Analysis Summary: Age of First Menses

Phenotype Description

Quantitative trait based on the following question:

- Research Snippets
  - How old were you when you had your first menstrual period? (Under 8, 8-9 years old, 10-11 years old, 12-13 years old, 14-15 years old, 16 years old or older, I'm not sure)

Responses were restricted to female customers and were scored from 0 to 5 from youngest to oldest.

Phenotype Statistics

The following table shows demographics of unrelated, European individuals included in the GWAS.

Phenotype	Group	Total	M	F	(0,30]	(30,45]	(45,60]	(60,Inf]
age_first_menses	under_8	39	0	39	8	17	9	5
	8-9	1535	0	1535	234	441	435	425
	10-11	16166	0	16166	2482	4246	4570	4868
	12-13	42946	0	42946	5876	11500	12795	12775
	14-15	13484	0	13484	1660	3548	4386	3890
	16+	2661	0	2661	276	657	941	787

The following table shows the phenotypic distribution across 23andMe genotyping platforms for individuals included in the GWAS.

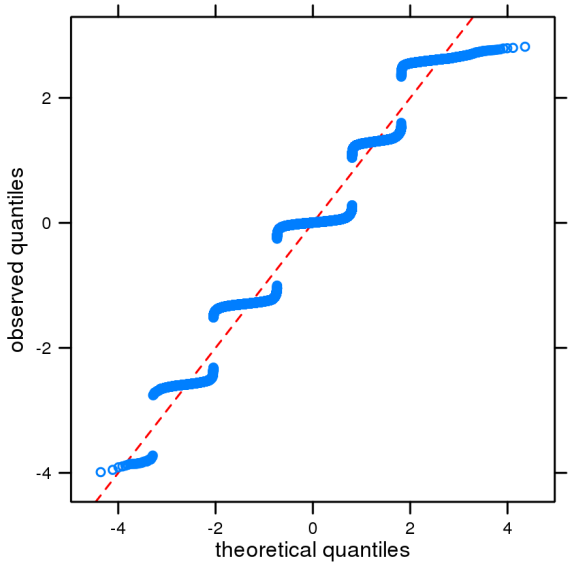
Phenotype	Group	Total	v1/v2	v3	v4
age_first_menses	under_8	39		32	7
	8-9	1535	34	1205	296
	10-11	16166	393	12764	3009
	12-13	42946	1086	33844	8016
	14-15	13484	341	10704	2439
	16+	2661	65	2068	528

Null Model with Covariates

The following table shows results of fitting a model for the trait based on just the covariates. Principal coordinates have been standardized, so these effect sizes are in units of standard deviations.

	Estimate	Std. Error	t value	Pr(>|t|)
age	0.00118	0.000182	6.5	1.0×10^{-10}
pc.0	0.00832	0.002817	3.0	0.0031
pc.1	0.02533	0.002826	9.0	3.2×10^{-19}
pc.2	−0.02647	0.002827	−9.4	7.8×10^{-21}
pc.3	0.00563	0.002813	2.0	0.045
pc.4	0.00364	0.002812	1.3	0.20

Q-Q plot of scaled residuals



SNP-level QC information

The following table shows results for QC filters on the genotyped data:

	failed	passed
no filters	0	1030430
not V1-only, chrM, chrY	4790	1025640
parent-offspring test	2129	1023511
MAF > 0%	3203	1020494
HWE > 1e-20	48225	972832
gt.rate > 90%	30775	952826
batch effects	28267	945446

The following table shows results for QC filters on the imputed dosage data:

	failed	passed
no filters	0	13733809
MAF > 0%	0	13733809
imputation quality	0	13733809
batch effects	2168	13731641

The following table shows results for QC filters on the merged association test results:

	passed	total
imputed only	12833621	12833621
both passed	898002	13731623
genotyped only	47444	13779067
no test result	−11514	13767553
MAF < 0.1%	−1728061	12039492

Genetic Association Tests

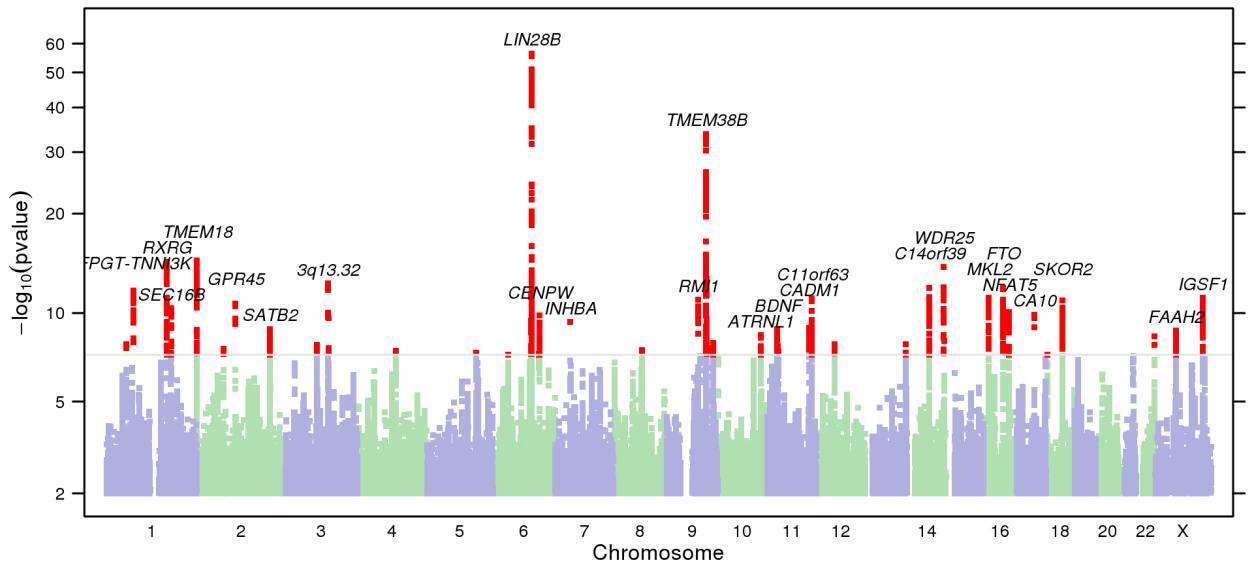
We performed linear regression assuming an additive model for allelic effects, using the model:

age_first_menses ~ age + pc.0 + pc.1 + pc.2 + pc.3 + pc.4 + genotype

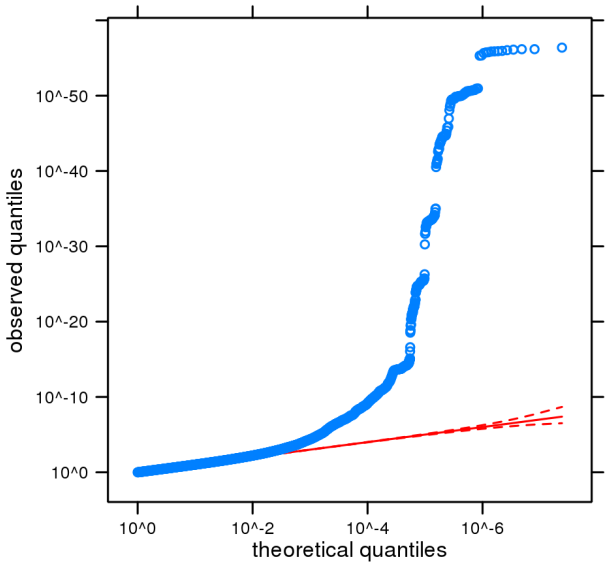
This genome-wide association analysis includes data from 76831 individuals of European ancestry, filtered to remove close relatives.

The results in this report have been adjusted for a genomic control inflation factor λ=1.174. The equivalent inflation factor rescaled for a sample size of 2000 would be λ_{2000}= 1.005 , and for 20000, λ_{20000}= 1.045 .

Manhattan Plot



Q-Q Plot of GWAS Results



Index SNPs for Strongest Associations

cytoband	assay.name	scaffold	position	alleles	src	pvalue	effect	95% CI	gene.context
6q16.3	rs7766336	chr6	105388405	G/T	I	4.2×10^{-57}	0.074	[0.065,0.083]	HACE1--[]--LIN28B
9q31.2	rs12686569	chr9	108916711	G/T	I	1.7×10^{-34}	−0.057	[-0.066,-0.048]	TMEM38B---[]---ZNF462
2p25.3	rs201205097	chr2	613044	D/I	I	3.1×10^{-15}	−0.044	[-0.055,-0.033]	FAM150B---[]--TMEM18
1q23.3	rs100537	chr1	165413644	A/G	I	3.9×10^{-15}	−0.034	[-0.042,-0.026]	[RXRG]
14q32.2	rs12894936	chr14	100846991	C/T	I	1.4×10^{-14}	−0.037	[-0.046,-0.028]	[WDR25]
3q13.32	rs6438424	chr3	117574822	A/C	I	4.1×10^{-13}	0.031	[0.023,0.040]	[]
14q23.1	rs1254309	chr14	60890422	A/G	I	1.1×10^{-12}	0.038	[0.028,0.049]	PPM1A---[]--C14orf39
16q12.2	rs1558902	chr16	53803574	A/T	I	1.1×10^{-12}	0.031	[0.023,0.040]	[FTO]
1p31.1	rs1040070	chr1	74977870	C/G	I	1.7×10^{-12}	−0.031	[-0.040,-0.022]	[FPGT-TNNI3K]
16p13.12	rs1704528	chr16	14388750	C/T	I	6.4×10^{-12}	−0.033	[-0.042,-0.024]	MKL2--[]---PARN
Xq26.2	rs762080	chrX	130534030	A/C	I	6.5×10^{-12}	0.035	[0.025,0.044]	IGSF1---[]---OR13H1
11q24.1	rs7113019	chr11	122819119	A/C	I	7.1×10^{-12}	0.030	[0.021,0.038]	[C11orf63]
9q21.32	rs2378662	chr9	86707289	A/G	I	9.5×10^{-12}	0.030	[0.021,0.038]	RMI1--[]---SLC28A3
18q21.1	rs2048523	chr18	44799515	A/G	I	1.1×10^{-11}	−0.029	[-0.038,-0.021]	SKOR2--[]---SMAD2
2q12.1	rs2679894	chr2	105870779	A/G	I	2.0×10^{-11}	−0.032	[-0.042,-0.023]	GPR45--[]--TGFBRAP1
1q25.2	rs571567	chr1	177872905	A/G	I	4.6×10^{-11}	0.036	[0.025,0.047]	FAM5B---[]--SEC16B
16q22.1	rs6499244	chr16	69735271	A/T	I	8.7×10^{-11}	0.028	[0.020,0.037]	[NFAT5]

