Supplementary Table S1. Suggestive ($P<1\times10^{-6}$) risk variants for multiple myeloma in AA population.

SNP	Position	Alleles risk|ref	Meta					Set1			Set2		
			RAF case	RAF control	OR(95%CI)[a]	P-value	P_{Het}[b]	OR(95%CI)[a]	P-value	Imputation r^2	OR(95%CI)[a]	P-value	Imputation r^2
rs266375	15:67228085	C|T	0.26	0.23	1.32(1.19,1.46)	1.45×10^{-7}	0.43	1.36(1.20,1.54)	2.17×10^{-6}	0.58	1.24(1.04,1.49)	0.02	0.83
rs2047077	12:66887206	G|C	0.06	0.05	1.66(1.37,2.01)	2.42×10^{-7}	0.14	1.52(1.22 ,1.9)	1.97×10^{-4}	0.68	2.13(1.45,3.12)	1.07×10^{-4}	0.90
rs10457096	6:156265122	G|A	0.03	0.02	2.06(1.56,2.73)	3.26×10^{-7}	0.97	2.07(1.49,2.88)	1.39×10^{-5}	0.50	2.05(1.21,3.45)	7.27×10^{-3}	0.75
rs13296848	9:701529	C|T	0.33	0.29	1.25(1.15,1.36)	3.44×10^{-7}	0.01	1.16(1.05,1.28)	4.55×10^{-3}	0.82	1.5(1.28,1.76)	5.51×10^{-7}	0.93
rs4913513	12:66881488	G|A	0.06	0.05	1.64(1.36,1.99)	3.57×10^{-7}	0.12	1.51(1.21,1.88)	2.89×10^{-4}	0.69	2.13(1.45,3.11)	1.00×10^{-4}	0.91
rs117284313	12:66880343	A|G	0.06	0.05	1.64(1.35,1.99)	3.99×10^{-7}	0.12	1.50(1.20,1.87)	3.13×10^{-4}	0.69	2.12(1.45,3.11)	1.02×10^{-4}	0.91
rs11176202	12:66858679	A|T	0.05	0.04	1.66(1.36,2.02)	4.52×10^{-7}	0.22	1.55(1.23,1.94)	1.85×10^{-4}	0.66	2.05(1.39,3.04)	3.13×10^{-4}	0.90
rs80227918	12:66878336	C|T	0.06	0.05	1.63(1.35,1.98)	4.77×10^{-7}	0.12	1.50(1.20,1.87)	3.59×10^{-4}	0.69	2.12(1.45,3.11)	1.04×10^{-4}	0.91
rs12369857	12:66865653	A|G	0.04	0.03	1.76(1.41,2.19)	5.58×10^{-7}	0.15	1.59(1.23,2.06)	3.90×10^{-4}	0.66	2.30(1.50,3.53)	1.36×10^{-4}	0.89
rs28362345	6:31165836	T|C	0.74	0.70	1.24(1.14,1.34)	5.90×10^{-7}	0.59	1.25(1.14,1.38)	6.19×10^{-6}	1.00	1.19(1.02,1.39)	0.03	1.00
rs28362342	6:31165438	T|G	0.74	0.70	1.23(1.14,1.34)	6.23×10^{-7}	0.61	1.25(1.14,1.38)	6.76×10^{-6}	1.00	1.19(1.02,1.39)	0.03	1.00
rs114301391	5:77208230	T|C	0.02	0.01	2.37(1.69,3.34)	7.21×10^{-7}	0.85	2.31(1.51,3.54)	1.09×10^{-4}	0.69	2.48(1.40,4.41)	1.92×10^{-3}	0.86
rs12194664	6:156260851	T|C	0.03	0.02	2.01(1.52,2.66)	8.49×10^{-7}	0.96	2.02(1.46,2.80)	2.53×10^{-5}	0.50	1.99(1.17,3.37)	0.01	0.76
rs12366841	12:66865701	G|A	0.06	0.05	1.62(1.34,1.96)	9.06×10^{-7}	0.11	1.48(1.18,1.84)	6.12×10^{-4}	0.68	2.13(1.45,3.11)	1.07×10^{-4}	0.91
rs7034061	9:38443792	T|G	0.15	0.13	1.32(1.18,1.48)	9.17×10^{-7}	1.00	1.32(1.16,1.51)	3.54×10^{-5}	0.83	1.33(1.08,1.63)	8.18×10^{-3}	0.95

[a]Odds rations (ORs) were adjusted for age, sex and the first 10 principle components from the PCA analysis.

[b]P_{het} was P-value for the heterogeneity test in meta-analysis of the two sets.

Supplementary Table S2. Local African ancestry that were significantly associated with AA MM risk in both case-only analysis and case-control analysis in chromosome 2 (Meta *P*-value<1×10^{-5}).

SNP	Position	Case-only		Case-control	
		OR(95%CI)[a]	P-value	OR(95%CI)[b]	P-value
rs2592781	23185972	0.97(0.96, 0.98)	6.62×10^{-6}	0.97(0.96, 0.98)	5.93×10^{-6}
rs2681019	23187504	0.97(0.96, 0.98)	6.62×10^{-6}	0.97(0.96, 0.98)	5.93×10^{-6}
rs2592774	23192909	0.97(0.96, 0.98)	6.62×10^{-6}	0.97(0.96, 0.98)	5.93×10^{-6}
rs12474212	23197435	0.97(0.96, 0.98)	6.62×10^{-6}	0.97(0.96, 0.98)	5.93×10^{-6}
rs1446877	23216262	0.97(0.96, 0.98)	6.62×10^{-6}	0.97(0.96, 0.98)	5.93×10^{-6}
rs17044554	23218255	0.97(0.96, 0.98)	6.62×10^{-6}	0.97(0.96, 0.98)	5.93×10^{-6}
rs7581165	23872765	0.97(0.96, 0.98)	9.43×10^{-6}	0.97(0.96, 0.98)	5.93×10^{-6}
rs1822300	24724785	0.97(0.96, 0.98)	3.84×10^{-6}	0.97(0.96, 0.98)	9.42×10^{-6}
rs11125627	24725464	0.97(0.96, 0.98)	3.84×10^{-6}	0.97(0.96, 0.98)	9.42×10^{-6}
rs7598617	24784168	0.97(0.96, 0.98)	3.84×10^{-6}	0.97(0.96, 0.98)	9.42×10^{-6}
rs995647	24810255	0.97(0.96, 0.98)	3.84×10^{-6}	0.97(0.96, 0.98)	9.42×10^{-6}
rs10208038	25032151	0.97(0.96, 0.98)	3.84×10^{-6}	0.97(0.96, 0.98)	9.42×10^{-6}
rs4665273	25046355	0.97(0.96, 0.98)	3.84×10^{-6}	0.97(0.96, 0.98)	9.42×10^{-6}
rs6760328	25077991	0.97(0.96, 0.98)	3.84×10^{-6}	0.97(0.96, 0.98)	9.42×10^{-6}
rs6726261	25153986	0.97(0.96, 0.98)	3.84×10^{-6}	0.97(0.96, 0.98)	9.42×10^{-6}
rs1172294	25169200	0.97(0.96, 0.98)	3.84×10^{-6}	0.97(0.96, 0.98)	9.42×10^{-6}
rs6749526	25202668	0.97(0.96, 0.98)	3.84×10^{-6}	0.97(0.96, 0.98)	9.42×10^{-6}
rs1982200	25205427	0.97(0.96, 0.98)	3.84×10^{-6}	0.97(0.96, 0.98)	9.42×10^{-6}
rs893589	25259442	0.97(0.96, 0.98)	3.84×10^{-6}	0.97(0.96, 0.98)	9.42×10^{-6}
rs2918630	25314186	0.97(0.96, 0.98)	3.57×10^{-6}	0.97(0.96, 0.98)	8.80×10^{-6}
rs10495751	25316045	0.97(0.96, 0.98)	3.57×10^{-6}	0.97(0.96, 0.98)	8.80×10^{-6}
rs13395518	25323747	0.97(0.96, 0.98)	3.57×10^{-6}	0.97(0.96, 0.98)	8.80×10^{-6}
rs13401241	25518470	0.97(0.96, 0.98)	3.87×10^{-6}	0.97(0.96, 0.98)	7.49×10^{-6}
rs749130	25530028	0.97(0.96, 0.98)	3.87×10^{-6}	0.97(0.96, 0.98)	7.49×10^{-6}
rs6711622	25531350	0.97(0.96, 0.98)	3.87×10^{-6}	0.97(0.96, 0.98)	7.49×10^{-6}
rs7560488	25568821	0.97(0.96, 0.98)	3.87×10^{-6}	0.97(0.96, 0.98)	7.49×10^{-6}
rs6705138	25587851	0.97(0.96, 0.98)	3.87×10^{-6}	0.97(0.96, 0.98)	7.49×10^{-6}
rs1010658	25595194	0.97(0.96, 0.98)	3.87×10^{-6}	0.97(0.96, 0.98)	7.49×10^{-6}
rs730072	25597681	0.97(0.96, 0.98)	3.87×10^{-6}	0.97(0.96, 0.98)	7.49×10^{-6}
rs2384232	25623749	0.97(0.96, 0.98)	3.07×10^{-6}	0.97(0.96, 0.98)	6.47×10^{-6}
rs17745923	25643944	0.97(0.96, 0.98)	3.07×10^{-6}	0.97(0.96, 0.98)	6.47×10^{-6}
rs6746082	25659244	0.97(0.96, 0.98)	3.07×10^{-6}	0.97(0.96, 0.98)	6.47×10^{-6}
rs10210057	25662578	0.97(0.96, 0.98)	3.07×10^{-6}	0.97(0.96, 0.98)	6.47×10^{-6}
rs6546183	25671806	0.97(0.96, 0.98)	3.07×10^{-6}	0.97(0.96, 0.98)	6.47×10^{-6}
rs6546199	25683447	0.97(0.96, 0.98)	2.10×10^{-6}	0.97(0.95, 0.98)	4.43×10^{-6}
rs1507705	25714916	0.97(0.96, 0.98)	2.10×10^{-6}	0.97(0.95, 0.98)	4.43×10^{-6}
rs9309386	25727910	0.97(0.96, 0.98)	2.10×10^{-6}	0.97(0.95, 0.98)	4.43×10^{-6}
rs517403	25730439	0.97(0.96, 0.98)	2.10×10^{-6}	0.97(0.95, 0.98)	4.43×10^{-6}

