control(n = 458) | OR | 95% CI | *p* | HETb *p* | Globalc |
| OR | 95% CI |
| *DRB1\*15* | 383 (20.4%) | 487 (15.3%) | 1.41  | 1.22−1.64 | 4.62E-06 | 297 (27.0%) | 104 (11.4%) | 2.93 | 2.28−3.78 | 7.19E-17 | 1.65E-06 | 2.02 | 0.99−4.13 |
|  *\*15:01* | 124 (6.6%) | 112 (3.5%) | 1.96  | 1.50−2.56 | 6.60E-07 | 0.035 | 2.43 | 2.02−2.93 |
|  *\*15:03* | 252 (13.4%) | 369 (11.6%) | 1.20  | 1.00−1.43 | 0.050 | − | − | − | − | − | − | − | − |
| HET = heterogeneity; MS = multiple sclerosis; OR = odds ratio; PC = principal component.a Multivariate logistic regression model was applied adjusting with PC1 values.b Cochrane Heterogeneity Q test.c For SNPs of which *p* values of Cochrane Heterogeneity Q test were lower than 0.01, a random effect model was applied to calculate the global ORs and 95% CIs, otherwise a fixed effect model was applied. |

#  **Figure e-1**

**Population stratification for genetic ancestry using 43 AIMSNPs**

**(A)** Scree plot of the first ten principal components. There was a huge gap between principal component (PC) 1 and PC2. **(B)** Biplot of the 43 AIMSNPs on the dimension of PC1 and PC2.Seven SNPs on Chromosome 6 were the main contributors for PC2, five of which were in the extended MHC region. **(C, D)** Comparison of PC values, **(C)** PC1 and **(D)** PC2, for European ancestry in different population and affectation status. Uncorrected *p* values for the Wilcoxon Rank Sum test were shown in between the two subgroups. PC1 values differentiated the African American (AA) and white American (WA) groups and PC2 did not differentiate the two groups but a trend of difference of PC2 was observed between WA cases and WA controls. K-W = Kruskal-Wallis test.