17q21.33	rs9635759	chr17	49613785	A/G	I	1.3×10^{-10}	−0.030	[-0.039,-0.021]	UTP18---[]--CA10
6q22.32	rs1490384	chr6	126851160	C/T	I	1.4×10^{-10}	−0.028	[-0.036,-0.019]	CENPW---[]---RSPO3
7p14.1	rs4141153	chr7	41467946	A/G	I	4.2×10^{-10}	0.034	[0.023,0.044]	C7orf10---[]---INHBA
11q23.3	rs5794958	chr11	115044361	D/I	I	1.0×10^{-9}	0.031	[0.021,0.041]	[CADM1]
2q33.1	rs1456522	chr2	199769183	A/G	I	1.3×10^{-9}	−0.028	[-0.038,-0.019]	PLCL1---[]---SATB2
11p14.1	rs35051342	chr11	27634373	C/G	I	1.4×10^{-9}	−0.032	[-0.043,-0.022]	LIN7C---[]--BDNF
Xp11.21	rs5914101	chrX	57439945	A/G	I	1.6×10^{-9}	0.033	[0.022,0.043]	[FAAH2]
10q25.3	rs11349289	chr10	117483568	D/I	I	3.2×10^{-9}	0.027	[0.018,0.036]	[ATRNL1]
22q13.33	rs11703376	chr22	49678713	C/T	I	3.7×10^{-9}	−0.028	[-0.038,-0.019]	FAM19A5---[]---C22orf34
9q33.3	rs4072705	chr9	127373463	A/C	I	9.7×10^{-9}	−0.025	[-0.033,-0.016]	[NR6A1]
1p32.3	rs630602	chr1	54728864	C/G	I	1.1×10^{-8}	0.026	[0.017,0.034]	[SSBP3]
13q34	rs35413307	chr13	112191778	G/T	I	1.2×10^{-8}	0.026	[0.017,0.034]	TEX29---[]---SOX1
12q13.12	rs7306275	chr12	50250111	A/G	I	1.2×10^{-8}	0.027	[0.018,0.036]	BCDIN3D--[]--FAIM2
3p12.1	rs13068899	chr3	86944938	A/T	I	1.3×10^{-8}	0.027	[0.018,0.036]	CADM2---[]--VGLL3
11p14.1	rs11031005	chr11	30226356	C/T	I	1.5×10^{-8}	−0.035	[-0.047,-0.023]	KCNA4---[]--FSHB
9q31.3	rs10217747	chr9	114309935	C/T	I	2.0×10^{-8}	0.025	[0.017,0.034]	ZNF483-[]--PTGR1
2p13.1	rs35273932	chr2	73739848	G/T	I	2.1×10^{-8}	0.116	[0.075,0.157]	[ALMS1]
8q21.11	rs10094574	chr8	78116067	A/G	I	2.6×10^{-8}	0.027	[0.018,0.037]	PEX2---[]
4q24	rs112217694	chr4	104641064	C/G	I	2.9×10^{-8}	−0.053	[-0.072,-0.034]	TACR3[]---CXXC4
5q31.1	rs13178130	chr5	133905829	C/T	I	3.7×10^{-8}	0.025	[0.016,0.034]	[PHF15]
6p21.1	rs9349203	chr6	41893323	A/G	I	4.7×10^{-8}	0.024	[0.015,0.032]	[BYSL]
18p11.31	rs35212912	chr18	3816054	D/I	I	4.8×10^{-8}	−0.030	[-0.040,-0.019]	[DLGAP1]

Quality Statistics for Index SNPs

assay.name	is.v2	is.v3	is.v4	gt.rate	hw.p.value	p.date	freq.b	avg.rsqr	min.rsqr	p.batch	dose.b	qc.mask
rs7766336	FALSE	FALSE	FALSE					0.9785	0.9758	0.089	0.3188	v2v3v4
rs12686569	TRUE	TRUE	TRUE	0.9971	0.67	0.27	0.3200	0.9998	0.9995	0.50	0.3211	v2v3v4
rs201205097	FALSE	FALSE	FALSE					0.9903	0.9848	0.33	0.8172	v2v3v4
rs100537	TRUE	TRUE	TRUE	0.9992	0.40	0.94	0.5410	0.9955	0.9861	0.50	0.5408	v2v3v4
rs12894936	FALSE	FALSE	FALSE					0.9389	0.9109	1.0	0.3069	v2v3v4
rs6438424	FALSE	FALSE	FALSE					0.9966	0.9953	0.60	0.4981	v2v3v4
rs1254309	FALSE	FALSE	FALSE					0.8462	0.8390	0.0010	0.2544	v2v3v4
rs1558902	FALSE	TRUE	TRUE	0.9992	0.071	0.55	0.5872	1.0000	0.9997	0.61	0.5870	v2v3v4
rs1040070	FALSE	FALSE	FALSE					0.9928	0.9768	0.38	0.4274	v2v3v4
rs1704528	FALSE	FALSE	FALSE					0.9049	0.6372	0.043	0.6657	v2v3v4
rs762080	FALSE	FALSE	FALSE					0.9974	0.9917	9.0×10^{-5}	0.7561	v2v3v4
rs7113019	FALSE	FALSE	FALSE					0.9916	0.9851	0.020	0.5102	v2v3v4
rs2378662	FALSE	FALSE	FALSE					0.9888	0.9706	0.052	0.4548	v2v3v4
rs2048523	TRUE	TRUE	TRUE	0.9990	0.52	0.64	0.5361	0.9986	0.9976	0.48	0.5349	v2v3v4
rs2679894	FALSE	FALSE	FALSE					0.8072	0.6432	5.8×10^{-5}	0.5519	v2v3v4
rs571567	FALSE	FALSE	FALSE					0.9969	0.9959	0.037	0.8122	v2v3v4
rs6499244	FALSE	FALSE	FALSE					0.9990	0.9965	0.59	0.4539	v2v3v4
rs9635759	FALSE	TRUE	FALSE	0.9809	0.00010	0.00016	0.6879	0.9964	0.9758	0.032	0.6945	v2v3v4
rs1490384	FALSE	FALSE	FALSE					0.9892	0.9856	6.2×10^{-5}	0.5159	v2v3v4
rs4141153	TRUE	TRUE	TRUE	0.9997	0.97	0.12	0.1981	0.9999	0.9994	0.085	0.1975	v2v3v4
rs5794958	FALSE	FALSE	FALSE					0.9688	0.9490	0.89	0.2481	v2v3v4
rs1456522	FALSE	FALSE	FALSE					0.9873	0.9748	0.00081	0.6874	v2v3v4
rs35051342	FALSE	FALSE	FALSE					0.9978	0.9953	0.79	0.7902	v2v3v4
rs5914101	FALSE	FALSE	FALSE					0.9130	0.8820	1.5×10^{-17}	0.7602	v2v3v4
rs11349289	FALSE	FALSE	FALSE					0.9659	0.9621	0.069	0.6348	v2v3v4
rs11703376	FALSE	TRUE	FALSE	0.9974	0.00054	0.70	0.2815	0.9931	0.9656	0.16	0.2803	v2v3v4
rs4072705	FALSE	FALSE	FALSE					0.9916	0.9898	0.11	0.4979	v2v3v4
rs630602	FALSE	FALSE	FALSE					0.9592	0.9538	0.0011	0.4149	v2v3v4
rs35413307	FALSE	FALSE	FALSE					0.9610	0.9487	0.70	0.4068	v2v3v4
rs7306275	FALSE	FALSE	FALSE					0.8748	0.8645	0.0029	0.6243	v2v3v4
rs13068899	FALSE	FALSE	FALSE					0.8476	0.8380	0.00062	0.5987	v2v3v4
rs11031005	FALSE	FALSE	FALSE					0.9975	0.9957	0.083	0.8604	v2v3v4
rs10217747	FALSE	FALSE	FALSE					0.9666	0.9340	0.21	0.3817	v2v3v4
rs35273932	FALSE	FALSE	FALSE					0.8583	0.8065	0.0021	0.0126	v2v3v4
rs10094574	FALSE	FALSE	FALSE					0.9671	0.9553	0.74	0.7246	v2v3v4
rs112217694	FALSE	FALSE	FALSE					0.9299	0.9195	0.053	0.9432	v2v3v4
rs13178130	TRUE	TRUE	TRUE	0.9997	0.081	0.0077	0.3668	0.9959	0.9910	0.0028	0.3670	v2v3v4
rs9349203	FALSE	FALSE	FALSE					0.9893	0.9814	0.51	0.4602	v2v3v4
rs35212912	FALSE	FALSE	FALSE					0.9720	0.9682	0.92	0.7187	v3