rs936012	25755848	0.97(0.96, 0.98)	2.10×10^{-6}	0.97(0.95, 0.98)	4.43×10^{-6}
rs6725591	25789849	0.97(0.96, 0.98)	2.10×10^{-6}	0.97(0.95, 0.98)	4.43×10^{-6}
rs12613835	25829201	0.97(0.96, 0.98)	2.10×10^{-6}	0.97(0.95, 0.98)	4.43×10^{-6}
rs11678268	25837156	0.97(0.96, 0.98)	2.10×10^{-6}	0.97(0.95, 0.98)	4.43×10^{-6}
rs6546314	25845467	0.97(0.96, 0.98)	2.10×10^{-6}	0.97(0.95, 0.98)	4.43×10^{-6}
rs858648	25867203	0.97(0.96, 0.98)	2.10×10^{-6}	0.97(0.95, 0.98)	4.43×10^{-6}
rs6747116	25969729	0.97(0.96, 0.98)	2.01×10^{-6}	0.97(0.95, 0.98)	4.89×10^{-6}
rs6546452	25981272	0.97(0.96, 0.98)	2.01×10^{-6}	0.97(0.95, 0.98)	4.89×10^{-6}
rs6758088	26036036	0.97(0.96, 0.98)	2.01×10^{-6}	0.97(0.95, 0.98)	4.89×10^{-6}
rs4063544	26042515	0.97(0.96, 0.98)	2.01×10^{-6}	0.97(0.95, 0.98)	4.89×10^{-6}
rs2138390	26112833	0.97(0.96, 0.98)	2.01×10^{-6}	0.97(0.95, 0.98)	4.89×10^{-6}
rs11895615	26113120	0.97(0.96, 0.98)	2.01×10^{-6}	0.97(0.95, 0.98)	4.89×10^{-6}
rs6546642	26174103	0.97(0.96, 0.98)	1.66×10^{-6}	0.97(0.96, 0.98)	7.98×10^{-6}
rs12994424	26183142	0.97(0.96, 0.98)	1.66×10^{-6}	0.97(0.96, 0.98)	7.98×10^{-6}
rs7603456	26191296	0.97(0.96, 0.98)	1.66×10^{-6}	0.97(0.96, 0.98)	7.98×10^{-6}
rs7563440	26199220	0.97(0.96, 0.98)	1.66×10^{-6}	0.97(0.96, 0.98)	7.98×10^{-6}
rs4665298	26256378	0.97(0.96, 0.98)	1.66×10^{-6}	0.97(0.96, 0.98)	7.98×10^{-6}
rs10170359	26272219	0.97(0.96, 0.98)	1.66×10^{-6}	0.97(0.96, 0.98)	7.98×10^{-6}
rs12471809	26307140	0.97(0.96, 0.98)	1.66×10^{-6}	0.97(0.96, 0.98)	7.98×10^{-6}
rs4665304	26313406	0.97(0.96, 0.98)	1.66×10^{-6}	0.97(0.96, 0.98)	7.98×10^{-6}
rs1039823	28623159	0.97(0.96, 0.98)	3.00×10^{-6}	0.97(0.95, 0.98)	5.96×10^{-6}
rs1396733	28642747	0.97(0.96, 0.98)	3.00×10^{-6}	0.97(0.95, 0.98)	5.96×10^{-6}
rs4666076	28652529	0.97(0.96, 0.98)	3.00×10^{-6}	0.97(0.95, 0.98)	5.96×10^{-6}
rs2940797	28670404	0.97(0.96, 0.98)	3.00×10^{-6}	0.97(0.95, 0.98)	5.96×10^{-6}
rs2972050	28671048	0.97(0.96, 0.98)	3.00×10^{-6}	0.97(0.95, 0.98)	5.96×10^{-6}
rs10186544	28683174	0.97(0.96, 0.98)	3.20×10^{-6}	0.97(0.95, 0.98)	2.39×10^{-6}
rs1581035	28686332	0.97(0.96, 0.98)	3.20×10^{-6}	0.97(0.95, 0.98)	2.39×10^{-6}
rs2940790	28687043	0.97(0.96, 0.98)	3.20×10^{-6}	0.97(0.95, 0.98)	2.39×10^{-6}
rs6715256	28723942	0.97(0.96, 0.98)	3.20×10^{-6}	0.97(0.95, 0.98)	2.39×10^{-6}
rs11885873	28736582	0.97(0.96, 0.98)	3.20×10^{-6}	0.97(0.95, 0.98)	2.39×10^{-6}
rs4334451	28747170	0.97(0.96, 0.98)	3.20×10^{-6}	0.97(0.95, 0.98)	2.39×10^{-6}
rs6547857	28757368	0.97(0.96, 0.98)	3.20×10^{-6}	0.97(0.95, 0.98)	2.39×10^{-6}
rs11127162	28763374	0.97(0.96, 0.98)	3.59×10^{-6}	0.97(0.95, 0.98)	2.50×10^{-6}
rs1881254	28768251	0.97(0.96, 0.98)	3.59×10^{-6}	0.97(0.95, 0.98)	2.50×10^{-6}
rs9309663	28768427	0.97(0.96, 0.98)	3.59×10^{-6}	0.97(0.95, 0.98)	2.50×10^{-6}
rs12617735	28780313	0.97(0.96, 0.98)	3.59×10^{-6}	0.97(0.95, 0.98)	2.50×10^{-6}
rs7595633	28803240	0.97(0.96, 0.98)	3.07×10^{-6}	0.97(0.95, 0.98)	1.77×10^{-6}
rs4666103	28807899	0.97(0.96, 0.98)	3.07×10^{-6}	0.97(0.95, 0.98)	1.77×10^{-6}
rs12468715	28812285	0.97(0.96, 0.98)	3.07×10^{-6}	0.97(0.95, 0.98)	1.77×10^{-6}
rs12993525	28818931	0.97(0.96, 0.98)	3.07×10^{-6}	0.97(0.95, 0.98)	1.77×10^{-6}
rs1534477	28820641	0.97(0.96, 0.98)	3.07×10^{-6}	0.97(0.95, 0.98)	1.77×10^{-6}
rs4371315	28821149	0.97(0.96, 0.98)	3.07×10^{-6}	0.97(0.95, 0.98)	1.77×10^{-6}
rs7557449	28821695	0.97(0.96, 0.98)	3.07×10^{-6}	0.97(0.95, 0.98)	1.77×10^{-6}

rs1534476	28833479	0.97(0.96, 0.98)	3.07×10^{-6}	0.97(0.95, 0.98)	1.77×10^{-6}
rs1534478	28840691	0.97(0.96, 0.98)	3.07×10^{-6}	0.97(0.95, 0.98)	1.77×10^{-6}
rs4530322	28852926	0.97(0.96, 0.98)	3.07×10^{-6}	0.97(0.95, 0.98)	1.77×10^{-6}
rs6713845	28854570	0.97(0.96, 0.98)	3.07×10^{-6}	0.97(0.95, 0.98)	1.77×10^{-6}
rs3752899	28856220	0.97(0.96, 0.98)	3.07×10^{-6}	0.97(0.95, 0.98)	1.77×10^{-6}
rs6741437	28867201	0.97(0.96, 0.98)	3.07×10^{-6}	0.97(0.95, 0.98)	1.77×10^{-6}
rs11678098	28876857	0.97(0.96, 0.98)	3.07×10^{-6}	0.97(0.95, 0.98)	1.77×10^{-6}
rs10192375	28892116	0.97(0.96, 0.98)	3.07×10^{-6}	0.97(0.95, 0.98)	1.77×10^{-6}
rs7586033	28892960	0.97(0.96, 0.98)	3.07×10^{-6}	0.97(0.95, 0.98)	1.77×10^{-6}
rs4666115	28902004	0.97(0.96, 0.98)	3.07×10^{-6}	0.97(0.95, 0.98)	1.77×10^{-6}
rs4372836	28973883	0.97(0.96, 0.98)	3.07×10^{-6}	0.97(0.95, 0.98)	1.77×10^{-6}
rs3190	29025479	0.97(0.96, 0.98)	3.07×10^{-6}	0.97(0.95, 0.98)	1.77×10^{-6}
rs12475612	29030006	0.97(0.96, 0.98)	3.07×10^{-6}	0.97(0.95, 0.98)	1.77×10^{-6}
rs6547881	29032746	0.97(0.96, 0.98)	3.07×10^{-6}	0.97(0.95, 0.98)	1.77×10^{-6}
rs6547892	29138009	0.97(0.96, 0.98)	3.07×10^{-6}	0.97(0.95, 0.98)	1.77×10^{-6}
rs9653591	29145725	0.97(0.96, 0.98)	3.07×10^{-6}	0.97(0.95, 0.98)	1.77×10^{-6}
rs3087649	29169612	0.97(0.96, 0.98)	3.07×10^{-6}	0.97(0.95, 0.98)	1.77×10^{-6}
rs11680458	29170623	0.97(0.96, 0.98)	3.07×10^{-6}	0.97(0.95, 0.98)	1.77×10^{-6}
rs10197378	29181107	0.97(0.96, 0.98)	3.07×10^{-6}	0.97(0.95, 0.98)	1.77×10^{-6}
rs6727948	29184909	0.97(0.96, 0.98)	3.07×10^{-6}	0.97(0.95, 0.98)	1.77×10^{-6}
rs4666157	29196785	0.97(0.96, 0.98)	3.57×10^{-6}	0.97(0.96, 0.98)	8.46×10^{-6}
rs7578007	29215005	0.97(0.96, 0.98)	3.57×10^{-6}	0.97(0.96, 0.98)	8.46×10^{-6}
rs12466400	29229806	0.97(0.96, 0.98)	3.57×10^{-6}	0.97(0.96, 0.98)	8.46×10^{-6}
rs11684978	29231870	0.97(0.96, 0.98)	3.57×10^{-6}	0.97(0.96, 0.98)	8.46×10^{-6}
rs13420380	29245933	0.97(0.96, 0.98)	3.57×10^{-6}	0.97(0.96, 0.98)	8.46×10^{-6}
rs6739684	29247894	0.97(0.96, 0.98)	3.57×10^{-6}	0.97(0.96, 0.98)	8.46×10^{-6}
rs13008323	29248046	0.97(0.96, 0.98)	3.57×10^{-6}	0.97(0.96, 0.98)	8.46×10^{-6}
rs6742110	29260085	0.97(0.96, 0.98)	3.57×10^{-6}	0.97(0.96, 0.98)	8.46×10^{-6}
rs2276551	29268375	0.97(0.96, 0.98)	3.57×10^{-6}	0.97(0.96, 0.98)	8.46×10^{-6}
rs6547906	29272472	0.97(0.96, 0.98)	3.57×10^{-6}	0.97(0.96, 0.98)	8.46×10^{-6}
rs6731719	29273719	0.97(0.96, 0.98)	3.57×10^{-6}	0.97(0.96, 0.98)	8.46×10^{-6}
rs882631	29280791	0.97(0.96, 0.98)	3.57×10^{-6}	0.97(0.96, 0.98)	8.46×10^{-6}
rs10196859	29287227	0.97(0.96, 0.98)	3.57×10^{-6}	0.97(0.96, 0.98)	8.46×10^{-6}
rs17744052	29289411	0.97(0.96, 0.98)	3.57×10^{-6}	0.97(0.96, 0.98)	8.46×10^{-6}
rs7569316	29289501	0.97(0.96, 0.98)	3.57×10^{-6}	0.97(0.96, 0.98)	8.46×10^{-6}
rs7572957	29487405	0.97(0.95, 0.98)	8.97×10^{-8}	0.97(0.95, 0.98)	4.63×10^{-6}
rs876748	29512675	0.96(0.95, 0.98)	3.96×10^{-8}	0.97(0.95, 0.98)	3.45×10^{-6}
rs13406263	29519475	0.96(0.95, 0.98)	3.96×10^{-8}	0.97(0.95, 0.98)	3.45×10^{-6}
rs6708752	29536039	0.96(0.95, 0.98)	3.96×10^{-8}	0.97(0.95, 0.98)	3.45×10^{-6}
rs4666200	29538411	0.96(0.95, 0.98)	3.96×10^{-8}	0.97(0.95, 0.98)	3.45×10^{-6}
rs12465220	29559519	0.96(0.95, 0.98)	2.34×10^{-8}	0.97(0.95, 0.98)	2.72×10^{-6}
rs17007931	29578068	0.96(0.95, 0.98)	2.34×10^{-8}	0.97(0.95, 0.98)	2.72×10^{-6}
rs12714277	29586686	0.96(0.95, 0.98)	2.34×10^{-8}	0.97(0.95, 0.98)	2.72×10^{-6}

rs4633880	29605589	0.96(0.95, 0.98)	2.34×10^{-8}	0.97(0.95, 0.98)	2.72×10^{-6}
rs7591913	29619971	0.96(0.95, 0.98)	2.34×10^{-8}	0.97(0.95, 0.98)	2.72×10^{-6}
rs4233734	29637040	0.97(0.95, 0.98)	7.96×10^{-8}	0.97(0.96, 0.98)	9.85×10^{-6}
rs4555301	29639679	0.97(0.95, 0.98)	7.96×10^{-8}	0.97(0.96, 0.98)	9.85×10^{-6}
rs3923028	29685596	0.97(0.95, 0.98)	7.96×10^{-8}	0.97(0.96, 0.98)	9.85×10^{-6}
rs11888731	29702883	0.97(0.95, 0.98)	7.96×10^{-8}	0.97(0.96, 0.98)	9.85×10^{-6}
rs4528720	29704715	0.97(0.95, 0.98)	7.96×10^{-8}	0.97(0.96, 0.98)	9.85×10^{-6}
rs13383564	29708619	0.97(0.95, 0.98)	7.96×10^{-8}	0.97(0.96, 0.98)	9.85×10^{-6}
rs12714287	29710663	0.97(0.95, 0.98)	7.96×10^{-8}	0.97(0.96, 0.98)	9.85×10^{-6}
rs13000666	29715388	0.97(0.95, 0.98)	7.96×10^{-8}	0.97(0.96, 0.98)	9.85×10^{-6}
rs9808313	29721334	0.97(0.95, 0.98)	7.96×10^{-8}	0.97(0.96, 0.98)	9.85×10^{-6}
rs10445906	29727204	0.97(0.95, 0.98)	7.96×10^{-8}	0.97(0.96, 0.98)	9.85×10^{-6}
rs4433956	29730492	0.97(0.95, 0.98)	7.96×10^{-8}	0.97(0.96, 0.98)	9.85×10^{-6}
rs4665463	29733601	0.97(0.95, 0.98)	7.96×10^{-8}	0.97(0.96, 0.98)	9.85×10^{-6}
rs4666243	29763753	0.97(0.95, 0.98)	7.96×10^{-8}	0.97(0.96, 0.98)	9.85×10^{-6}
rs10193521	29785679	0.97(0.95, 0.98)	7.96×10^{-8}	0.97(0.96, 0.98)	9.85×10^{-6}
rs6547948	29790622	0.97(0.95, 0.98)	7.96×10^{-8}	0.97(0.96, 0.98)	9.85×10^{-6}

[a]Odds rations (ORs) were estimated in a case-only study adjusting for age and sex.
[b]Odds rations (ORs) were estimated in a case-control study adjusting for age and sex.

Supplementary Table S3. eQTL analyses for SNPs in known MM risk region and suggestive risk regions in AA MM.

