Table S19: GO process analysis of ranked signals from YRI population using the T_2 test statistic.

Description	p-value	Enrichment	Genes
Biological adhesion	2.9×10^{-13}	2.1	*ADAM12*, *AMTN*, *ANGPT1*, *BMPR1B*, *CADM2*, *CD84*, *CDH10*, *CDH13*, *CDH23*, *CDH4*, *CDH9*, *CDON*, *CDSN*, *CELSR2*, *CFDP1*, *CLCA2*, *CLDN10*, *CLDN14*, *CLDN23*, *CLSTN2*, *CNTN1*, *CNTN4*, *CNTN5*, *CNTN6*, *CNTNAP2*, *CNTNAP4*, *CNTNAP5*, *COL11A1*, *COL2A1*, *COL4A3*, *COL5A1*, *CTNNA2*, *CTNNA3*, *CTNND2*, *CYFIP2*, *DAB1*, *DCHS2*, *DDR2*, *DSC1*, *DSC3*, *DSCAM*, *DSG1*, *EMR1*, *EMR2*, *EPHA3*, *F5*, *FAT2*, *FAT3*, *GPNMB*, *HABP2*, *IGFBP7*, *IGSF5*, *ITGA1*, *ITGA11*, *ITGA2*, *ITGA8*, *ITGA9*, *ITGAE*, *ITGB3*, *ITGB5*, *ITGBL1*, *LAMA2*, *LAMA4*, *LAMC1*, *LAMC2*, *LOXL2*, *LPP*, *MAEA*, *MAGI1*, *MTSS1*, *MYH9*, *NCAM2*, *NELL2*, *NFASC*, *NID2*, *NLGN1*, *NRCAM*, *NRXN1*, *NTM*, *ODZ3*, *OPCML*, *PARVA*, *PCDH15*, *PCDHA1*, *PCDHA10*, *PCDHA11*, *PCDHA12*, *PCDHA13*, *PCDHA2*, *PCDHA3*, *PCDHA4*, *PCDHA5*, *PCDHA6*, *PCDHA7*, *PCDHA8*, *PCDHA9*, *PCDHAC1*, *PKD1L1*, *PKHD1*, *PLEKHA7*, *PPFIBP1*, *PRKCA*, *PRKCE*, *PTPRD*, *PTPRM*, *PTPRT*, *RELN*, *ROBO2*, *RPSA*, *SCARB1*, *SDK1*, *SEMA5A*, *SIRPA*, *SMAD6*, *SPON1*, *SYK*, *TEK*, *TNN*, *TNR*, *VCL*, *VNN1*, *VWF*
Cell adhesion	2.9×10^{-13}	2.1	*ADAM12*, *AMTN*, *ANGPT1*, *BMPR1B*, *CADM2*, *CD84*, *CDH10*, *CDH13*, *CDH23*, *CDH4*, *CDH9*, *CDON*, *CDSN*, *CELSR2*, *CFDP1*, *CLCA2*, *CLDN10*, *CLDN14*, *CLDN23*, *CLSTN2*, *CNTN1*, *CNTN4*, *CNTN5*, *CNTN6*, *CNTNAP2*, *CNTNAP4*, *CNTNAP5*, *COL11A1*, *COL2A1*, *COL4A3*, *COL5A1*, *CTNNA2*, *CTNNA3*, *CTNND2*, *CYFIP2*, *DAB1*, *DCHS2*, *DDR2*, *DSC1*, *DSC3*, *DSCAM*, *DSG1*, *EMR1*, *EMR2*, *EPHA3*, *F5*, *FAT2*, *FAT3*, *GPNMB*, *HABP2*, *IGFBP7*, *IGSF5*, *ITGA1*, *ITGA11*, *ITGA2*, *ITGA8*, *ITGA9*, *ITGAE*, *ITGB3*, *ITGB5*, *ITGBL1*, *LAMA2*, *LAMA4*, *LAMC1*, *LAMC2*, *LOXL2*, *LPP*, *MAEA*, *MAGI1*, *MTSS1*, *MYH9*, *NCAM2*, *NELL2*, *NFASC*, *NID2*, *NLGN1*, *NRCAM*, *NRXN1*, *NTM*, *ODZ3*, *OPCML*, *PARVA*, *PCDH15*, *PCDHA1*, *PCDHA10*, *PCDHA11*, *PCDHA12*, *PCDHA13*, *PCDHA2*, *PCDHA3*, *PCDHA4*, *PCDHA5*, *PCDHA6*, *PCDHA7*, *PCDHA8*, *PCDHA9*, *PCDHAC1*, *PKD1L1*, *PKHD1*, *PLEKHA7*, *PPFIBP1*, *PRKCA*, *PRKCE*, *PTPRD*, *PTPRM*, *PTPRT*, *RELN*, *ROBO2*, *RPSA*, *SCARB1*, *SDK1*, *SEMA5A*, *SIRPA*, *SMAD6*, *SPON1*, *SYK*, *TEK*, *TNN*, *TNR*, *VCL*, *VNN1*, *VWF*