SNP Statistics in the GWAS Sample

assay.name	AA.0	AB.0	BB.0	im.num.0	dose.b.0
rs7766336				76831	0.3225
rs12686569	35596	33359	7707	76831	0.3189
rs201205097				76831	0.8205
rs100537	16359	38002	22396	76831	0.5386
rs12894936				76831	0.3035
rs6438424				76831	0.4994
rs1254309				76831	0.2519
rs1558902	12286	35916	26668	76831	0.5961
rs1040070				76831	0.4266
rs1704528				76831	0.6659

rs762080				76831	0.7579
rs7113019				76831	0.5091
rs2378662				76831	0.4557
rs2048523	16300	38174	22296	76831	0.5393
rs2679894				76831	0.5571
rs571567				76831	0.8074
rs6499244				76831	0.4499
rs9635759	5666	25733	28042	76831	0.6936
rs1490384				76831	0.5099
rs4141153	49563	24263	2989	76831	0.1968
rs5794958				76831	0.2537
rs1456522				76831	0.6815
rs35051342				76831	0.7960
rs5914101				76831	0.7686
rs11349289				76831	0.6357
rs11703376	31776	23912	4799	76831	0.2759
rs4072705				76831	0.4998
rs630602				76831	0.4120
rs35413307				76831	0.4048
rs7306275				76831	0.6254
rs13068899				76831	0.5966
rs11031005				76831	0.8592
rs10217747				76831	0.3790
rs35273932				76831	0.0126
rs10094574				76831	0.7231
rs112217694				76831	0.9431
rs13178130	31058	35595	10162	76831	0.3631
rs9349203				76831	0.4549
rs35212912				60351	0.7166

Annotations from NHGRI GWAS Catalog

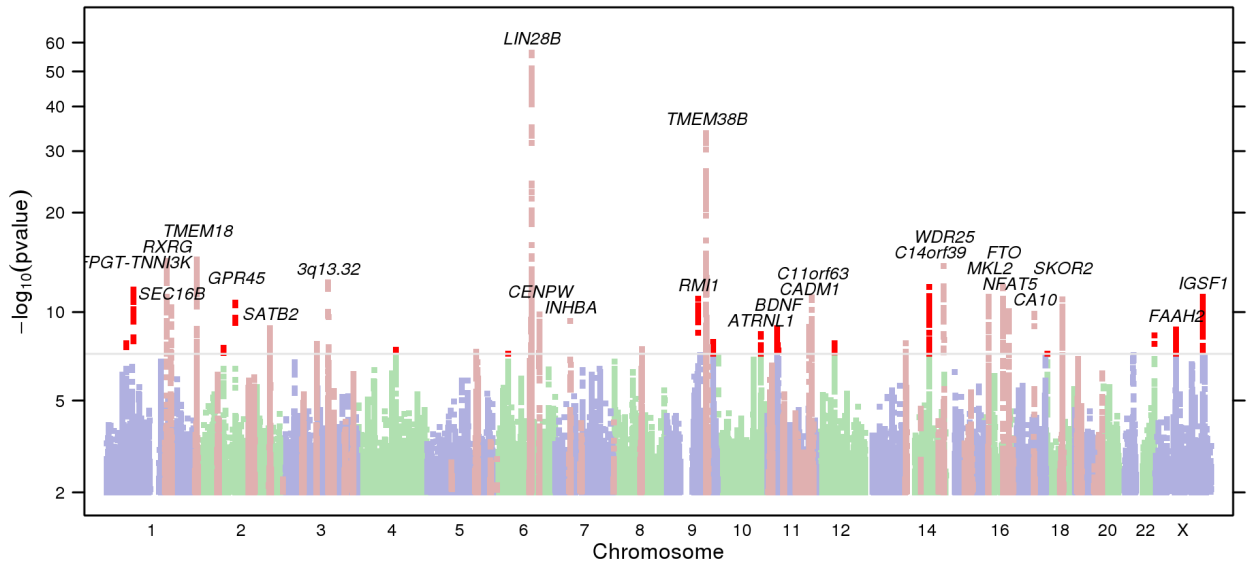
The following table shows, for each index SNP, all entries in the NHGRI GWAS Catalog that are within 500kb and in at least moderate linkage disequilibrium ($r^2 > 0.5$).

region	position	our.name	our.pval	dist	rsqr	assay.name	pvalue	pubmed.id	trait	genes
6q16.3	105388405	rs7766336	4.2×10^{-57}	−20789	0.983	rs9391253	5.0×10^{-12}	23563607	Height	LIN28B
6q16.3	105388405	rs7766336	4.2×10^{-57}	−9451	0.971	rs7759938	4.0×10^{-9}	23449627	Pubertal anthropometrics	LIN28B
6q16.3	105388405	rs7766336	4.2×10^{-57}	−9451	0.971	rs7759938	5.0×10^{-60}	21102462	Menarche (age at onset)	LIN28B
6q16.3	105388405	rs7766336	4.2×10^{-57}	−9451	0.971	rs7759938	8.0×10^{-31}	20881960	Height	LIN28B
6q16.3	105388405	rs7766336	4.2×10^{-57}	−9451	0.971	rs7759938	7.0×10^{-9}	19448620	Menarche (age at onset)	LIN28B
6q16.3	105388405	rs7766336	4.2×10^{-57}	12432	0.575	rs314280	2.0×10^{-14}	19448622	Menarche (age at onset)	LIN28B, HACE1, …
6q16.3	105388405	rs7766336	4.2×10^{-57}	19594	0.943	rs314276	4.0×10^{-16}	19448623	Menarche (age at onset)	LIN28B
6q16.3	105388405	rs7766336	4.2×10^{-57}	29573	0.943	rs314268	8.0×10^{-7}	18391951	Height	LIN28B, HACE1, …
6q16.3	105388405	rs7766336	4.2×10^{-57}	54784	0.640	rs364663	5.0×10^{-7}	23667675	Menarche (age at onset)	LIN28B
9q31.2	108916711	rs12686569	1.7×10^{-34}	19963	0.521	rs7861820	3.0×10^{-9}	19448621	Menarche and menopause (age at onset)	Intergenic
9q31.2	108916711	rs12686569	1.7×10^{-34}	50377	0.940	rs2090409	2.0×10^{-6}	23449627	Pubertal anthropometrics	TMEM38B
9q31.2	108916711	rs12686569	1.7×10^{-34}	50377	0.940	rs2090409	2.0×10^{-33}	21102462	Menarche (age at onset)	TMEM38B
9q31.2	108916711	rs12686569	1.7×10^{-34}	50377	0.940	rs2090409	2.0×10^{-9}	19448620	Menarche (age at onset)	TMEM38B, SLC44A1, …
2p25.3	613044	rs201205097	3.1×10^{-15}	1124	0.973	rs2947411	2.0×10^{-8}	21102462	Menarche (age at onset)	TMEM18
2p25.3	613044	rs201205097	3.1×10^{-15}	9783	0.964	rs2867125	3.0×10^{-49}	20935630	Body mass index	TMEM18
2p25.3	613044	rs201205097	3.1×10^{-15}	10990	0.964	rs6711012	6.0×10^{-35}	23563607	Obesity	TMEM18
2p25.3	613044	rs201205097	3.1×10^{-15}	11634	0.964	rs2903492	6.0×10^{-15}	23563607	Body mass index	TMEM18
2p25.3	613044	rs201205097	3.1×10^{-15}	16200	0.921	rs12463617	3.0×10^{-17}	23669352	Body mass index	TMEM18
2p25.3	613044	rs201205097	3.1×10^{-15}	16200	0.921	rs12463617	2.0×10^{-13}	23563609	Obesity (early onset extreme)	TMEM18
2p25.3	613044	rs201205097	3.1×10^{-15}	21861	0.921	rs6548238	1.0×10^{-18}	19079261	Body mass index	TMEM18
2p25.3	613044	rs201205097	3.1×10^{-15}	31909	0.904	rs7561317	2.0×10^{-18}	19079260	Weight	TMEM18
2p25.3	613044	rs201205097	3.1×10^{-15}	31909	0.904	rs7561317	4.0×10^{-17}	19079260	Body mass index	TMEM18
3q13.32	117574822	rs6438424	4.1×10^{-13}	0	1.000	rs6438424	1.0×10^{-13}	21102462	Menarche (age at onset)	Intergenic
14q23.1	60890422	rs1254309	1.1×10^{-12}	13335	0.671	rs1254319	1.0×10^{-8}	23396134	Refractive error	SIX6
16q12.2	53803574	rs1558902	1.1×10^{-12}	−2820	0.963	rs9940128	4.0×10^{-23}	23669352	Body mass index	FTO
16q12.2	53803574	rs1558902	1.1×10^{-12}	−2820	0.963	rs9940128	2.0×10^{-9}	22399527	Metabolic syndrome	FTO
16q12.2	53803574	rs1558902	1.1×10^{-12}	−2620	1.000	rs1421085	1.0×10^{-9}	23636237	Dietary macronutrient intake	FTO
16q12.2	53803574	rs1558902	1.1×10^{-12}	−2620	1.000	rs1421085	3.0×10^{-28}	23563609	Obesity (early onset extreme)	FTO
16q12.2	53803574	rs1558902	1.1×10^{-12}	−2620	1.000	rs1421085	1.0×10^{-28}	19151714	Obesity	FTO
16q12.2	53803574	rs1558902	1.1×10^{-12}	0	1.000	rs1558902	1.0×10^{-7}	21544081	Obesity	FTO
16q12.2	53803574	rs1558902	1.1×10^{-12}	0	1.000	rs1558902	5.0×10^{-120}	20935630	Body mass index	FTO
16q12.2	53803574	rs1558902	1.1×10^{-12}	0	1.000	rs1558902	7.0×10^{-13}	20421936	Obesity (extreme)	FTO
16q12.2	53803574	rs1558902	1.1×10^{-12}	0	1.000	rs1558902	5.0×10^{-19}	19557197	Waist circumference	FTO
16q12.2	53803574	rs1558902	1.1×10^{-12}	5673	0.963	rs1121980	4.0×10^{-8}	18454148	Body mass index	FTO
16q12.2	53803574	rs1558902	1.1×10^{-12}	5673	0.963	rs1121980	1.0×10^{-7}	18159244	Obesity (early onset extreme)	FTO
16q12.2	53803574	rs1558902	1.1×10^{-12}	9793	0.932	rs17817449	6.0×10^{-7}	23535733	Breast cancer	MIR1972-2, FTO
16q12.2	53803574	rs1558902	1.1×10^{-12}	9793	0.932	rs17817449	6.0×10^{-14}	23535729	Breast cancer	MIR1972-2, FTO
16q12.2	53803574	rs1558902	1.1×10^{-12}	9793	0.932	rs17817449	2.0×10^{-12}	21552555	Obesity	FTO
16q12.2	53803574	rs1558902	1.1×10^{-12}	9876	0.927	rs8043757	5.0×10^{-110}	23563607	Obesity	FTO