SNP	Chr	Position	A1	A2	Gene	TSS	Beta	SE	P-value
rs7577599	2	25613146	T	C	NCOA1	24807346	0.03	0.03	0.39
					PTRHD1	25016251	-0.05	0.05	0.28
					ADCY3	25142055	0.04	0.05	0.45
					DNMT3A	25564784	0.00	0.03	0.94
					ASXL2	26101312	-0.02	0.02	0.38
					KIF3C	26205443	-0.09	0.04	0.02
					RAB10	26256729	0.00	0.02	0.85
					HADHA	26467594	0.02	0.02	0.41
					HADHB	26467616	0.02	0.02	0.35
					EPT1	26568954	0.04	0.03	0.23
rs6546148	2	25625005	A	G	NCOA1	24807346	0.01	0.04	0.79
					PTRHD1	25016251	-0.06	0.05	0.26
					ADCY3	25142055	0.02	0.05	0.74
					DNMT3A	25564784	0.00	0.03	0.86
					ASXL2	26101312	-0.01	0.02	0.60
					KIF3C	26205443	-0.02	0.04	0.67
					RAB10	26256729	0.01	0.02	0.57
					HADHA	26467594	0.06	0.02	8.48E-03
					HADHB	26467616	0.04	0.02	0.12
					EPT1	26568954	0.04	0.03	0.27
rs10180663	2	25633242	T	C	NCOA1	24807346	-0.02	0.03	0.57
					PTRHD1	25016251	-0.02	0.05	0.72
					ADCY3	25142055	0.00	0.05	0.95
					DNMT3A	25564784	-0.01	0.03	0.75
					ASXL2	26101312	0.02	0.02	0.49
					KIF3C	26205443	-0.03	0.04	0.52
					RAB10	26256729	0.02	0.02	0.47
					HADHA	26467594	0.06	0.02	5.19E-03
					HADHB	26467616	0.04	0.02	0.06
					EPT1	26568954	0.03	0.03	0.29
rs6746082	2	25659244	A	C	NCOA1	24807346	-0.01	0.03	0.80
					PTRHD1	25016251	-0.08	0.05	0.11
					ADCY3	25142055	0.02	0.04	0.73
					DNMT3A	25564784	0.03	0.02	0.30
					ASXL2	26101312	-0.02	0.02	0.46
					KIF3C	26205443	-0.04	0.04	0.29
					RAB10	26256729	-0.01	0.02	0.59
					HADHA	26467594	0.02	0.02	0.41
					HADHB	26467616	0.00	0.02	0.92
					EPT1	26568954	0.02	0.03	0.43

rs4325816	2	174808899	T	C	ZAK	173940565	-0.02	0.05	0.67
					CDCA7	174219561	0.02	0.11	0.85
					SP3	174830430	0.07	0.02	5.47E-04
					OLA1	175113365	0.00	0.01	0.93
					CIR1	175260443	-0.04	0.03	0.18
					SCRN3	175260457	0.03	0.03	0.28
					GPR155	175351816	-0.09	0.08	0.26
					WIPF1	175547627	-0.02	0.03	0.53
rs73828280	3	41833907	A	T	CTNNB1	41240942	0.00	0.03	0.97
					TRAK1	42132746	0.01	0.02	0.56
					SEC22C	42623520	-0.02	0.01	0.23
					SS18L2	42632298	0.00	0.02	0.89
					NKTR	42642147	0.03	0.04	0.34
rs1052501	3	41925398	C	T	CTNNB1	41240942	0.02	0.03	0.52
					TRAK1	42132746	-0.02	0.02	0.24
					SEC22C	42623520	0.03	0.01	0.03
					SS18L2	42632298	-0.01	0.02	0.50
					NKTR	42642147	-0.04	0.04	0.23
					HIGD1A	42845934	-0.03	0.03	0.42
rs12108049	3	41958161	A	G	CTNNB1	41240942	0.09	0.05	0.11
					TRAK1	42132746	0.02	0.03	0.45
					SEC22C	42623520	-0.04	0.02	0.07
					SS18L2	42632298	-0.02	0.03	0.50
					NKTR	42642147	0.02	0.06	0.70
					HIGD1A	42845934	-0.07	0.06	0.19
rs6599192	3	41992408	G	A	CTNNB1	41240942	0.03	0.03	0.37
					TRAK1	42132746	-0.01	0.02	0.55
					SEC22C	42623520	0.03	0.01	0.04
					SS18L2	42632298	-0.02	0.02	0.37
					NKTR	42642147	-0.06	0.04	0.10
					HIGD1A	42845934	-0.04	0.03	0.22
rs10936599	3	169492101	C	T	MYNN	169492053	0.05	0.05	0.33
					LRRC34	169530574	-0.34	0.14	0.02
					SEC62	169684580	0.04	0.05	0.39
					GPR160	169755735	-0.10	0.12	0.39
					PHC3	169899537	-0.06	0.05	0.18
					PRKCI	169940220	-0.01	0.07	0.85
					SKIL	170075473	0.11	0.07	0.11
rs10936600	3	169514585	A	T	MYNN	169492053	-0.03	0.04	0.44
					LRRC34	169530574	-0.03	0.12	0.81
					SEC62	169684580	-0.04	0.04	0.35
					GPR160	169755735	-0.11	0.10	0.27
					PHC3	169899537	-0.07	0.04	0.09

					PRKCI	169940220	-0.05	0.06	0.46
					SKIL	170075473	0.12	0.06	0.04
rs9290375	3	169566090	A	G	MYNN	169492053	0.00	0.02	0.97
					LRRC34	169530574	0.12	0.07	0.11
					SEC62	169684580	0.06	0.02	0.02
					GPR160	169755735	0.17	0.06	0.005
					PHC3	169899537	0.01	0.02	0.75
					PRKCI	169940220	0.07	0.04	0.08
rs56219066	5	95242931	T	C	MCTP1	94620279	0.03	0.08	0.68
					TTC37	94890709	0.04	0.03	0.14
					ARSK	94890825	-0.08	0.06	0.19
					RFESD	94982583	-0.04	0.05	0.44
					RHOBTB3	95066850	-0.05	0.07	0.44
					GLRX	95158577	-0.04	0.03	0.16
					ELL2	95297775	-0.26	0.04	5.09E-12
					CAST	96038493	-0.03	0.02	0.18
					ERAP1	96149848	0.01	0.03	0.64
					ERAP2	96211644	0.13	0.15	0.38
rs1423269	5	95255724	A	G	MCTP1	94620279	0.06	0.08	0.51
					TTC37	94890709	0.03	0.03	0.19
					ARSK	94890825	-0.08	0.06	0.19
					RFESD	94982583	0.01	0.05	0.89
					RHOBTB3	95066850	-0.10	0.07	0.16
					GLRX	95158577	-0.06	0.03	0.03
					ELL2	95297775	-0.27	0.04	3.77E-13
					CAST	96038493	0.00	0.02	0.99
					ERAP1	96149848	0.01	0.03	0.84
					ERAP2	96211644	0.17	0.15	0.28
rs6595443	5	122743325	A	T	SNX2	122110750	-0.01	0.02	0.63
					SNX24	122181160	0.07	0.05	0.15
					PPIC	122372425	-0.13	0.12	0.27
					CEP120	122759286	0.02	0.03	0.53
					CSNK1G3	122881111	0.01	0.02	0.64
rs34229995	6	15244018	C	G	JARID2	15246206	-0.19	0.15	0.19
					DTNBP1	15663289	0.13	0.09	0.18
					MYLIP	16129317	0.26	0.34	0.45
					GMPR	16238811	0.08	0.36	0.83
rs2285803	6	31107258	T	C	TRIM26	30181271	-0.04	0.04	0.32
					TRIM39	30294621	0.00	0.04	0.91
					C6orf136	30614816	-0.03	0.04	0.37
					NRM	30659197	-0.03	0.05	0.60
					TUBB	30688157	0.03	0.04	0.52
					FLOT1	30710453	-0.01	0.03	0.67

					DDR1	30852327	0.02	0.04	0.70
					GTF2H4	30875977	-0.05	0.04	0.23
					VARS2	30881982	0.01	0.03	0.77
					CCHCR1	31125566	0.02	0.02	0.42
					HCG27	31165537	0.05	0.04	0.19
					HLA-B	31324989	-0.01	0.03	0.64
					HCG26	31439006	0.10	0.10	0.31
					MICB	31465855	-0.03	0.04	0.44
					PRRC2A	31588450	-0.02	0.04	0.67
					CSNK2B	31633657	-0.01	0.02	0.47
					GPANK1	31634060	-0.02	0.02	0.47
					CLIC1	31704341	0.01	0.02	0.59
					LSM2	31774761	-0.05	0.04	0.15
					HSPA1B	31795512	-0.11	0.13	0.40
					NELFE	31926864	0.00	0.02	0.86
					FKBPL	32098067	0.00	0.02	0.96
rs3132535	6	31116526	A	G	TRIM26	30181271	-0.05	0.04	0.22
					TRIM39	30294621	-0.01	0.04	0.85
					C6orf136	30614816	-0.07	0.04	0.06
					NRM	30659197	-0.04	0.05	0.49
					TUBB	30688157	0.03	0.04	0.54
					FLOT1	30710453	0.00	0.03	0.91
					DDR1	30852327	0.03	0.04	0.56
					GTF2H4	30875977	-0.06	0.04	0.14
					VARS2	30881982	0.03	0.03	0.38
					CCHCR1	31125566	0.01	0.02	0.61
					HCG27	31165537	0.05	0.04	0.23
					HLA-B	31324989	0.01	0.03	0.76
					HCG26	31439006	0.09	0.10	0.36
					MICB	31465855	-0.03	0.04	0.41
					PRRC2A	31588450	-0.02	0.04	0.66
					CSNK2B	31633657	-0.01	0.02	0.62
					GPANK1	31634060	0.00	0.02	0.84
					CLIC1	31704341	0.02	0.02	0.38
					LSM2	31774761	-0.07	0.04	0.05
					HSPA1B	31795512	-0.11	0.13	0.41
					NELFE	31926864	0.01	0.02	0.72
					FKBPL	32098067	0.00	0.02	0.94
rs879882	6	31139452	T	C	TRIM26	30181271	0.06	0.04	0.11
					TRIM39	30294621	0.05	0.03	0.16
					C6orf136	30614816	-0.01	0.03	0.75
					NRM	30659197	0.02	0.05	0.76
					TUBB	30688157	0.04	0.04	0.37

					FLOT1	30710453	0.02	0.03	0.54
					DDR1	30852327	0.00	0.04	0.95
					GTF2H4	30875977	0.02	0.04	0.57
					VARS2	30881982	0.07	0.03	0.02
					CCHCR1	31125566	0.02	0.02	0.32
					HCG27	31165537	-0.08	0.04	0.05
					HLA-B	31324989	-0.01	0.02	0.69
					HCG26	31439006	-0.03	0.09	0.73
					MICB	31465855	0.06	0.04	0.11
					PRRC2A	31588450	-0.01	0.04	0.74
					CSNK2B	31633657	-0.02	0.02	0.39
					GPANK1	31634060	0.02	0.02	0.31
					CLIC1	31704341	0.02	0.02	0.45
					LSM2	31774761	-0.03	0.03	0.41
					HSPA1B	31795512	0.18	0.13	0.16
					NELFE	31926864	0.00	0.02	0.94
					FKBPL	32098067	0.00	0.02	0.99
					PPT2	32121229	0.06	0.04	0.09
rs9372120	6	106667535	T	G	PREP	105850999	-0.04	0.03	0.20
					PRDM1	106546737	0.00	0.05	0.97
					ATG5	106773695	0.05	0.06	0.39
					AIM1	106959730	0.08	0.16	0.63
					RTN4IP1	107077373	-0.24	0.10	0.01
					QRSL1	107077441	0.03	0.08	0.67
					C6orf203	107349407	-0.02	0.06	0.75
					BEND3	107435636	0.04	0.07	0.55
rs4487645	7	21938240	C	A	SP4	21467689	0.06	0.03	0.03
					CDCA7L	21985542	0.18	0.10	0.07
					RAPGEF5	22396533	-0.01	0.18	0.96
					STEAP1B	22539901	0.06	0.15	0.69
					IL6	22766766	-0.07	0.14	0.65
					TOMM7	22862421	-0.06	0.04	0.18
rs17507636	7	106291118	C	T	SYPL1	105752791	0.35	0.16	0.03
					NAMPT	105925638	0.06	0.11	0.57
					CCDC71L	106301634	0.12	0.05	0.03
					PIK3CG	106505924	-0.02	0.10	0.80
					PRKAR2B	106685178	-0.01	0.18	0.97
					HBP1	106809460	0.05	0.04	0.23
					DUS4L	107204402	0.05	0.04	0.20
					COG5	107204959	0.09	0.04	0.02
					BCAP29	107220422	-0.02	0.05	0.66
rs58618031	7	124583896	T	C	GPR37	124405681	-0.02	0.06	0.67
					LOC154872	124430864	0.00	0.06	0.94