Cell-cell adhesion	6.7×10^{-11}	2.6	*BMPR1B*, *CDH10*, *CDH13*, *CDH23*, *CDH4*, *CDH9*, *CDSN*, *CLDN14*, *CLDN23*, *CLSTN2*, *CNTN4*, *COL11A1*, *COL2A1*, *CTNNA2*, *CTNNA3*, *CTNND2*, *CYFIP2*, *DAB1*, *DCHS2*, *DSC1*, *DSC3*, *DSG1*, *FAT2*, *FAT3*, *IGSF5*, *ITGA8*, *MYH9*, *NCAM2*, *NLGN1*, *NRCAM*, *NRXN1*, *ODZ3*, *PARVA*, *PCDH15*, *PCDHA1*, *PCDHA10*, *PCDHA11*, *PCDHA12*, *PCDHA13*, *PCDHA2*, *PCDHA3*, *PCDHA4*, *PCDHA5*, *PCDHA6*, *PCDHA7*, *PCDHA8*, *PCDHA9*, *PCDHAC1*, *PKD1L1*, *PKHD1*, *PLEKHA7*, *PTPRD*, *PTPRM*, *PTPRT*, *ROBO2*, *SYK*, *TEK*, *TNR*, *VCL*, *VNN1*
Homophilic cell adhesion	1.4×10^{-8}	3.1	*CD84*, *CDH10*, *CDH13*, *CDH23*, *CDH4*, *CDH9*, *CELSR2*, *CLSTN2*, *DCHS2*, *DSC1*, *DSC3*, *DSG1*, *FAT2*, *FAT3*, *ODZ3*, *PCDH15*, *PCDHA1*, *PCDHA10*, *PCDHA11*, *PCDHA12*, *PCDHA13*, *PCDHA2*, *PCDHA3*, *PCDHA4*, *PCDHA5*, *PCDHA6*, *PCDHA7*, *PCDHA8*, *PCDHA9*, *PCDHAC1*, *PTPRM*, *PTPRT*, *ROBO2*
Interferon-gamma-mediated signaling pathway	3.4×10^{-8}	13.9	*HLA-A*, *HLA-B*, *HLA-C*, *HLA-DPA1*, *HLA-DPB1*, *HLA-DQA1*, *HLA-DQA2*, *HLA-DQB1*, *HLA-DRB1*, *HLA-DRB5*
Cellular response to interferon-gamma	2.9×10^{-7}	11.2	*HLA-A*, *HLA-B*, *HLA-C*, *HLA-DPA1*, *HLA-DPB1*, *HLA-DQA1*, *HLA-DQA2*, *HLA-DQB1*, *HLA-DRB1*, *HLA-DRB5*
Detection of bacterium	6.1×10^{-7}	40.0	*HLA-A*, *HLA-B*, *HLA-DRB1*, *HLA-DRB5*, *PGLYRP4*
Axon guidance	6.8×10^{-7}	2.0	*ABLIM1*, *ABLIM3*, *ANK2*, *ANK3*, *BMPR1B*, *CACNA1C*, *CAP1*, *CAP2*, *CDH4*, *CNTN1*, *CNTN2*, *CNTN4*, *CNTN6*, *COL2A1*, *COL4A1*, *COL4A2*, *COL4A3*, *COL4A4*, *COL5A1*, *DCC*, *DOCK1*, *DPYSL2*, *DPYSL3*, *EGFR*, *ETV1*, *EXT1*, *ITGA1*, *ITGA2*, *ITGA9*, *ITGB3*, *LAMA1*, *LAMA2*, *LAMC1*, *LHX4*, *MYH14*, *MYH9*, *MYO10*, *NFASC*, *NRCAM*, *NRP1*, *NRXN1*, *NRXN3*, *NTN1*, *NTN4*, *PLXNA4*, *PTPRM*, *PTPRO*, *RELN*, *ROBO2*, *RPS6KA2*, *SCN3B*, *SEMA3A*, *SEMA3E*, *SEMA5A*, *SEMA6D*, *SH3GL2*, *SLIT3*, *SPTB*, *TNR*, *TRPC4*, *TRPC6*, *UNC5C*, *UNC5D*, *VAV2*, *WNT3*
Regulation of small GTPase mediated signal transduction	1.5×10^{-6}	2.2	*ABCA1*, *ADRA1A*, *ALS2*, *ARHGAP15*, *ARHGAP22*, *ARHGAP24*, *ARHGAP25*, *ARHGAP26*, *ARHGAP28*, *ARHGAP44*, *ARHGAP8*, *ARHGEF18*, *BCR*, *BNIP2*, *CDC42BPA*, *CDON*, *CHN2*, *DEPDC7*, *DGKI*, *DLC1*, *FAM13A*, *FLOT1*, *IQSEC1*, *KALRN*, *KANK1*, *MCF2L2*, *MYO9B*, *NOTCH2*, *PLEKHG1*, *PLEKHG4B*, *PSD3*, *RAPGEF4*, *RASGEF1C*, *RELN*, *RGL1*, *SPATA13*, *SRGAP3*, *STARD13*, *TAGAP*, *TIAM1*, *TIAM2*, *VAV1*, *VAV2*, *VAV3*
Response to interferon-gamma	1.9×10^{-6}	9.2	*HLA-A*, *HLA-B*, *HLA-C*, *HLA-DPA1*, *HLA-DPB1*, *HLA-DQA1*, *HLA-DQA2*, *HLA-DQB1*, *HLA-DRB1*, *HLA-DRB5*
Antigen processing and presentation of peptide antigen	2.8×10^{-6}	6.2	*HLA-A*, *HLA-B*, *HLA-C*, *HLA-DPA1*, *HLA-DPB1*, *HLA-DQA1*, *HLA-DQA2*, *HLA-DQB1*, *HLA-DRB1*, *HLA-DRB5*, *MARCH1*, *TAP2*