16q12.2	53803574	rs1558902	1.1×10^{-12}	12701	0.927	rs8050136	6.0×10^{-6}	23209189	Type 2 diabetes	FTO
16q12.2	53803574	rs1558902	1.1×10^{-12}	12701	0.927	rs8050136	3.0×10^{-26}	21706003	Adiposity	FTO
16q12.2	53803574	rs1558902	1.1×10^{-12}	12701	0.927	rs8050136	4.0×10^{-8}	21037115	Body mass in chronic obstructive pulmonary disease	FTO
16q12.2	53803574	rs1558902	1.1×10^{-12}	12701	0.927	rs8050136	5.0×10^{-36}	19079260	Weight	FTO
16q12.2	53803574	rs1558902	1.1×10^{-12}	12701	0.927	rs8050136	1.0×10^{-47}	19079260	Body mass index	FTO
16q12.2	53803574	rs1558902	1.1×10^{-12}	12701	0.927	rs8050136	2.0×10^{-17}	19056611	Type 2 diabetes	FTO
16q12.2	53803574	rs1558902	1.1×10^{-12}	12701	0.927	rs8050136	7.0×10^{-6}	18372903	Type 2 diabetes	FTO
16q12.2	53803574	rs1558902	1.1×10^{-12}	12701	0.927	rs8050136	7.0×10^{-14}	17463249	Type 2 diabetes	FTO
16q12.2	53803574	rs1558902	1.1×10^{-12}	12701	0.927	rs8050136	1.0×10^{-12}	17463248	Type 2 diabetes	FTO
16q12.2	53803574	rs1558902	1.1×10^{-12}	16319	0.927	rs11075990	2.0×10^{-51}	23563607	Body mass index	FTO
16q12.2	53803574	rs1558902	1.1×10^{-12}	16953	0.927	rs9939609	1.0×10^{-20}	22693455	Type 2 diabetes	FTO
16q12.2	53803574	rs1558902	1.1×10^{-12}	16953	0.927	rs9939609	3.0×10^{-8}	21102462	Menarche (age at onset)	FTO
16q12.2	53803574	rs1558902	1.1×10^{-12}	16953	0.927	rs9939609	2.0×10^{-7}	19396169	Biomedical quantitative traits	FTO
16q12.2	53803574	rs1558902	1.1×10^{-12}	16953	0.927	rs9939609	4.0×10^{-51}	19079261	Body mass index	FTO
16q12.2	53803574	rs1558902	1.1×10^{-12}	16953	0.927	rs9939609	2.0×10^{-7}	17554300	Type 2 diabetes	FTO
16q12.2	53803574	rs1558902	1.1×10^{-12}	16953	0.927	rs9939609	2.0×10^{-20}	17434869	Body mass index	FTO
16q12.2	53803574	rs1558902	1.1×10^{-12}	18041	0.932	rs7202116	2.0×10^{-10}	22982992	Body mass index	FTO
16q12.2	53803574	rs1558902	1.1×10^{-12}	21914	0.895	rs9941349	6.0×10^{-12}	19553259	Obesity (extreme)	FTO
16q12.2	53803574	rs1558902	1.1×10^{-12}	24492	0.927	rs17817964	1.0×10^{-10}	23583978	Body mass index	FTO
16q12.2	53803574	rs1558902	1.1×10^{-12}	26891	0.829	rs9930506	9.0×10^{-7}	17658951	Obesity-related traits	FTO
16q12.2	53803574	rs1558902	1.1×10^{-12}	28197	0.834	rs9922619	6.0×10^{-8}	22589738	Subcutaneous adipose tissue	FTO
16q12.2	53803574	rs1558902	1.1×10^{-12}	35561	0.551	rs8044769	4.0×10^{-6}	22763110	Osteoarthritis	FTO
16q12.2	53803574	rs1558902	1.1×10^{-12}	39334	0.828	rs12149832	5.0×10^{-22}	22344221	Body mass index	FTO
16q12.2	53803574	rs1558902	1.1×10^{-12}	41913	0.634	rs11642841	3.0×10^{-8}	20581827	Type 2 diabetes	FTO
1p31.1	74977870	rs1040070	1.7×10^{-12}	13532	0.851	rs1514177	5.0×10^{-9}	23563607	Obesity	TNNI3K
1p31.1	74977870	rs1040070	1.7×10^{-12}	13774	0.851	rs1514175	3.0×10^{-11}	23669352	Body mass index	TNNI3K
1p31.1	74977870	rs1040070	1.7×10^{-12}	13774	0.851	rs1514175	8.0×10^{-14}	20935630	Body mass index	TNNI3K
1p31.1	74977870	rs1040070	1.7×10^{-12}	15193	0.947	rs1514174	6.0×10^{-6}	23449627	Pubertal anthropometrics	TNNI3K
16p13.12	14388750	rs1704528	6.4×10^{-12}	−445	0.976	rs1659127	4.0×10^{-9}	21102462	Menarche (age at onset)	MKL2
16p13.12	14388750	rs1704528	6.4×10^{-12}	−445	0.976	rs1659127	1.0×10^{-11}	20881960	Height	MKL2
1q25.2	177872905	rs571567	4.6×10^{-11}	−20325	0.937	rs633715	7.0×10^{-20}	23563607	Obesity	SEC16B
1q25.2	177872905	rs571567	4.6×10^{-11}	−20325	0.937	rs633715	5.0×10^{-12}	23563607	Body mass index	SEC16B
1q25.2	177872905	rs571567	4.6×10^{-11}	−20325	0.937	rs633715	2.0×10^{-8}	21102462	Menarche (age at onset)	SEC16B
1q25.2	177872905	rs571567	4.6×10^{-11}	−17388	0.975	rs516636	3.0×10^{-9}	22344221	Body mass index	SEC16B
1q25.2	177872905	rs571567	4.6×10^{-11}	16575	0.975	rs543874	4.0×10^{-11}	23669352	Body mass index	SEC16B
1q25.2	177872905	rs571567	4.6×10^{-11}	16575	0.975	rs543874	2.0×10^{-13}	23583978	Body mass index	SEC16B
1q25.2	177872905	rs571567	4.6×10^{-11}	16575	0.975	rs543874	4.0×10^{-23}	20935630	Body mass index	SEC16B
1q25.2	177872905	rs571567	4.6×10^{-11}	40614	0.820	rs10913469	1.0×10^{-8}	19079260	Weight	SEC16B, RASAL2
1q25.2	177872905	rs571567	4.6×10^{-11}	40614	0.820	rs10913469	6.0×10^{-8}	19079260	Body mass index	SEC16B, RASAL2
16q22.1	69735271	rs6499244	8.7×10^{-11}	−146699	0.879	rs1364063	2.0×10^{-8}	21102462	Menarche (age at onset)	NFAT5
17q21.33	49613785	rs9635759	1.3×10^{-10}	0	1.000	rs9635759	7.0×10^{-13}	21102462	Menarche (age at onset)	CA10
6q22.32	126851160	rs1490384	1.4×10^{-10}	−152441	0.849	rs9388489	4.0×10^{-13}	19430480	Type 1 diabetes	C6orf173
6q22.32	126851160	rs1490384	1.4×10^{-10}	−83560	0.862	rs1361108	9.0×10^{-6}	21998595	Height	Intergenic
6q22.32	126851160	rs1490384	1.4×10^{-10}	−83560	0.862	rs1361108	2.0×10^{-8}	21102462	Menarche (age at onset)	C6orf173, TRMT11
6q22.32	126851160	rs1490384	1.4×10^{-10}	−15505	0.858	rs1490388	6.0×10^{-7}	18391951	Height	C6orf173
6q22.32	126851160	rs1490384	1.4×10^{-10}	0	1.000	rs1490384	1.0×10^{-16}	23563607	Height	C6orf173
6q22.32	126851160	rs1490384	1.4×10^{-10}	0	1.000	rs1490384	4.0×10^{-21}	20881960	Height	C6orf173
6q22.32	126851160	rs1490384	1.4×10^{-10}	115148	0.917	rs4549631	5.0×10^{-13}	18391952	Height	LOC387103
7p14.1	41467946	rs4141153	4.2×10^{-10}	2147	0.550	rs1079866	6.0×10^{-14}	21102462	Menarche (age at onset)	INHBA
11p14.1	27634373	rs35051342	1.4×10^{-9}	−70991	0.790	rs988712	5.0×10^{-17}	21708048	Obesity	BDNF
11p14.1	27634373	rs35051342	1.4×10^{-9}	45543	0.820	rs6265	2.0×10^{-8}	20418890	Smoking behavior	BDNF
11p14.1	27634373	rs35051342	1.4×10^{-9}	45543	0.820	rs6265	2.0×10^{-7}	19079260	Weight	BDNF
11p14.1	27634373	rs35051342	1.4×10^{-9}	45543	0.820	rs6265	5.0×10^{-10}	19079260	Body mass index	BDNF
11p14.1	27634373	rs35051342	1.4×10^{-9}	91613	0.879	rs10767664	5.0×10^{-26}	20935630	Body mass index	BDNF
11p14.1	27634373	rs35051342	1.4×10^{-9}	94166	0.885	rs2030323	6.0×10^{-11}	23563607	Obesity	BDNF
11p14.1	27634373	rs35051342	1.4×10^{-9}	94166	0.885	rs2030323	6.0×10^{-10}	23563607	Body mass index	BDNF
11p14.1	27634373	rs35051342	1.4×10^{-9}	94166	0.885	rs2030323	4.0×10^{-16}	22344221	Body mass index	BDNF
12q13.12	50250111	rs7306275	1.2×10^{-8}	−2643	0.868	rs7138803	1.0×10^{-20}	23563607	Obesity	LOC144233
12q13.12	50250111	rs7306275	1.2×10^{-8}	−2643	0.868	rs7138803	2.0×10^{-9}	23563607	Body mass index	LOC144233
12q13.12	50250111	rs7306275	1.2×10^{-8}	−2643	0.868	rs7138803	2.0×10^{-17}	20935630	Body mass index	FAIM2
12q13.12	50250111	rs7306275	1.2×10^{-8}	−2643	0.868	rs7138803	8.0×10^{-7}	19557197	Waist circumference	FAIM2, BCDIN3D
12q13.12	50250111	rs7306275	1.2×10^{-8}	−2643	0.868	rs7138803	2.0×10^{-7}	19079260	Weight	BCDIN3D, FAIM2
12q13.12	50250111	rs7306275	1.2×10^{-8}	−2643	0.868	rs7138803	1.0×10^{-7}	19079260	Body mass index	BCDIN3D, FAIM2
3p12.1	86944938	rs13068899	1.3×10^{-8}	−94320	0.612	rs7628864	3.0×10^{-9}	23449627	Pubertal anthropometrics	VGLL3
3p12.1	86944938	rs13068899	1.3×10^{-8}	−50460	0.724	rs9757252	5.0×10^{-6}	22219177	Prostate cancer (gene x gene interaction)	VGLL3
3p12.1	86944938	rs13068899	1.3×10^{-8}	−28056	0.724	rs7642134	4.0×10^{-10}	21102462	Menarche (age at onset)	VGLL3
9q31.3	114309935	rs10217747	2.0×10^{-8}	−16301	0.946	rs10980926	3.0×10^{-6}	23449627	Pubertal anthropometrics	ZNF483
9q31.3	114309935	rs10217747	2.0×10^{-8}	−16301	0.946	rs10980926	4.0×10^{-11}	21102462	Menarche (age at onset)	ZNF483
9q31.3	114309935	rs10217747	2.0×10^{-8}	−8350	0.930	rs10441737	4.0×10^{-15}	23599027	Menarche (age at onset)	ZNF483