					POT1	124570037	-0.02	0.04	0.63
rs61068276	7	124804887	C	T	GPR37	124405681	-0.07	0.05	0.17
					LOC154872	124430864	0.02	0.05	0.71
					POT1	124570037	0.02	0.03	0.61
rs92903	7	124452670	C	T	GPR37	124405681	-0.05	0.05	0.30
					LOC154872	124430864	0.02	0.05	0.77
					POT1	124570037	-0.01	0.04	0.73
rs73169662	7	150922306	T	C	LRRC61	150020296	0.04	0.07	0.54
					ACTR3C	150020758	-0.21	0.17	0.22
					ZBED6CL	150026938	-0.01	0.12	0.91
					RARRES2	150038763	0.05	0.12	0.71
					REPIN1	150065879	0.00	0.05	0.95
					ZNF775	150076406	0.03	0.06	0.62
					LINC00996	150130742	-0.18	0.35	0.60
					GIMAP7	150211945	-0.24	0.22	0.28
					GIMAP4	150264458	0.02	0.11	0.83
					GIMAP6	150329736	0.07	0.13	0.60
					GIMAP2	150382794	-0.10	0.17	0.56
					TMEM176B	150497621	-0.34	0.30	0.25
					TMEM176A	150497854	-0.07	0.24	0.77
					AOC1	150549573	-0.30	0.28	0.29
					KCNH2	150675402	0.10	0.16	0.53
					CDK5	150755052	-0.13	0.12	0.26
					SLC4A2	150759634	-0.17	0.11	0.12
					FASTK	150777970	0.03	0.05	0.56
					TMUB1	150780413	0.08	0.08	0.31
					ABCF2	150924317	-0.02	0.05	0.60
					CHPF2	150929585	0.05	0.07	0.48
					NUB1	151038847	0.11	0.24	0.66
					RHEB	151217010	-0.04	0.04	0.23
					PRKAG2-AS1	151574127	0.08	0.18	0.67
					PRKAG2	151574316	0.05	0.13	0.71
					GALNT11	151722778	-0.15	0.24	0.52
rs7781265	7	150950940	G	A	LRRC61	150020296	-0.04	0.03	0.24
					ACTR3C	150020758	-0.18	0.08	0.03
					ZBED6CL	150026938	0.07	0.05	0.21
					RARRES2	150038763	-0.03	0.06	0.62
					REPIN1	150065879	-0.04	0.02	0.11
					ZNF775	150076406	0.05	0.03	0.07
					LINC00996	150130742	0.21	0.16	0.20
					GIMAP7	150211945	0.01	0.10	0.95
					GIMAP4	150264458	-0.03	0.05	0.49
					GIMAP6	150329736	0.06	0.06	0.31

					GIMAP2	150382794	-0.02	0.08	0.84
					TMEM176B	150497621	0.23	0.14	0.10
					TMEM176A	150497854	0.15	0.11	0.19
					AOC1	150549573	0.13	0.13	0.31
					KCNH2	150675402	0.03	0.08	0.71
					CDK5	150755052	-0.05	0.06	0.35
					SLC4A2	150759634	-0.06	0.05	0.25
					FASTK	150777970	-0.02	0.02	0.40
					TMUB1	150780413	0.02	0.04	0.64
					ABCF2	150924317	0.02	0.02	0.31
					CHPF2	150929585	0.01	0.03	0.76
					NUB1	151038847	0.04	0.11	0.74
					RHEB	151217010	-0.01	0.02	0.41
					PRKAG2-AS1	151574127	-0.16	0.08	0.05
					PRKAG2	151574316	-0.03	0.06	0.58
					GALNT11	151722778	-0.13	0.11	0.26
rs1948915	8	128222421	T	C	FAM84B	127570711	0.09	0.06	0.12
					MYC	128748315	-0.37	0.13	5.92E-03
					PVT1	128902874	-0.10	0.10	0.34
rs13296848	9	701529	T	C	C9orf66	215893	-0.07	0.05	0.20
					DOCK8	273048	-0.01	0.04	0.70
					KANK1	706806	-0.07	0.04	0.12
					DMRT2	1050354	-0.04	0.19	0.82
rs2811710	9	21991923	C	T	PTPLAD2	21031635	-0.02	0.14	0.91
					KLHL9	21335429	0.01	0.03	0.77
					MTAP	21802635	0.01	0.03	0.86
					CDKN2A	21994490	-0.03	0.02	0.17
					ZBTB5	37465407	-0.03	0.05	0.51
					POLR1E	37485945	0.06	0.05	0.24
					TOMM5	37592636	0.00	0.03	0.95
					EXOSC3	37785089	0.06	0.03	0.05
					DCAF10	37800790	0.03	0.04	0.45
					SLC25A51	37904350	0.03	0.05	0.58
					ALDH1B1	38392661	0.11	0.07	0.12
rs7034061	9	38443792	G	T	ZBTB5	37465407	-0.03	0.05	0.51
					POLR1E	37485945	0.06	0.05	0.24
					TOMM5	37592636	0.00	0.03	0.95
					EXOSC3	37785089	0.06	0.03	0.05
					DCAF10	37800790	0.03	0.04	0.45
					SLC25A51	37904350	0.03	0.05	0.58
					ALDH1B1	38392661	0.11	0.07	0.12
rs2790457	10	28856819	G	A	MKX	28034778	0.06	0.14	0.66

					WAC	28821422	-0.11	0.02	2.29E-11
					BAMBI	28966424	0.09	0.12	0.47
					PTCHD3P1	29698501	0.03	0.04	0.44
rs2102616	12	39654659	C	T	ALG10B	38710557	-0.05	0.07	0.49
					CPNE8	39299420	-0.02	0.09	0.81
					KIF21A	39837192	0.01	0.08	0.87
					ABCD2	40013843	0.09	0.10	0.38
					SLC2A13	40499661	0.02	0.04	0.74
					LRRK2	40618813	-0.15	0.18	0.40
rs13338946	16	30700858	T	C	C16orf54	29757340	0.08	0.06	0.24
					ZG16	29789561	-0.04	0.04	0.34
					KIF22	29802034	0.00	0.02	0.96
					MAZ	29817855	0.02	0.03	0.53
					PAGR1	29827528	-0.03	0.02	0.20
					MVP	29831715	0.01	0.04	0.86
					CDIPT	29874578	0.03	0.03	0.35
					KCTD13	29937545	0.01	0.02	0.81
					TMEM219	29973351	-0.01	0.03	0.74
					HIRIP3	30007417	0.03	0.02	0.13
					INO80E	30007531	0.03	0.04	0.45
					FAM57B	30042186	0.00	0.02	0.91
					ALDOA	30064411	0.01	0.02	0.46
					PPP4C	30087384	-0.03	0.04	0.52
					YPEL3	30107521	0.00	0.04	0.92
					MAPK3	30134630	0.01	0.03	0.71
					CORO1A	30194731	0.00	0.07	1.00
					CD2BP2	30366682	0.03	0.02	0.13
					TBC1D10B	30381522	-0.04	0.04	0.37
					SEPT1	30394171	0.06	0.06	0.29
					ZNF48	30406740	-0.03	0.03	0.27
					DCTPP1	30441373	-0.01	0.02	0.81
					SEPHS2	30457224	0.00	0.02	0.97
					ITGAL	30483983	-0.17	0.07	0.02
					ZNF768	30537910	-0.05	0.03	0.14
					ZNF747	30546194	-0.07	0.06	0.24
					ZNF764	30569642	-0.01	0.04	0.74
					ZNF785	30597092	0.05	0.05	0.30
					ZNF689	30621682	0.08	0.04	0.03
					PRR14	30662241	0.03	0.02	0.19
					FBRS	30675778	-0.01	0.02	0.66
					C16orf93	30773565	-0.01	0.03	0.72
					ZNF629	30798523	-0.02	0.02	0.51
					BCL7C	30905399	-0.08	0.04	0.05

					ORAI3	30960405	0.03	0.03	0.31
					STX4	31044903	0.00	0.04	0.90
					VKORC1	31106276	0.00	0.03	0.96
					BCKDK	31119662	0.00	0.02	0.95
					FUS	31191431	0.00	0.03	0.94
					PYCARD	31214097	0.02	0.07	0.77
					ITGAM	31271288	-0.07	0.09	0.42
					ARMC5	31470317	0.01	0.02	0.80
					SLC5A2	31494439	0.01	0.01	0.44
					C16orf58	31519706	0.06	0.03	0.03
					AHSP	31539203	0.12	0.10	0.24
rs7193541	16	74664743	T	C	PSMD7	74330673	0.03	0.03	0.20
					GLG1	74641042	-0.01	0.02	0.64
					RFWD3	74700779	0.11	0.04	5.81E-03
					MLKL	74734789	0.07	0.07	0.31
					ZFP1	75182421	0.02	0.05	0.68
					CTRB2	75241072	-0.05	0.11	0.64
					BCAR1	75301951	-0.02	0.02	0.48
					CFDP1	75467387	0.03	0.04	0.39
					TMEM170A	75498584	0.04	0.04	0.31
					TMEM231	75590170	0.02	0.05	0.66
					GABARAPL2	75600249	0.01	0.02	0.56
					ADAT1	75657221	0.00	0.05	0.99
rs34562254	17	16842991	G	A	TTC19	15902694	0.00	0.06	0.94
					ZSWIM7	15903006	-0.02	0.05	0.60
					NCOR1	16118874	0.00	0.03	0.90
					CENPV	16256812	-0.07	0.09	0.40
					UBB	16284367	0.01	0.04	0.70
					TRPV2	16318856	0.05	0.05	0.27
					LRRC75A-AS1	16342301	0.02	0.03	0.38
					ZNF624	16557167	0.04	0.05	0.44
					TNFRSF13B	16875402	0.01	0.11	0.90
					PLD6	17109646	0.18	0.14	0.18
					COPS3	17184617	0.03	0.04	0.54
					RASD1	17399709	0.04	0.10	0.69
					PEMT	17495017	-0.03	0.06	0.60
					RAI1	17584787	-0.02	0.02	0.35
rs4273077	17	16849139	A	G	TTC19	15902694	0.09	0.05	0.09
					ZSWIM7	15903006	-0.01	0.04	0.86
					NCOR1	16118874	0.03	0.03	0.30
					CENPV	16256812	-0.05	0.08	0.55
					UBB	16284367	0.01	0.04	0.70
					TRPV2	16318856	-0.01	0.04	0.85

					LRRC75A-AS1	16342301	0.03	0.03	0.30
					ZNF624	16557167	0.07	0.05	0.16
					TNFRSF13B	16875402	0.20	0.11	0.07
					PLD6	17109646	0.30	0.13	0.02
					COPS3	17184617	0.07	0.04	0.07
					RASD1	17399709	0.05	0.09	0.62
					PEMT	17495017	-0.10	0.06	0.09
					RAI1	17584787	0.01	0.02	0.60
rs11086029	19	16438661	T	A	AKAP8	15490612	0.03	0.02	0.24
					AKAP8L	15529833	0.01	0.04	0.73
					RASAL3	15575382	-0.04	0.05	0.52
					PGLYRP2	15590315	0.01	0.05	0.83
					CYP4F12	15783828	-0.04	0.08	0.63
					OR10H1	15918936	-0.02	0.05	0.73
					UCA1	15939757	-0.01	0.05	0.83
					TPM4	16187135	0.01	0.12	0.96
					RAB8A	16222490	-0.11	0.04	0.01
					HSH2D	16244838	-0.07	0.08	0.41
					CIB3	16284286	-0.01	0.03	0.72
					FAM32A	16296235	-0.02	0.03	0.55
					AP1M1	16308665	0.05	0.03	0.17
					KLF2	16435651	-0.11	0.09	0.23
					CHERP	16653263	0.01	0.01	0.35
					SLC35E1	16683193	-0.02	0.03	0.53
					MED26	16739015	-0.02	0.03	0.54
					SMIM7	16770968	-0.02	0.03	0.52
					SIN3B	16940209	0.01	0.04	0.83
					CPAMD8	17137625	-0.01	0.05	0.88
					HAUS8	17186343	0.02	0.03	0.55
					MYO9B	17186591	0.01	0.03	0.80
					USE1	17326155	0.00	0.05	0.96
					OCEL1	17337055	-0.01	0.03	0.65
					BABAM1	17378232	0.03	0.04	0.44
					MRPL34	17416477	0.03	0.03	0.32
rs6066835	20	47355009	T	C	SULF2	46414808	-0.49	0.34	0.15
					LINC00494	46988654	-0.13	0.11	0.25
					PREX1	47444420	0.09	0.09	0.34
					ARFGEF2	47538275	0.02	0.04	0.53
					CSE1L	47662783	0.03	0.05	0.46
					STAU1	47804904	0.02	0.03	0.61
					DDX27	47835832	0.00	0.04	0.91
					ZFAS1	47894715	-0.03	0.07	0.66
					ZNFX1	47894756	-0.05	0.08	0.54

					B4GALT5	48330421	-0.02	0.08	0.84
rs138740	22	35699582	C	T	HMGXB4	35653445	0.02	0.04	0.68
					HMOX1	35777060	-0.27	0.16	0.08
					MCM5	35796116	-0.07	0.05	0.16
					RASD2	35937352	-0.08	0.04	0.04
					APOL6	36044424	0.00	0.04	0.99
					RBFOX2	36236630	0.02	0.05	0.72
					APOL3	36556977	0.17	0.10	0.08
					APOL2	36636000	0.01	0.02	0.68
					APOL1	36649117	0.02	0.08	0.76
					HMGXB4	35653445	0.03	0.03	0.39
					HMOX1	35777060	0.03	0.03	0.39
					MCM5	35796116	0.03	0.03	0.39
					RASD2	35937352	0.03	0.03	0.39
					APOL6	36044424	0.03	0.03	0.39
					RBFOX2	36236630	0.03	0.03	0.39
					APOL3	36556977	0.03	0.03	0.39
					APOL2	36636000	0.03	0.03	0.39
					APOL1	36649117	0.03	0.03	0.39
rs877529	22	39542292	G	A	MAFF	38597939	0.04	0.10	0.72
					TMEM184B	38669040	-0.05	0.04	0.18
					CSNK1E	38714089	-0.02	0.03	0.57
					KDELR3	38864083	-0.09	0.10	0.40
					DDX17	38902345	-0.05	0.08	0.50
					CBY1	39052658	0.00	0.03	0.95
					TOMM22	39077954	-0.06	0.03	0.06
					JOSD1	39096459	0.02	0.04	0.70
					GTPBP1	39101807	0.02	0.02	0.22
					SUN2	39151467	-0.03	0.03	0.31
					CBX6	39268258	0.01	0.04	0.75
					APOBEC3B	39378404	0.04	0.12	0.76
					APOBEC3C	39410265	-0.04	0.04	0.25
					APOBEC3F	39436673	-0.02	0.04	0.72
					APOBEC3G	39473010	0.00	0.04	0.98
					CBX7	39548538	-0.05	0.03	0.16
					RPL3	39715670	0.02	0.03	0.44
					SYNGR1	39745954	0.02	0.04	0.64
					TAB1	39795759	0.01	0.04	0.80
					MGAT3	39853325	-0.02	0.02	0.24
					MIEF1	39898284	-0.02	0.03	0.55
					RPS19BP1	39928860	0.00	0.03	0.89
rs139402	22	39546145	T	C	MAFF	38597939	0.05	0.11	0.62
					TMEM184B	38669040	-0.05	0.04	0.21