GO categories in which false discovery rate is less than 0.01

Table S19 continued.

Description	p-value	Enrichment	Genes
Protein localization to membrane	6.0×10^{-6}	4.2	*ANK2*, *ANK3*, *CACNA1A*, *CAPN3*, *CPE*, *DLG2*, *FLOT1*, *GRIK2*, *MAGI2*, *MYO5A*, *NLGN1*, *NRXN1*, *RAMP3*, *RELN*, *SCN3B*, *SCP2*
Antigen processing and presentation of exogenous peptide antigen	1.0×10^{-5}	6.1	*HLA-A*, *HLA-B*, *HLA-C*, *HLA-DPA1*, *HLA-DPB1*, *HLA-DQA1*, *HLA-DQA2*, *HLA-DQB1*, *HLA-DRB1*, *HLA-DRB5*, *TAP2*
Antigen processing and presentation of exogenous antigen	1.1×10^{-5}	6.0	*HLA-A*, *HLA-B*, *HLA-C*, *HLA-DPA1*, *HLA-DPB1*, *HLA-DQA1*, *HLA-DQA2*, *HLA-DQB1*, *HLA-DRB1*, *HLA-DRB5*, *TAP2*
Regulation of cell morphogenesis	1.1×10^{-5}	1.9	*ARAP1*, *ARHGAP15*, *ARHGEF18*, *ATP10A*, *CACNA1A*, *CCL24*, *CDH4*, *CFDP1*, *CIT*, *CNTN2*, *DAB1*, *DCC*, *DLC1*, *DSCAM*, *EPHA3*, *FGD4*, *FGD5*, *FXN*, *GAS2*, *GAS7*, *KANK1*, *LIMD1*, *LRP8*, *LRRC4C*, *MBP*, *MYH14*, *MYH9*, *MYO10*, *NEDD4*, *NRCAM*, *NRP1*, *NTN1*, *NTRK2*, *NTRK3*, *PALM2*, *PALMD*, *PDLIM5*, *PDZD8*, *PLXNA4*, *PPP2CA*, *PTPRD*, *PTPRO*, *RELN*, *ROBO2*, *RUFY3*, *SEMA3A*, *SEMA3E*, *SHROOM3*, *TBCCD1*, *TIAM1*, *TNR*, *TTC3*, *WDPCP*, *WNT3*, *WWTR1*, *XYLT1*
Antigen processing and presentation	1.3×10^{-5}	5.5	*HLA-A*, *HLA-B*, *HLA-C*, *HLA-DPA1*, *HLA-DPB1*, *HLA-DQA1*, *HLA-DQA2*, *HLA-DQB1*, *HLA-DRB1*, *HLA-DRB5*, *MARCH1*, *TAP2*
Regulation of neuron projection development	1.3×10^{-5}	2.1	*CACNA1A*, *CCDC88A*, *CDH4*, *CIT*, *CNTN2*, *DAB1*, *DCC*, *DISC1*, *DPYSL3*, *DSCAM*, *EPHA3*, *FXN*, *HAP1*, *KALRN*, *KANK1*, *KIAA0319*, *LRP8*, *LRRC4C*, *MBP*, *NEDD4*, *NLGN1*, *NRCAM*, *NRP1*, *NTM*, *NTN1*, *NTRK2*, *NTRK3*, *ODZ3*, *PDLIM5*, *PLXNA4*, *PRKD1*, *PTPRD*, *PTPRO*, *RAPGEF4*, *RELN*, *ROBO2*, *RUFY3*, *SEMA3A*, *SERPINE2*, *TIAM1*, *TNR*, *WNT3*, *XYLT1*

GO categories in which false discovery rate is less than 0.01.