8q21.11	78116067	rs10094574	2.6×10^{-8}	−22230	0.757	rs7821178	3.0×10^{-9}	21102462	Menarche (age at onset)	PXMP3
8q21.11	78116067	rs10094574	2.6×10^{-8}	44112	0.917	rs7846385	5.0×10^{-8}	18391951	Height	PXMP3, ZFHX4
8q21.11	78116067	rs10094574	2.6×10^{-8}	62418	0.884	rs6473015	7.0×10^{-13}	20881960	Height	PEX2

Replication of GWAS Catalog Results



The following table shows, for each GWAS Catalog result for similar traits, our association test result for our best available proxy (distance < 100kb, $r^2 > 0.8$).

region	position	our.name	our.pval	dist	rsqr	assay.name	pvalue	pubmed.id	trait	genes
1q23.3	165394882	rs466639	2.9×10^{-13}	0	1.000	rs466639	1.0×10^{-13}	21102462	Menarche (age at onset)	RXRG
1q25.2	177852580	rs633715	6.3×10^{-11}	0	1.000	rs633715	2.0×10^{-8}	21102462	Menarche (age at onset)	SEC16B
1q44	243835186	rs320320	0.0088	0	1.000	rs320320	1.0×10^{-7}	23599027	Menarche (age at onset)	AKT3
2p25.3	614168	rs2947411	5.2×10^{-15}	0	1.000	rs2947411	2.0×10^{-8}	21102462	Menarche (age at onset)	TMEM18
2p16.1	56592083	rs17268785	1.4×10^{-5}	0	1.000	rs17268785	1.0×10^{-10}	21102462	Menarche (age at onset)	CCDC85A
2q22.2	142228509	rs12472911	0.00039	0	1.000	rs12472911	2.0×10^{-7}	21102462	Menarche (age at onset)	LRP1B
2q24.1	157096776	rs17188434	0.00023	0	1.000	rs17188434	1.0×10^{-9}	21102462	Menarche (age at onset)	NR4A2
2q33.1	199632565	rs12617311	2.4×10^{-6}	0	1.000	rs12617311	6.0×10^{-13}	21102462	Menarche (age at onset)	PLCL1
2q37.2	236539307	rs6431393	0.74	0	1.000	rs6431393	4.0×10^{-6}	23667675	Menarche (age at onset)	AGAP1
3p21.31	49210732	rs7617480	0.00040	0	1.000	rs7617480	3.0×10^{-8}	21102462	Menarche (age at onset)	KLHDC8B
3p21.31	50093209	rs6762477	0.00089	0	1.000	rs6762477	2.0×10^{-8}	21102462	Menarche (age at onset)	RBM6
3p12.1	86916882	rs7642134	3.6×10^{-7}	0	1.000	rs7642134	4.0×10^{-10}	21102462	Menarche (age at onset)	VGLL3
3q13.32	117574822	rs6438424	4.1×10^{-13}	0	1.000	rs6438424	1.0×10^{-13}	21102462	Menarche (age at onset)	Intergenic
3q21.3	127895226	rs2687729	0.00045	0	1.000	rs2687729	1.0×10^{-7}	21102462	Menarche (age at onset)	EEFSEC
3q22.1	132610752	rs6439371	3.7×10^{-6}	0	1.000	rs6439371	1.0×10^{-8}	21102462	Menarche (age at onset)	TMEM108, NPHP3
3q26.1	160820524	rs4557202	0.78	0	1.000	rs4557202	2.0×10^{-6}	23599027	Menarche (age at onset)	B3GALNT1
3q27.1	184010048	rs3914188	0.0049	0	1.000	rs3914188	3.0×10^{-7}	21102462	Menarche (age at onset)	ECE2
3q27.2	185629568	rs2002675	5.9×10^{-7}	0	1.000	rs2002675	1.0×10^{-9}	21102462	Menarche (age at onset)	TRA2B, ETV5
5q13.1	67194469	rs10940138	0.24	0	1.000	rs10940138	4.0×10^{-7}	23599027	Menarche (age at onset)	PIK3R1
5q31.1	133849177	rs13187289	0.00068	0	1.000	rs13187289	2.0×10^{-10}	21102462	Menarche (age at onset)	PHF15
5q31.2	137707315	rs757647	0.28	0	1.000	rs757647	5.0×10^{-8}	21102462	Menarche (age at onset)	KDM3B
6q16.2	100208438	rs4840086	0.00011	0	1.000	rs4840086	2.0×10^{-8}	21102462	Menarche (age at onset)	PRDM13, MCHR2
6q16.3	105378954	rs7759938	1.4×10^{-56}	0	1.000	rs7759938	5.0×10^{-60}	21102462	Menarche (age at onset)	LIN28B
6q16.3	105378954	rs7759938	1.4×10^{-56}	0	1.000	rs7759938	7.0×10^{-9}	19448620	Menarche (age at onset)	LIN28B
6q16.3	105400837	rs314280	2.1×10^{-51}	0	1.000	rs314280	2.0×10^{-14}	19448622	Menarche (age at onset)	LIN28B, HACE1, E3 ubiquitin protein ligase 1, BVES, POPDC3
6q16.3	105407999	rs314276	1.2×10^{-50}	0	1.000	rs314276	4.0×10^{-16}	19448623	Menarche (age at onset)	LIN28B
6q16.3	105443189	rs364663	1.9×10^{-45}	0	1.000	rs364663	5.0×10^{-7}	23667675	Menarche (age at onset)	LIN28B
6q22.32	126767600	rs1361108	1.6×10^{-9}	0	1.000	rs1361108	2.0×10^{-8}	21102462	Menarche (age at onset)	C6orf173, TRMT11
7p14.1	41470093	rs1079866	1.0×10^{-7}	0	1.000	rs1079866	6.0×10^{-14}	21102462	Menarche (age at onset)	INHBA
7q11.22	67188788	rs7807441	0.67	0	1.000	rs7807441	3.0×10^{-6}	23599027	Menarche (age at onset)	FLJ13195
8p23.3	1244224	rs17669535	0.22	0	1.000	rs17669535	6.0×10^{-7}	23599027	Menarche (age at onset)	DLGAP2
8q21.11	77611625	rs4735738	9.1×10^{-7}	0	1.000	rs4735738	5.0×10^{-6}	23667675	Menarche (age at onset)	ZFHX4
8q21.11	78093837	rs7821178	1.1×10^{-6}	0	1.000	rs7821178	3.0×10^{-9}	21102462	Menarche (age at onset)	PXMP3
9q31.2	108967088	rs2090409	5.0×10^{-34}	0	1.000	rs2090409	2.0×10^{-33}	21102462	Menarche (age at onset)	TMEM38B
9q31.2	108967088	rs2090409	5.0×10^{-34}	0	1.000	rs2090409	2.0×10^{-9}	19448620	Menarche (age at onset)	TMEM38B, SLC44A1, FKTN, FSD1L, TAL2, ZNF462
9q31.3	114293634	rs10980926	2.6×10^{-8}	0	1.000	rs10980926	4.0×10^{-11}	21102462	Menarche (age at onset)	ZNF483
9q31.3	114301585	rs10441737	3.1×10^{-8}	0	1.000	rs10441737	4.0×10^{-15}	23599027	Menarche (age at onset)	ZNF483
9q31.3	114303679	rs7873730	2.5×10^{-7}	0	1.000	rs7873730	2.0×10^{-6}	23599027	Menarche (age at onset)	ZNF483