CSNK1E	38714089	-0.02	0.03	0.57
KDELR3	38864083	-0.08	0.10	0.44
DDX17	38902345	-0.05	0.08	0.52
CBY1	39052658	0.00	0.03	0.89
TOMM22	39077954	-0.06	0.03	0.06
JOSD1	39096459	0.02	0.04	0.62
GTPBP1	39101807	0.02	0.02	0.20
SUN2	39151467	-0.02	0.03	0.41
CBX6	39268258	0.01	0.04	0.72
APOBEC3B	39378404	0.04	0.12	0.74
APOBEC3C	39410265	-0.04	0.04	0.27
APOBEC3F	39436673	-0.01	0.04	0.80
APOBEC3G	39473010	0.00	0.04	0.97
CBX7	39548538	-0.04	0.03	0.19
RPL3	39715670	0.02	0.03	0.41
SYNGR1	39745954	0.02	0.04	0.65
TAB1	39795759	0.01	0.04	0.74
MGAT3	39853325	-0.02	0.02	0.36
MIEF1	39898284	-0.01	0.03	0.66
RPS19BP1	39928860	0.00	0.03	0.87

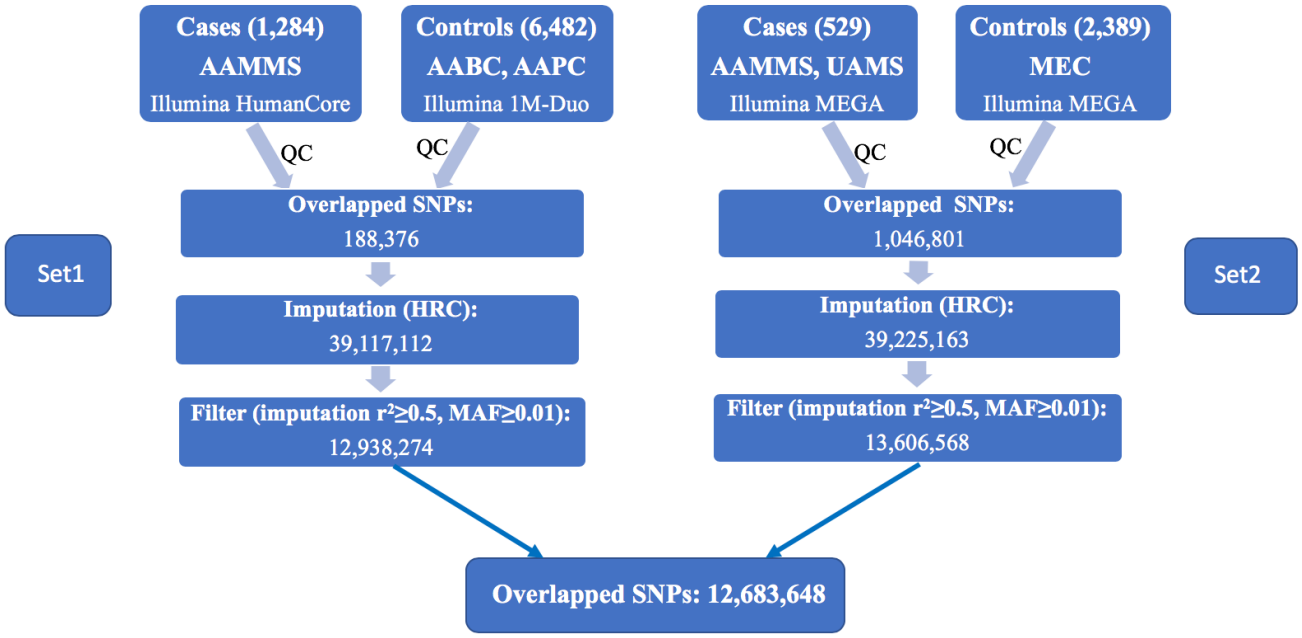
Supplementary Table S4. Associations between unweighted categorical polygenic risk scores (PRSs) and multiple myeloma risk in 1,813 patients and 8,871 controls of African ancestry.

Polygenic Risk Score Category[a]	Number of Cases	Number of Controls	OR(95% CI)	P-value	P_{Het}
0%-10%	115	888	0.67(0.54,0.83)	1.78×10^{-4}	0.48
10%-25%	200	1331	0.76(0.64,0.90)	1.32×10^{-3}	0.52
25%-75%(baseline)	865	4434	1	-	-
75%-90%	352	1330	1.36(1.18,1.56)	2.05×10^{-5}	0.90
90%-100%	280	888	1.60(1.37,1.87)	2.95×10^{-9}	0.40

Odds Ratios (ORs) were adjusted for age, sex, and PCs1-10; P-values were Wald P-values; P_{Het} were P-value of heterogeneity in fixed-effect meta analyses

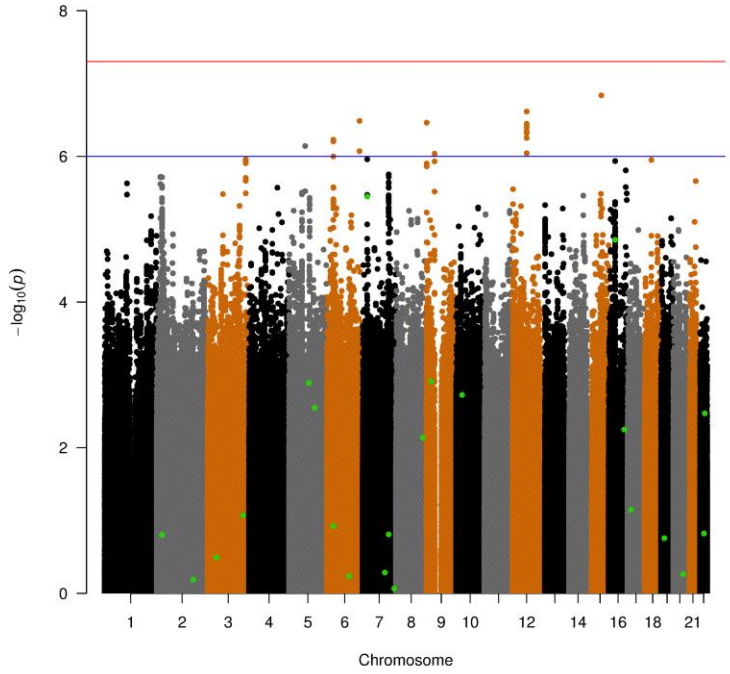
a: The unweighted PRS were constructed using the known 22 index SNPs reported in European GWAS, weights were assigned to 1.

Supplementary Figure S1. Quality control flow chart of AA MM study

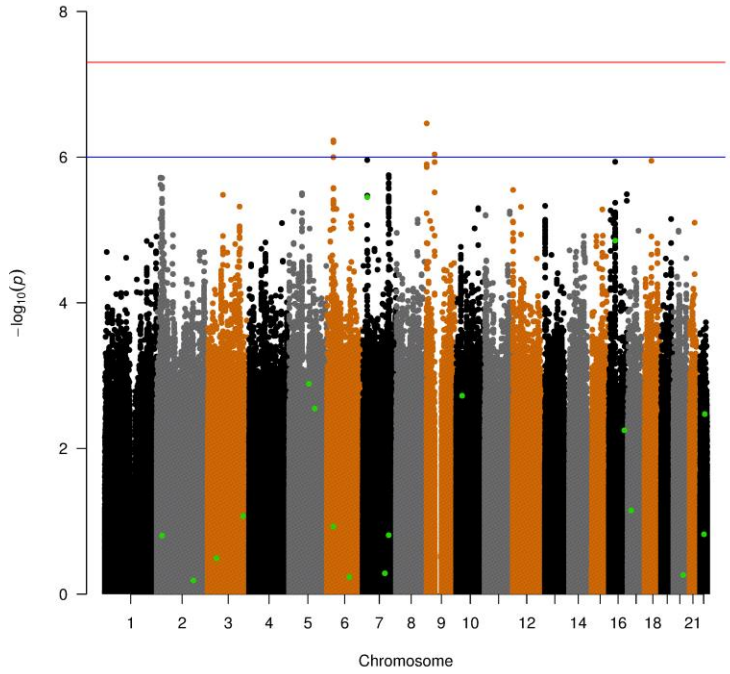


Supplementary Figure S2. Manhattan plots for multiple myeloma GWAS in AA population. This figure shows all genotyped and imputed results of the overlapped SNPs across two sets. The upper plot a) excluded SNPs with MAF<0.01 and imputation score (r^2)<0.5; while the lower plot b) excluded SNPs with MAF<0.01 and imputation score (r^2)<0.8. The orange line represents the genome-wide significant cut-off value of $P = 5 \times 10^{-8}$. Blue line represents the suggestive cut-off value of $P = 1 \times 10^{-6}$. Green dots represent known risk alleles for MM in European population.

a)

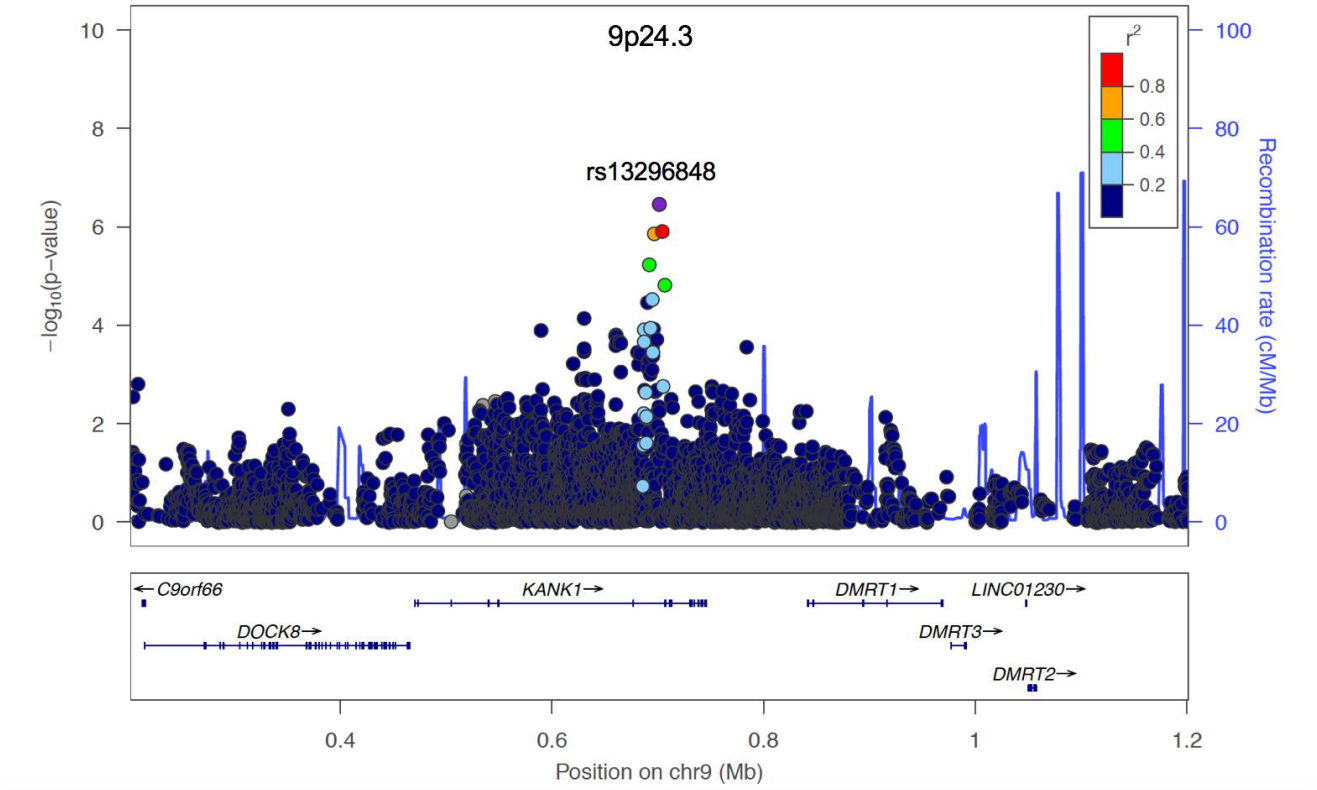


b)

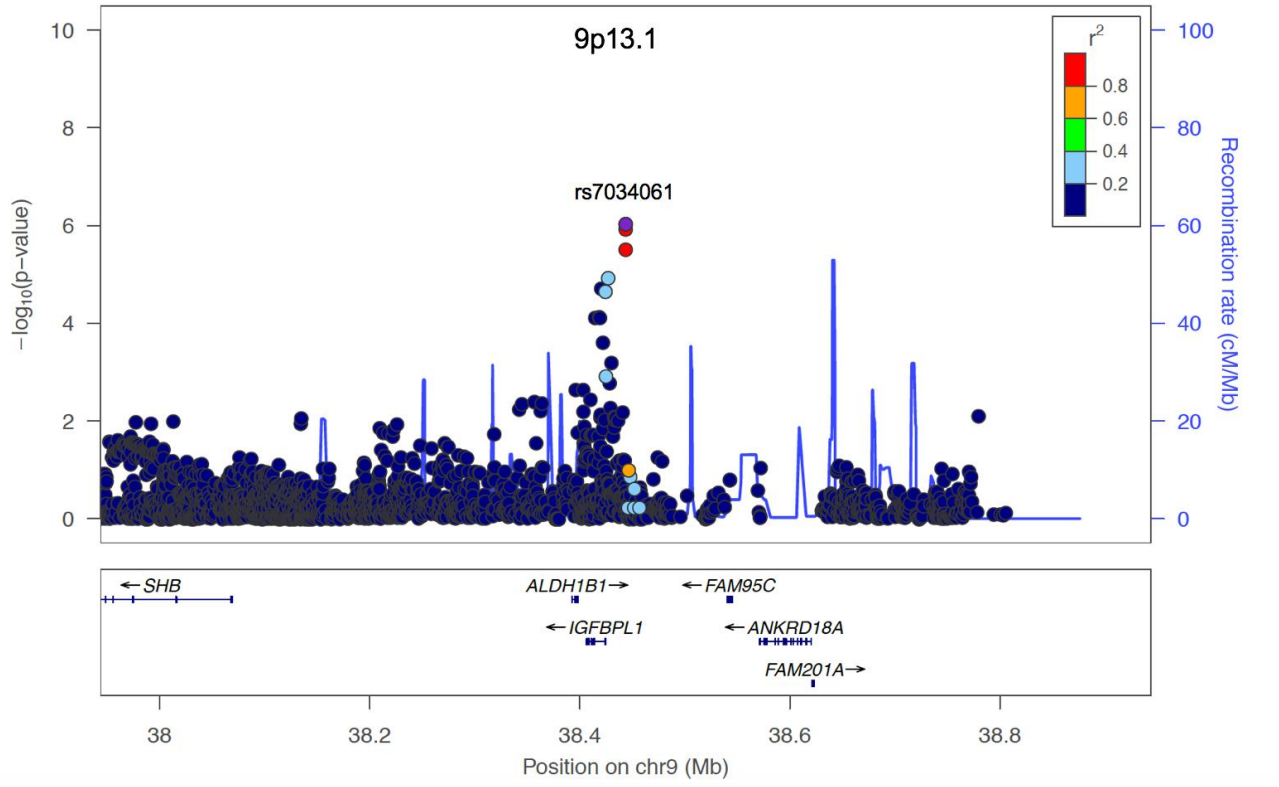


Supplementary Figure S3. Regional association plots of the suggestive novel risk regions at 9p24.3 (0.2-1.2MB) and 9p13.1 (37.8-38.8MB) associated with multiple myeloma risk in AA population. *Single-nucleotide polymorphisms (SNPs) are plotted by position (x-axis) and -log$_{10}$P-value (y-axis).* SNPs with MAF<0.01 and imputation score (r^2)<0.8 were excluded. *r^2 was estimated in African individuals of phase III 1000 Genomes Project (1KGP). The most statistically significant associated SNP (purple dot) in 9p24.3 is rs13296848 (chr9:701529) and in 9p13.1 is rs7034061 (chr9:38443792), and the surrounding SNPs are colored to indicate pairwise correlation with the index SNP.*

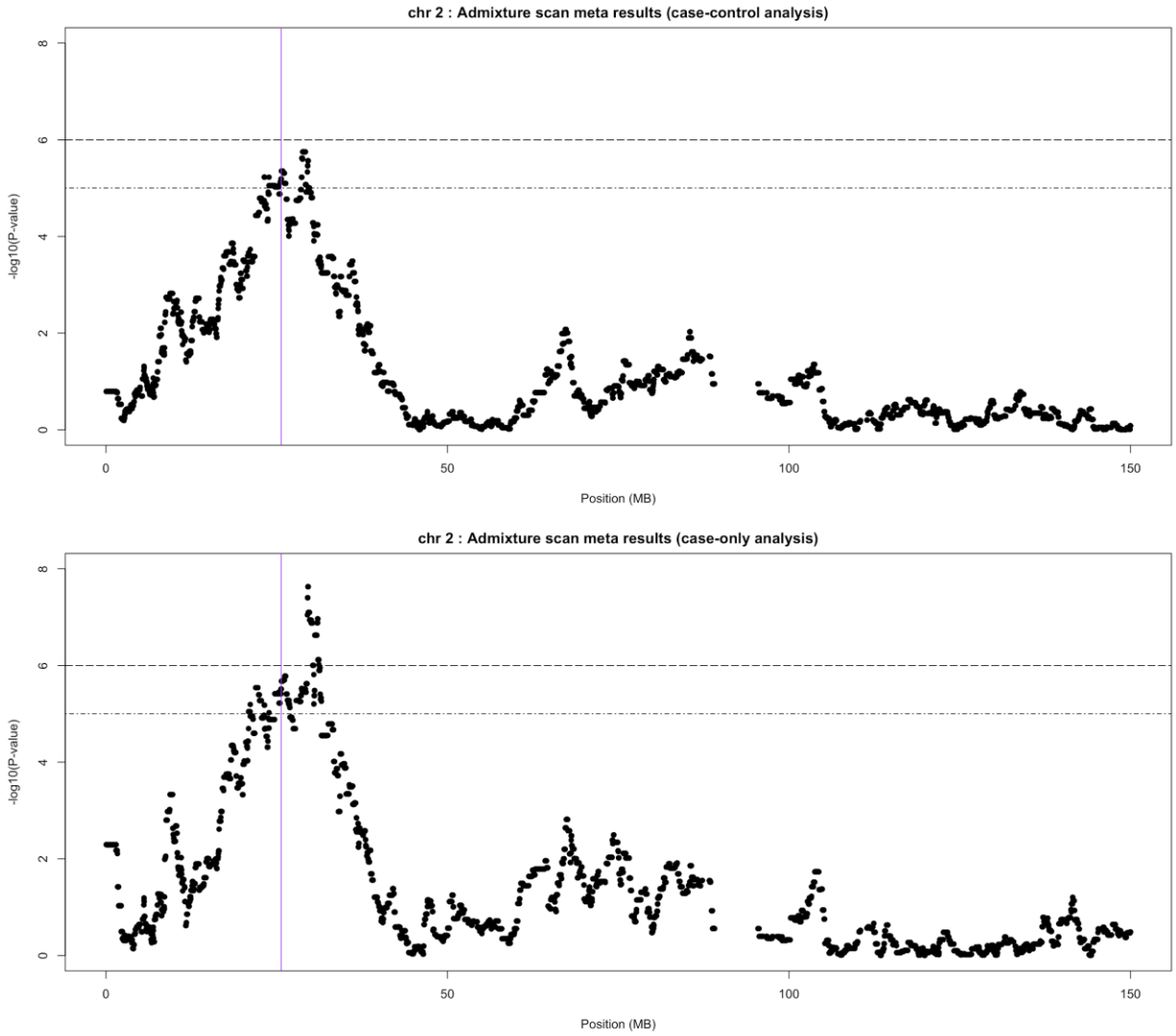
a)



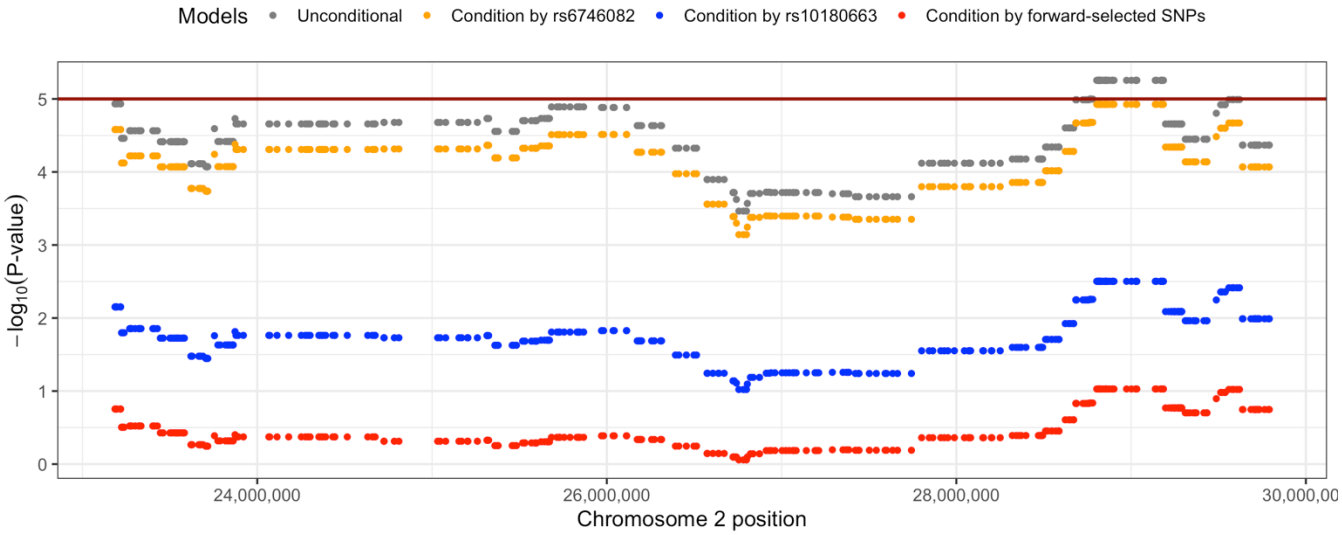
b)


9p13.1
rs7034061
r²
0.8
0.6
0.4
0.2
−log10(p−value)
Recombination rate (cM/Mb)
SHB
ALDH1B1
FAM95C
IGFBPL1
ANKRD18A
FAM201A
Position on chr9 (Mb)

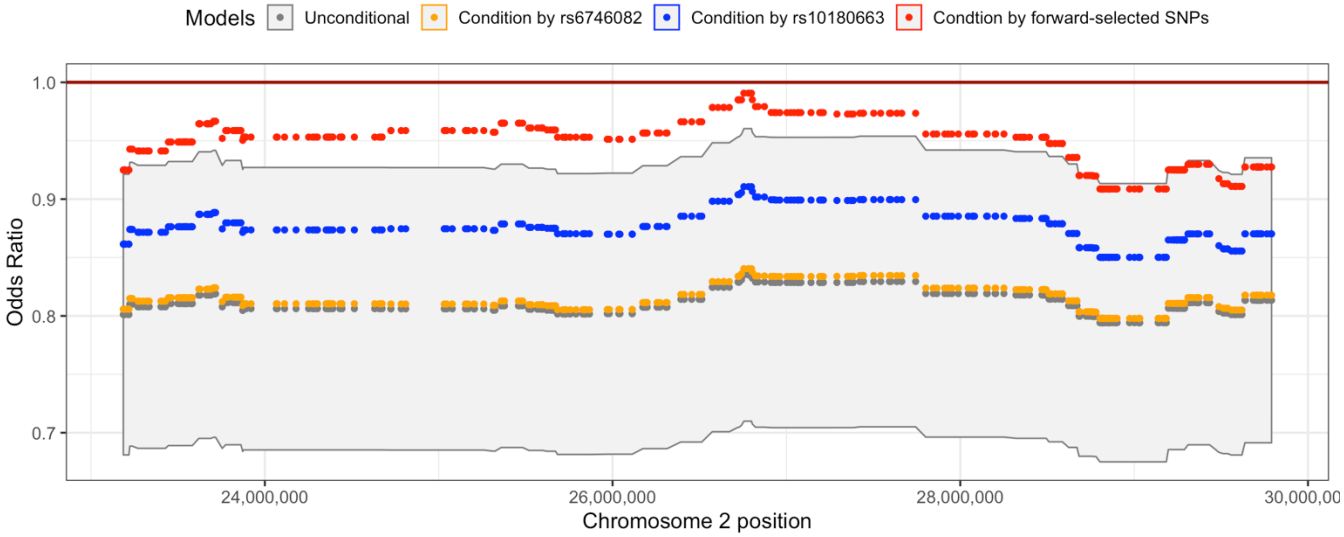
Supplementary figure S4. Scatter plots of admixture mapping analyses of multiple myeloma at chromosome 2 (0-150 MB) in AA population. x-axis is chromosome position in MB and y-axis is *-log$_{10}$P-value* for admixture association in case-control analysis (upper plot) and case-only analysis (lower plot) of local African ancestry on chromosome 2 (0-150MB). Purple lines indicate known MM risk loci (rs10180663). Dotted lines are *-log$_{10}$P-values* of 5 and 6.