11p15.4	8639200	rs4929923	6.3×10^{-6}	0	1.000	rs4929923	1.0×10^{-8}	21102462	Menarche (age at onset)	TRIM66
11p15.2	13293905	rs900145	9.7×10^{-7}	0	1.000	rs900145	2.0×10^{-8}	21102462	Menarche (age at onset)	ARNTL
11p15.2	15457467	rs7114467	0.090	0	1.000	rs7114467	9.0×10^{-6}	23667675	Menarche (age at onset)	INSC
11p11.2	46052575	rs16938437	0.88	0	1.000	rs16938437	6.0×10^{-8}	21102462	Menarche (age at onset)	PHF21A
11q14.1	78095373	rs10899489	0.00028	0	1.000	rs10899489	8.0×10^{-9}	21102462	Menarche (age at onset)	GAB2
11q22.1	100406640	rs12800752	0.19	0	1.000	rs12800752	3.0×10^{-6}	23667675	Menarche (age at onset)	ARHGAP42
11q23.3	117388932	rs11216435	0.18	0	1.000	rs11216435	3.0×10^{-6}	23599027	Menarche (age at onset)	DSCAML1
11q24.1	122870683	rs6589964	3.3×10^{-7}	0	1.000	rs6589964	2.0×10^{-12}	21102462	Menarche (age at onset)	BSX
11q24.2	126607580	rs7114000	0.039	0	1.000	rs7114000	2.0×10^{-6}	23667675	Menarche (age at onset)	KIRREL3
13q34	112181437	rs9555810	3.4×10^{-6}	0	1.000	rs9555810	6.0×10^{-8}	21102462	Menarche (age at onset)	C13orf16, ARHGEF7
14q13.3	36989419	rs2076751	0.083	0	1.000	rs2076751	7.0×10^{-6}	23667675	Menarche (age at onset)	NKX2-1
14q31.3	85963856	rs8014131	0.46	0	1.000	rs8014131	3.0×10^{-7}	23599027	Menarche (age at onset)	FLRT2
14q32.2	101032217	rs6575793	0.0022	0	1.000	rs6575793	1.0×10^{-8}	21102462	Menarche (age at onset)	BEGAIN
15q21.2	51545454	rs12907866	0.15	0	1.000	rs12907866	4.0×10^{-7}	23599027	Menarche (age at onset)	CYP19A1
15q21.3	54380200	rs11071033	0.0045	0	1.000	rs11071033	3.0×10^{-6}	23599027	Menarche (age at onset)	UNC13C
15q22.2	60781513	rs3743266	0.00011	0	1.000	rs3743266	8.0×10^{-7}	21102462	Menarche (age at onset)	RORA
15q22.2	60900963	rs980000	0.45	0	1.000	rs980000	2.0×10^{-6}	23599027	Menarche (age at onset)	RORA
15q22.2	60937402	rs339978	0.22	0	1.000	rs339978	2.0×10^{-6}	23599027	Menarche (age at onset)	RORA
15q23	67702907	rs7359257	0.20	0	1.000	rs7359257	2.0×10^{-6}	21102462	Menarche (age at onset)	IQCH
16p13.12	14388305	rs1659127	1.4×10^{-11}	0	1.000	rs1659127	4.0×10^{-9}	21102462	Menarche (age at onset)	MKL2
16q12.2	53820527	rs9939609	1.5×10^{-11}	0	1.000	rs9939609	3.0×10^{-8}	21102462	Menarche (age at onset)	FTO
16q22.1	69588572	rs1364063	5.4×10^{-10}	0	1.000	rs1364063	2.0×10^{-8}	21102462	Menarche (age at onset)	NFAT5
16q23.2	81473649	rs310008	0.48	0	1.000	rs310008	4.0×10^{-6}	23667675	Menarche (age at onset)	CMIP
17q21.33	49613785	rs9635759	1.3×10^{-10}	0	1.000	rs9635759	7.0×10^{-13}	21102462	Menarche (age at onset)	CA10
18q12.3	42956672	rs2243803	0.14	0	1.000	rs2243803	3.0×10^{-7}	21102462	Menarche (age at onset)	SLC14A2
18q21.1	44752238	rs1398217	1.7×10^{-9}	0	1.000	rs1398217	2.0×10^{-13}	21102462	Menarche (age at onset)	FUSSEL18
19p13.2	10000322	rs1862471	1.1×10^{-6}	0	1.000	rs1862471	2.0×10^{-7}	21102462	Menarche (age at onset)	OLFM2
19p13.11	18817903	rs10423674	0.0013	0	1.000	rs10423674	6.0×10^{-9}	21102462	Menarche (age at onset)	CRTC1
20p12.1	17122593	rs852069	1.3×10^{-5}	0	1.000	rs852069	3.0×10^{-8}	21102462	Menarche (age at onset)	PCSK2
5q35.2	176378574	rs365132	0.22	0	1.000	rs365132	8.0×10^{-14}	19448621	Menarche and menopause (age at onset)	UIMC1
6p24.2	10897488	rs2153157	0.066	0	1.000	rs2153157	5.0×10^{-8}	19448621	Menarche and menopause (age at onset)	GCM2, SYCP2L
6q16.3	105407662	rs314277	1.1×10^{-22}	0	1.000	rs314277	3.0×10^{-13}	19448621	Menarche and menopause (age at onset)	LIN28B
9q31.2	108936674	rs7861820	8.5×10^{-14}	0	1.000	rs7861820	3.0×10^{-9}	19448621	Menarche and menopause (age at onset)	Intergenic
19q13.42	55819845	rs1172822	0.55	0	1.000	rs1172822	2.0×10^{-19}	19448621	Menarche and menopause (age at onset)	BRSK1
20p12.3	5948227	rs16991615	0.23	0	1.000	rs16991615	1.0×10^{-21}	19448621	Menarche and menopause (age at onset)	TRMT6, MCM8

Nearby Nonsynonymous SNPs

region	position	our.name	our.pval	dist	rsqr	assay.name	gene	aa.chg
14q32.2	100846991	rs12894936	1.4×10^{-14}	716	0.733	rs2273800	WDR25	H149R
18q21.1	44799515	rs2048523	1.1×10^{-11}	−26133	0.542	rs9956387	SKOR2	C725S
16q22.1	69735271	rs6499244	8.7×10^{-11}	47584	0.507	rs3811348	NOB1	R231Q
11p14.1	27634373	rs35051342	1.4×10^{-9}	45543	0.820	rs6265	BDNF	V148M
9q33.3	127373463	rs4072705	9.7×10^{-9}	−142572	0.588	rs10760365	GPR144	V750M
9q33.3	127373463	rs4072705	9.7×10^{-9}	−141689	0.581	rs1570580	GPR144	R836G
9q33.3	127373463	rs4072705	9.7×10^{-9}	192915	0.520	rs7874348	OLFML2A	T309A
2p13.1	73739848	rs35273932	2.1×10^{-8}	59784	0.712	rs45501594	ALMS1	T3542S
6p21.1	41893323	rs9349203	4.7×10^{-8}	−138753	0.680	rs200179087	PRICKLE4	?286?
6p21.1	41893323	rs9349203	4.7×10^{-8}	−138753	0.680	rs200179087	TOMM6	?-287?
6p21.1	41893323	rs9349203	4.7×10^{-8}	−138750	0.675	rs140326303	PRICKLE4	A287L
6p21.1	41893323	rs9349203	4.7×10^{-8}	−138750	0.675	rs140326303	TOMM6	?-286?
6p21.1	41893323	rs9349203	4.7×10^{-8}	10459	0.814	rs1051130	CCND3	S259A

Nearby Expression QTLs

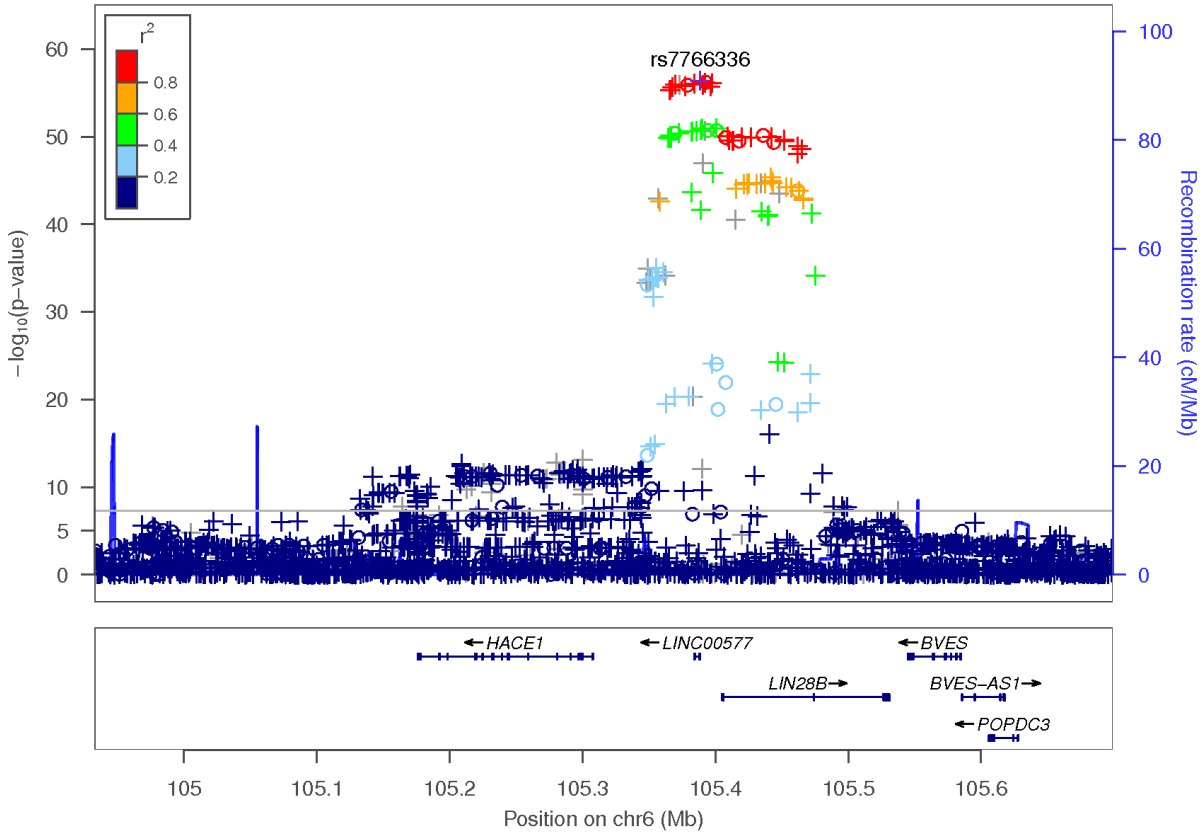
region	position	our.name	our.pval	dist	rsqr	assay.name	eqtl.dist	eqtl.gene	eqtl.pval	eqtl.rsqr	tissue	pubmed.id
14q32.2	100846991	rs12894936	1.4×10^{-14}	5829	0.703	rs11624049	−1216754	BCL11B	2.1×10^{-5}	0.063	B-Cell	22446964
14q23.1	60890422	rs1254309	1.1×10^{-12}	13335	0.671	rs1254319	191287	PPM1A	0.00016	0.179	T-cell	19644074
14q23.1	60890422	rs1254309	1.1×10^{-12}	13335	0.671	rs1254319	841063	RTN1	0.00011	0.186	Fibroblast	19644074
11q24.1	122819119	rs7113019	7.1×10^{-12}	28718	0.609	rs6589963	999566	OR10S1	0.00013	0.183	T-cell	19644074
3p12.1	86944938	rs13068899	1.3×10^{-8}	23554	0.649	rs13074417	18631	VGLL3	0.00044	0.157	Fibroblast	19644074
9q31.3	114309935	rs10217747	2.0×10^{-8}	−8350	0.930	rs10441737	−211383	OR2K2	0.00015	0.050	B-Cell	22446964

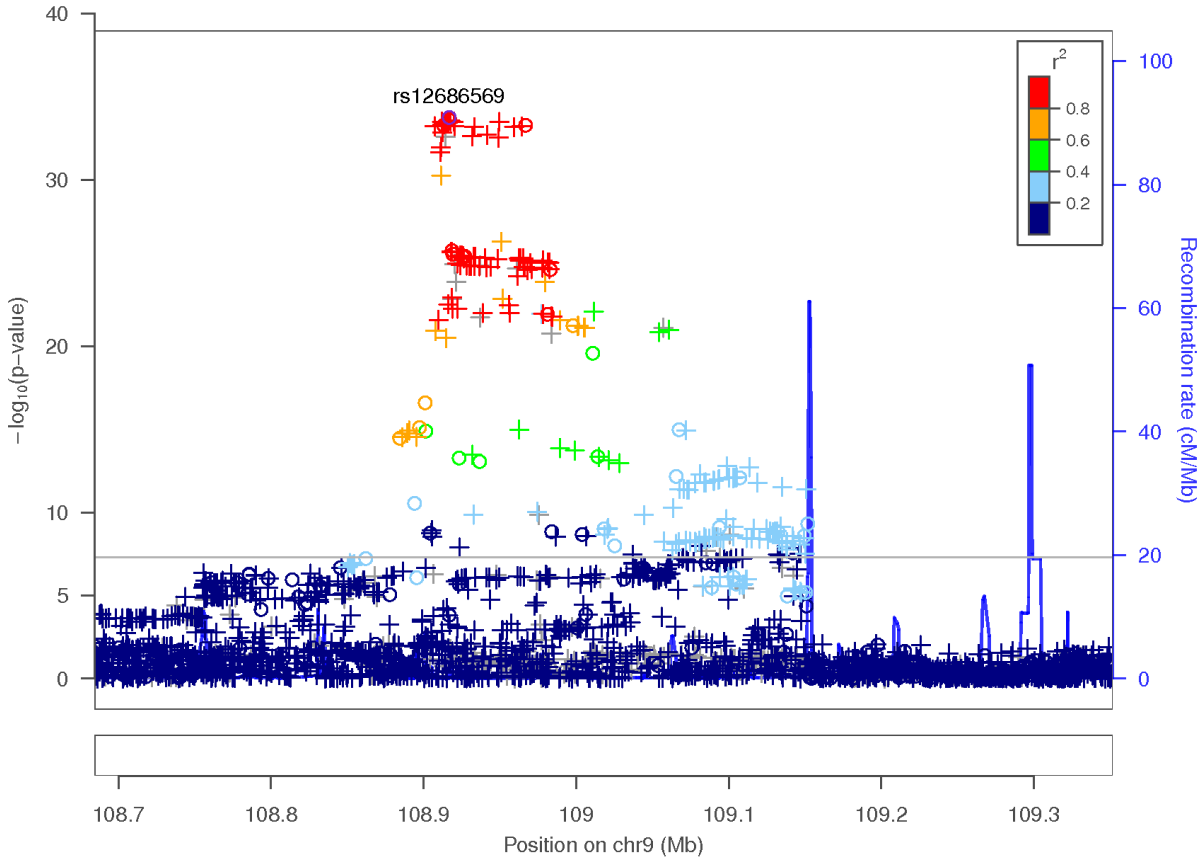
6p21.1	41893323	rs9349203	4.7×10^{-8}	−66130	0.806	rs2025951	61772	BYSL	5.2×10^{-16}	0.046	Monocyte	20502693