Supplementary Figure S5. Negative log10(*P*-value) plot for admixture associations in case-control analyses of local African ancestry at chromosome 2 (23.1- 29.8 Mb) in AA population. x-axis is chromosome position, y-axis is *-log$_{10}$P-value* of local African ancestry. Grey dots are marginal results adjusted for age, sex, and the first ten principle components; orange dots are conditional results with additional adjusting for the known risk allele rs6746082, blue dots are conditional results with additional adjusting for the better AA marker rs10180663, and red dots are conditional results with additional adjusting for independent SNPs (rs10180663, rs10169985, rs6734496) at 23.1- 29.8 Mb identified by forward-selection logistic regression.

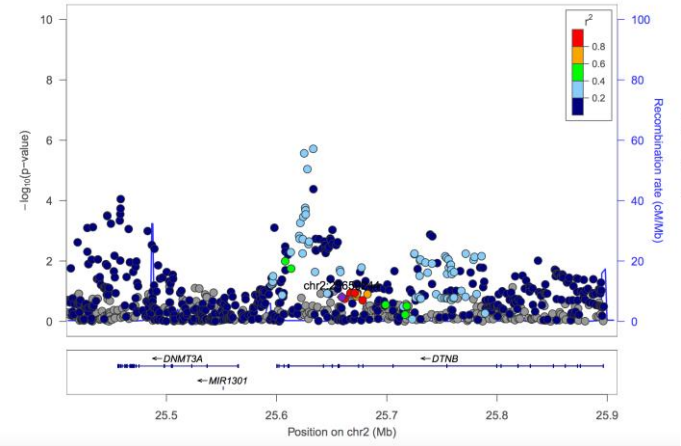


Supplementary Figure S6. The odds ratios of local African ancestry on multiple myeloma risk with/without adjusting for allele dosages in case-control analyses at chromosome 2 (23.1- 29.8 Mb) in AA population. x-axis is chromosome position, y-axis is odds ratios (ORs) of local African ancestry. Grey dots are marginal ORs adjusted for age, sex, and the first ten principle components; orange dots are conditional ORs with additional adjusting for the known risk allele rs6746082, blue dots are conditional ORs with additional adjusting for the better AA marker rs10180663, and red dots are conditional ORs with additional adjusting for independent SNPs (rs10180663, rs10169985, rs6734496) at 23.1- 29.8 Mb identified by forward-selection logistic regression. The grey region represents the ±15% change of marginal ORs.



Supplementary Figure S7. LocusZoom plots for variants located at the 22 known multiple myeloma risk loci among AA individuals (r^2 computed from European population in 1KGP). Single-nucleotide polymorphisms (SNPs) are plotted by position (x-axis) and *-log$_{10}$P-value* (y-axis). SNPs with MAF<0.01 and imputation score (r^2)<0.8 were excluded. r^2 was calculated in European individuals of phase III 1KGP. The purple diamonds are index SNPs reported by previous GWAS studies, and the surrounding SNPs are colored to indicate pairwise correlation with the index SNP.

2p23.3



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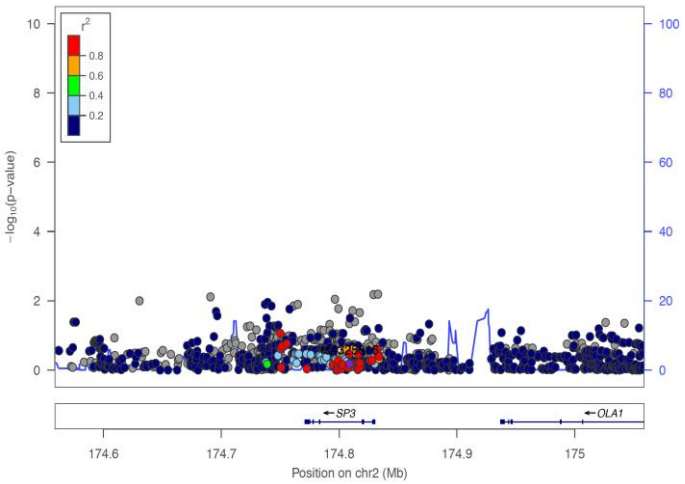

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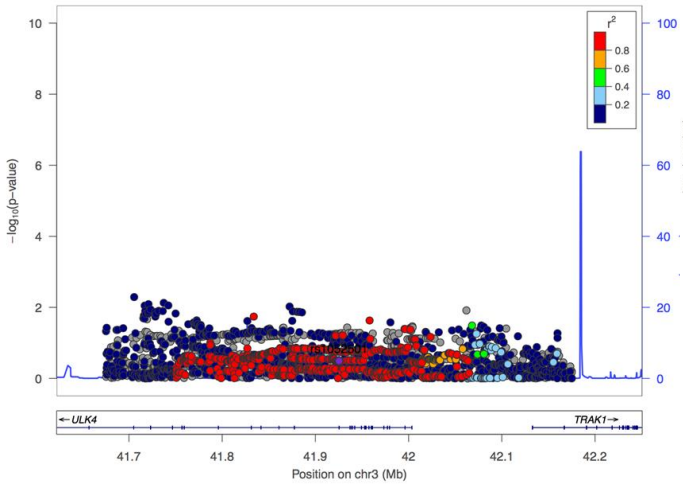

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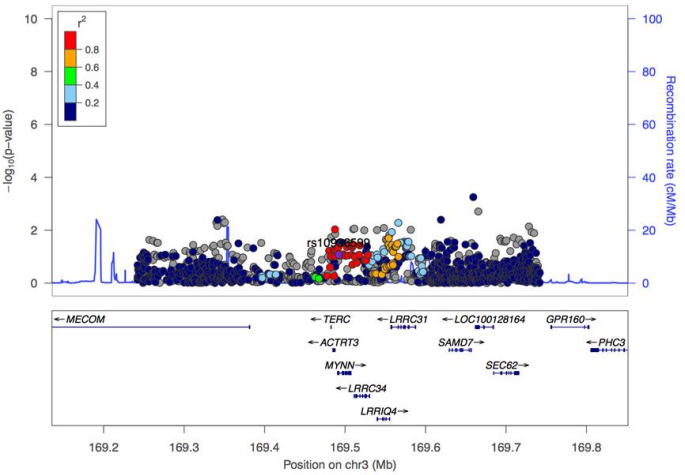

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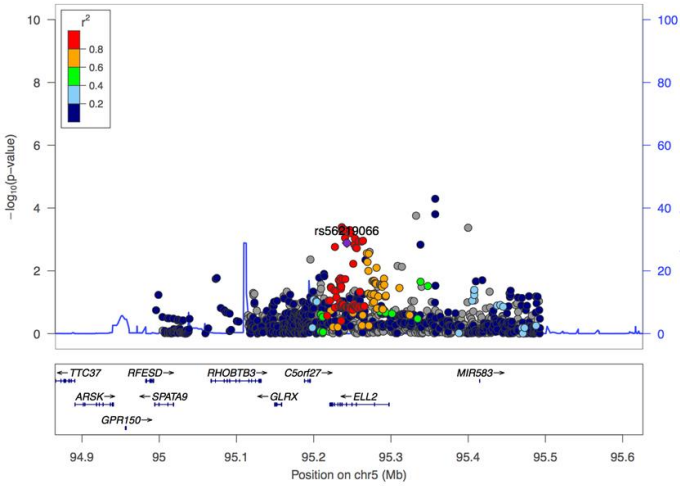

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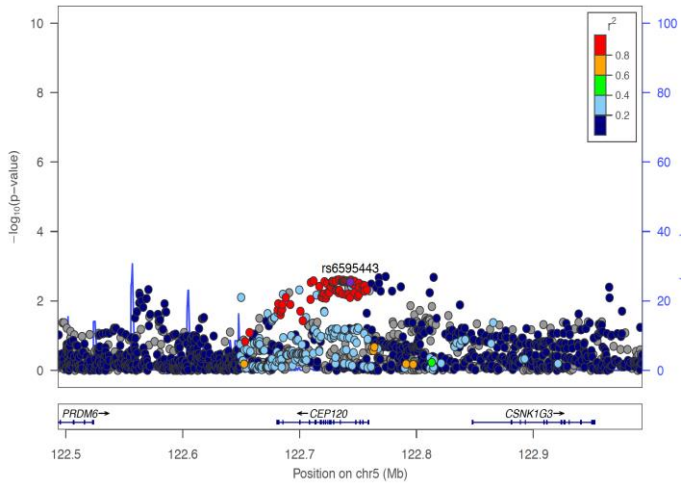

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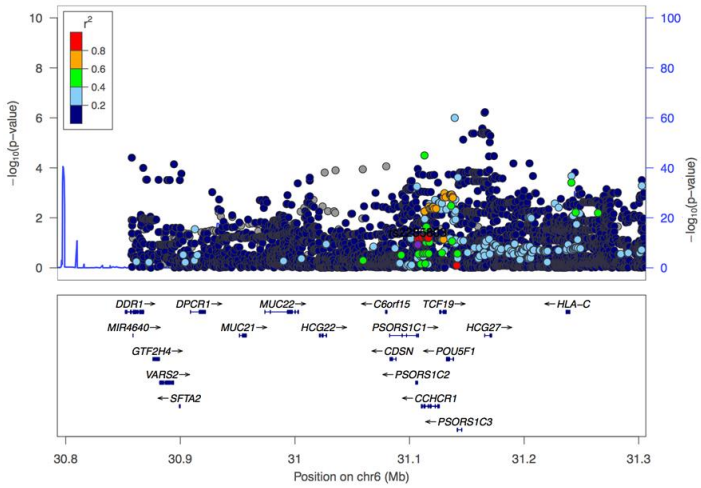

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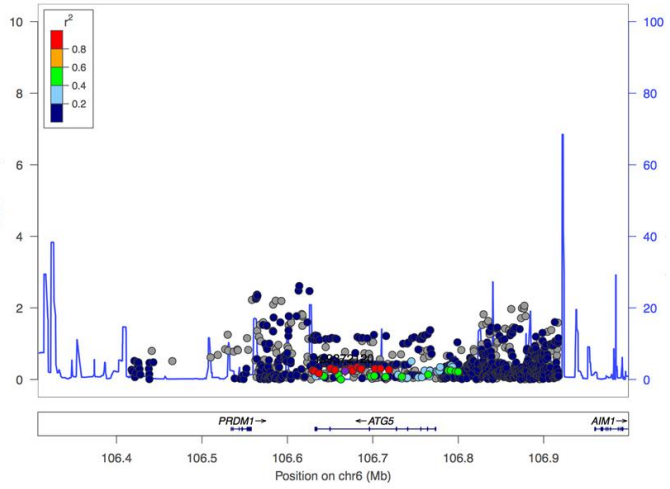

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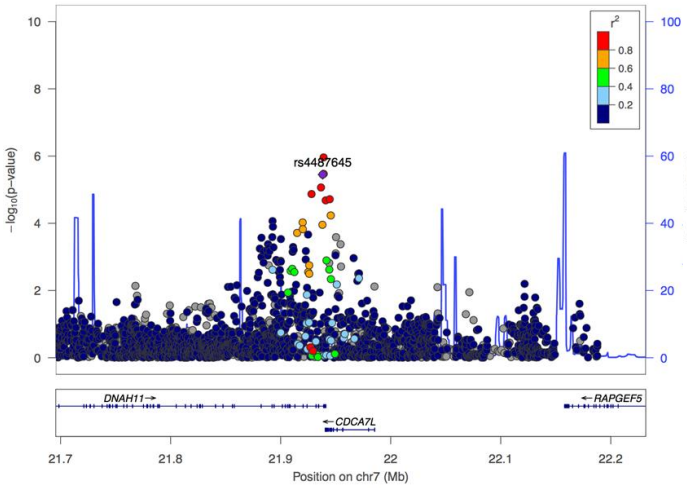

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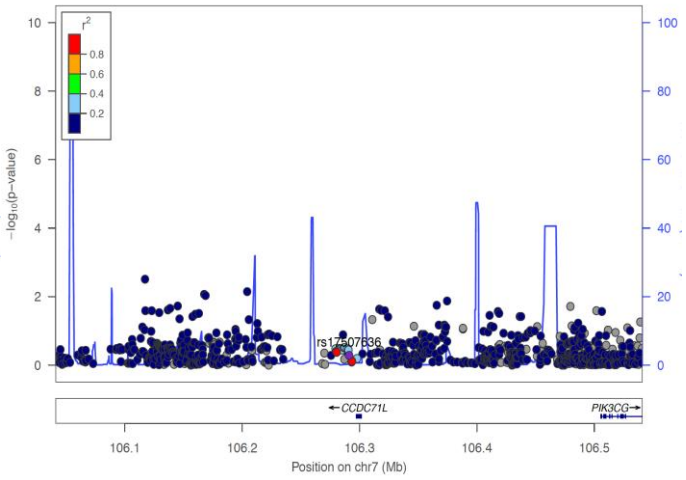

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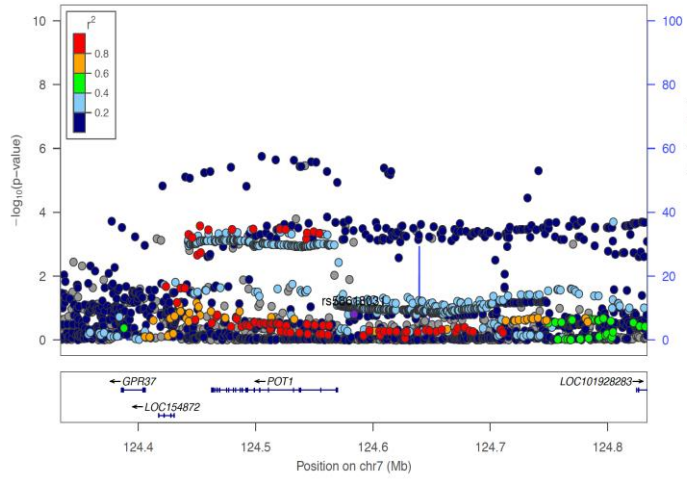

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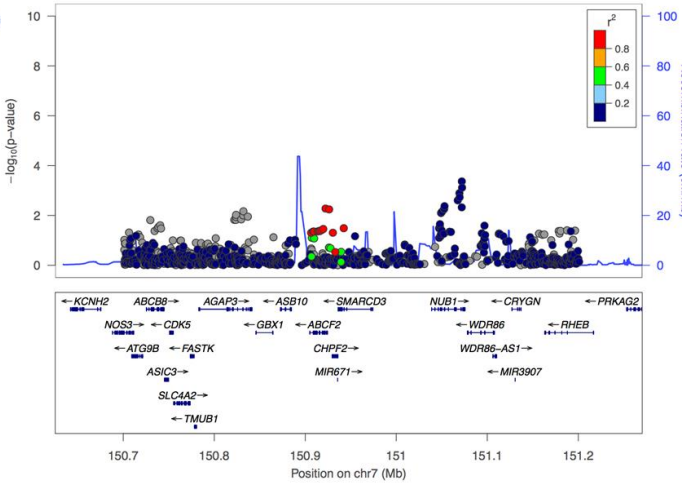

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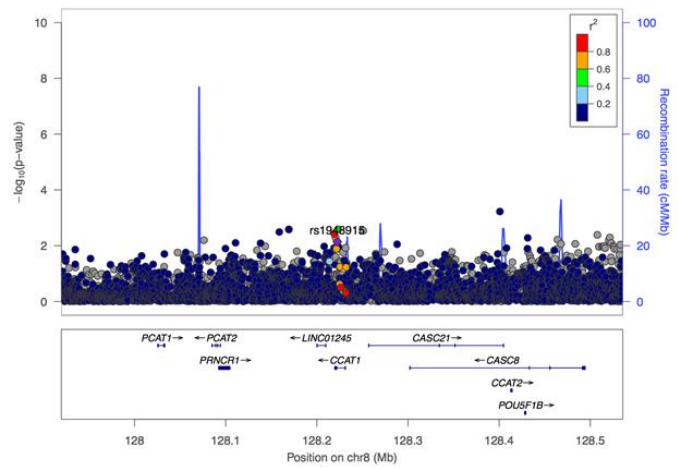

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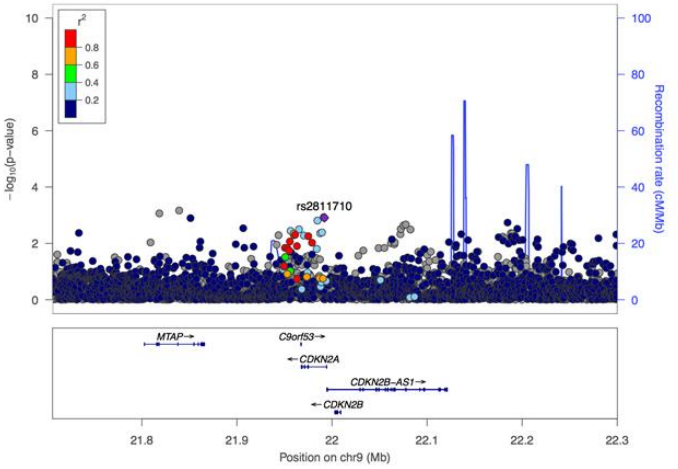

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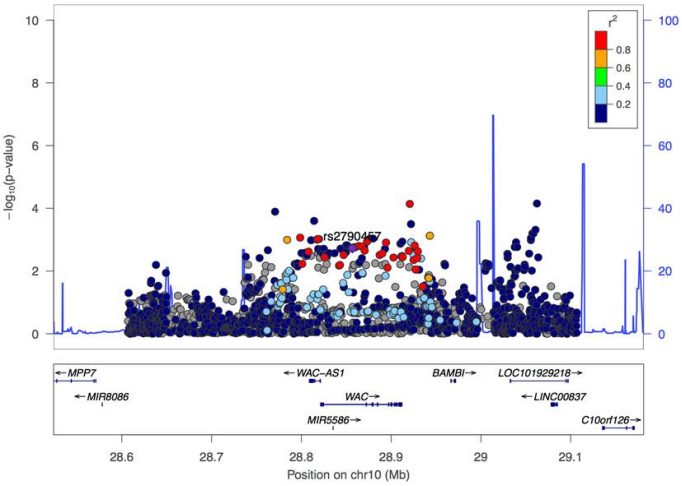

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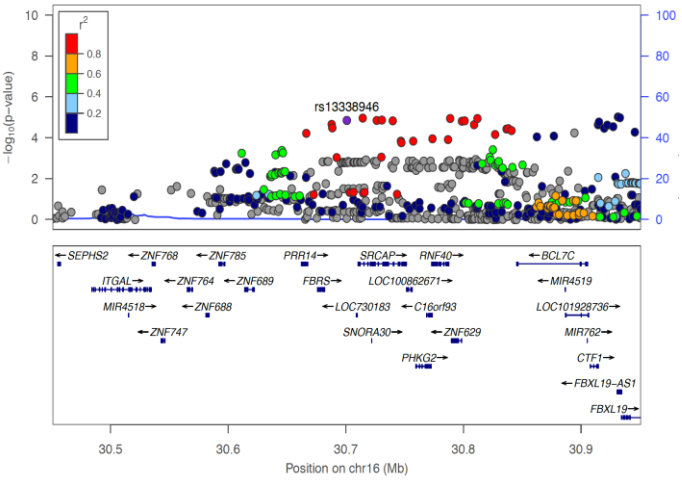

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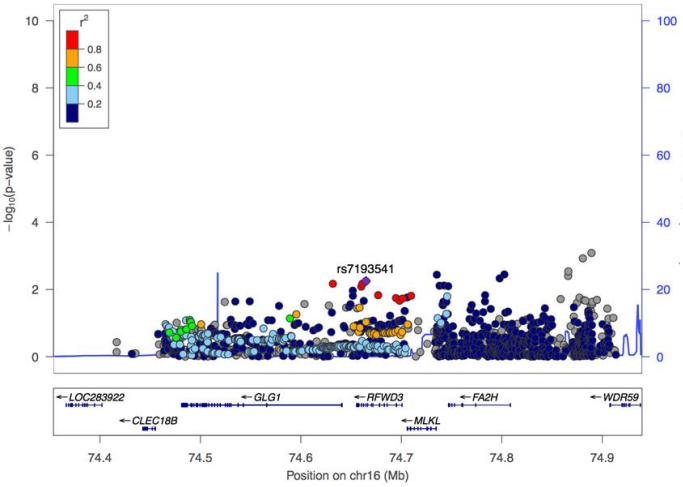

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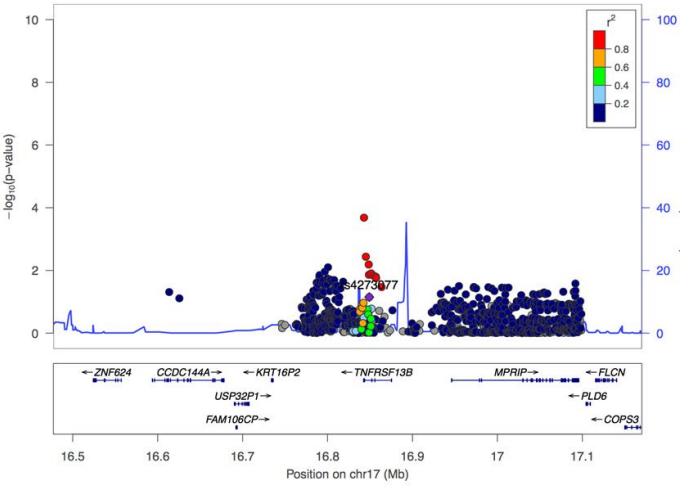

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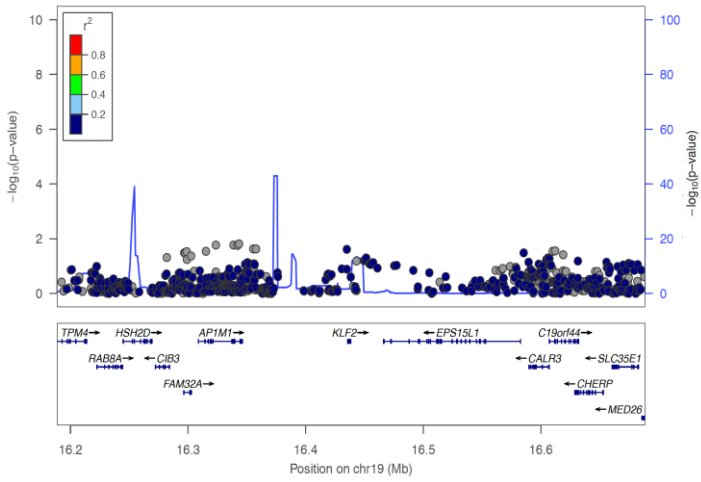

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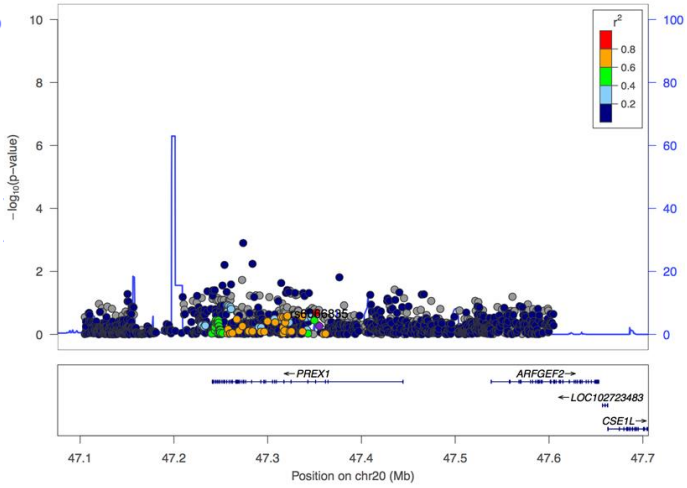

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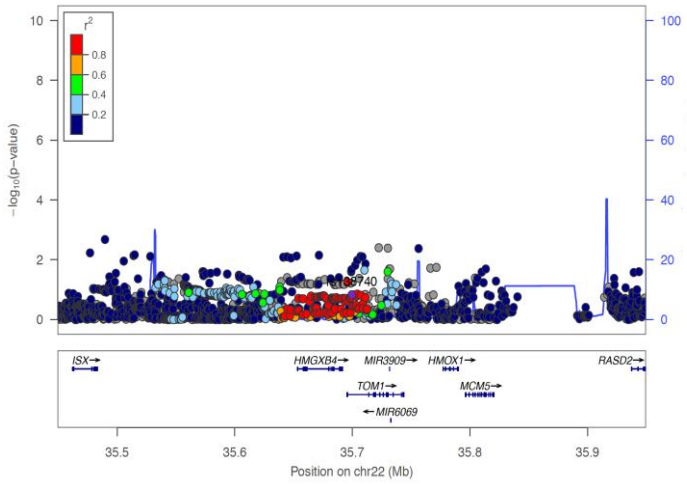

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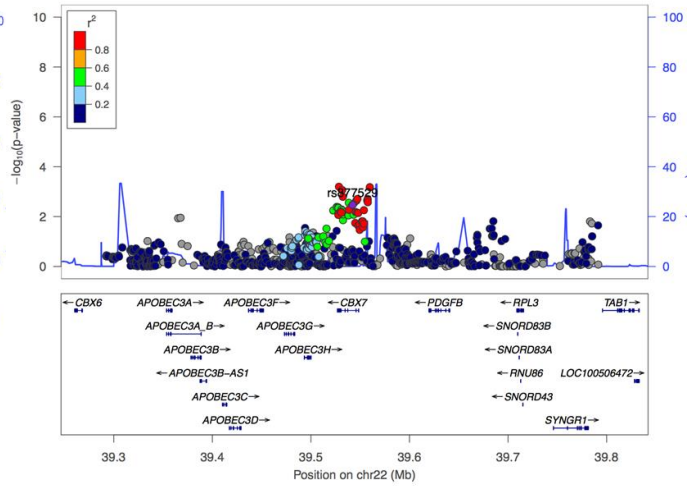

Supplementary figure S8. Functional annotation in UCSC Genome Browser for allele rs13296848 and its correlated SNPs. Variant with blue color is the index SNP rs13296848. Variants with yellow color are SNPs in association with the index SNP rs13296848 (r^2 >0.4 in African population of 1KGP).