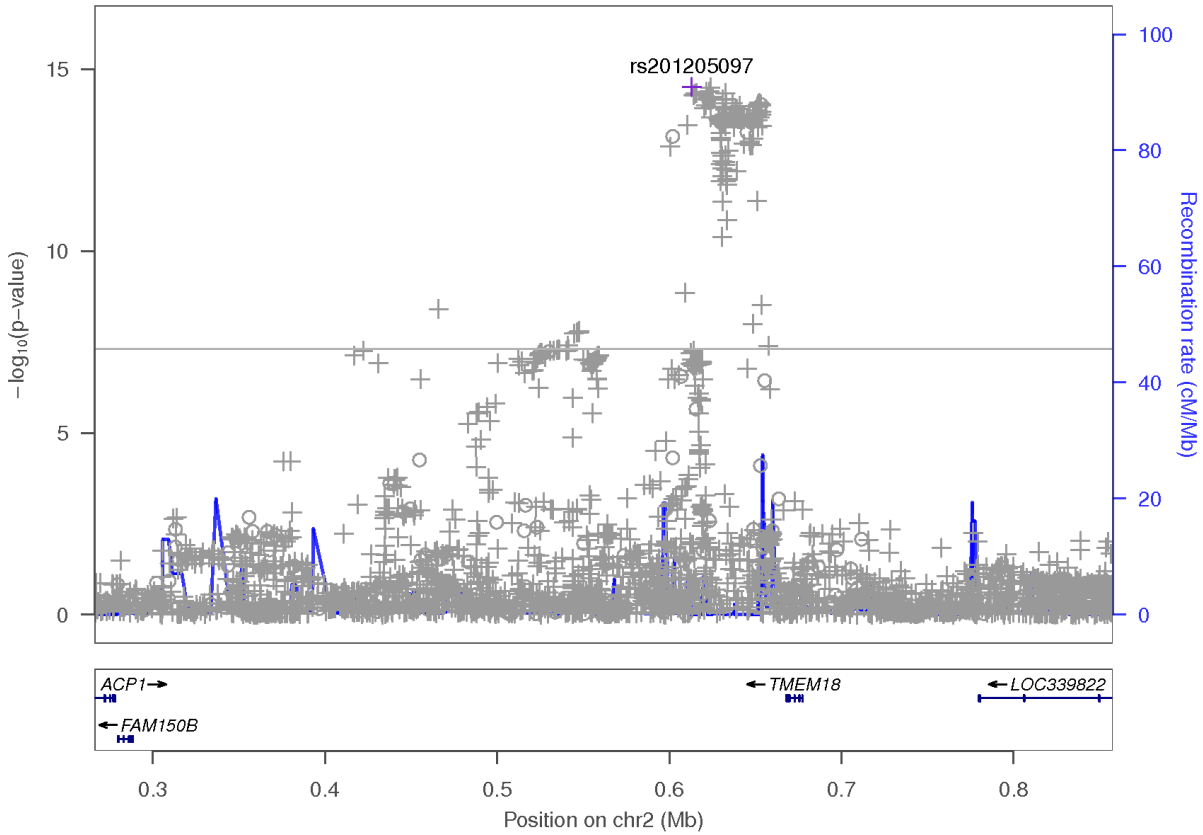
Nearby Clinical Variants

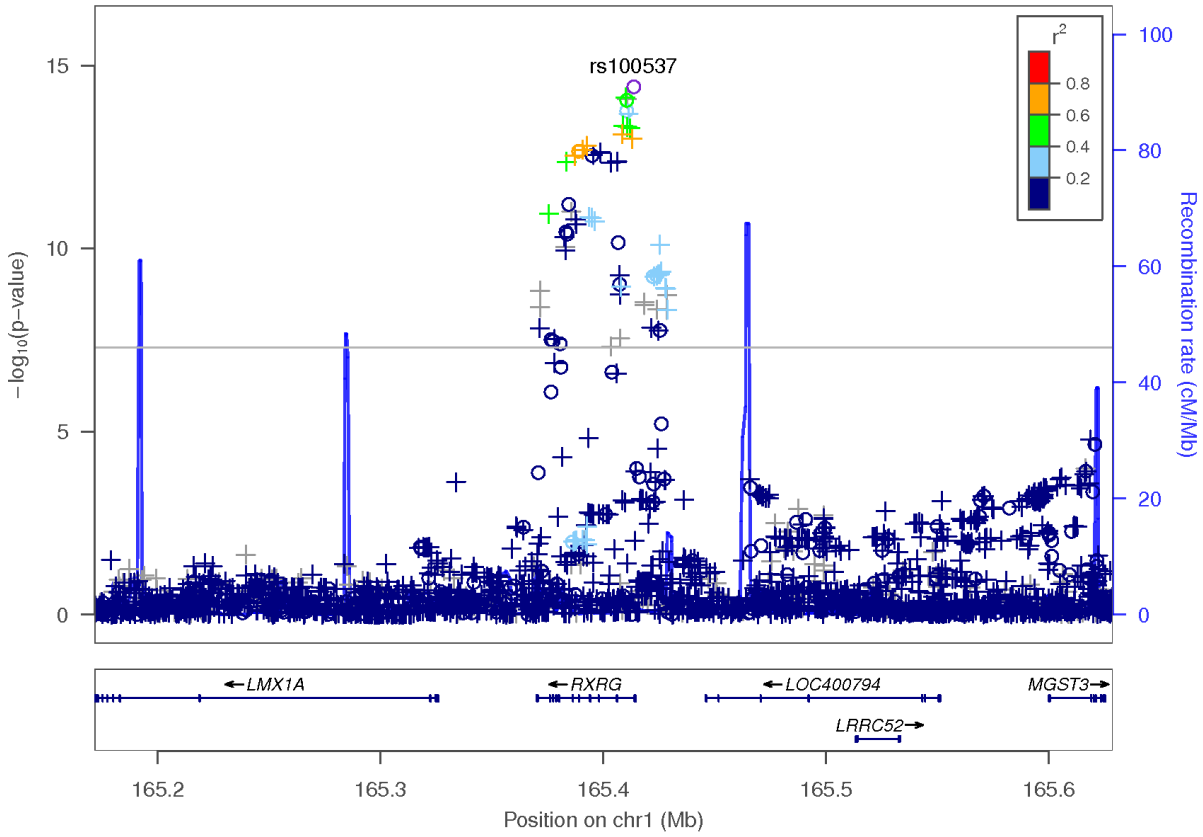
source	region	our.name	our.pval	dist	rsqr	assay.name	gene	phenotype	accession
clinvar	11p14.1	rs35051342	1.4×10^{-9}	45543	0.820	rs6265	BDNF	Bulimia nervosa 2	NCBI curation
clinvar	11p14.1	rs35051342	1.4×10^{-9}	45543	0.820	rs6265	BDNF	Obsessive-compulsive disorder	Human Phenotype OntologyHP:0000722
clinvar	11p14.1	rs35051342	1.4×10^{-9}	45543	0.820	rs6265	BDNF	Bulimia nervosa 1	NCBI curation
clinvar	11p14.1	rs35051342	1.4×10^{-9}	45543	0.820	rs6265	BDNF	Congenital central hypoventilation	SNOMED CT399040002

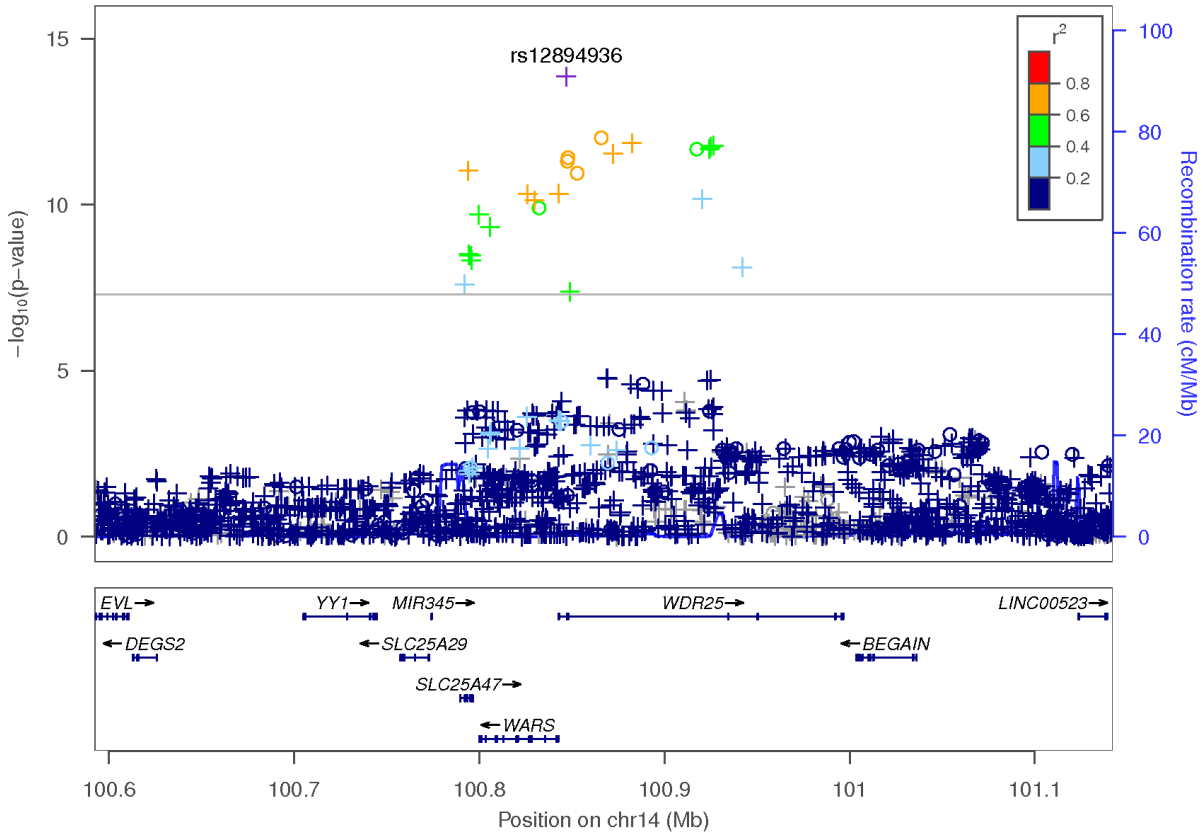
Regional Association Plots

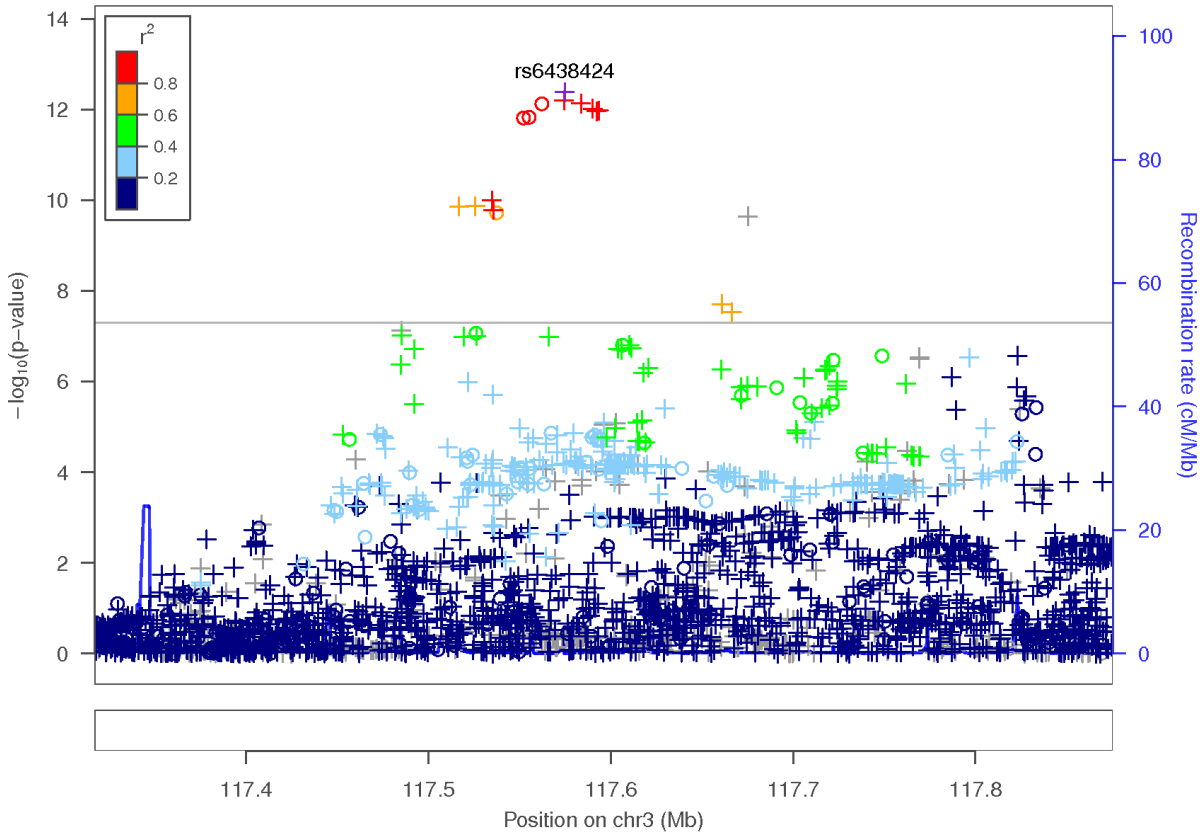


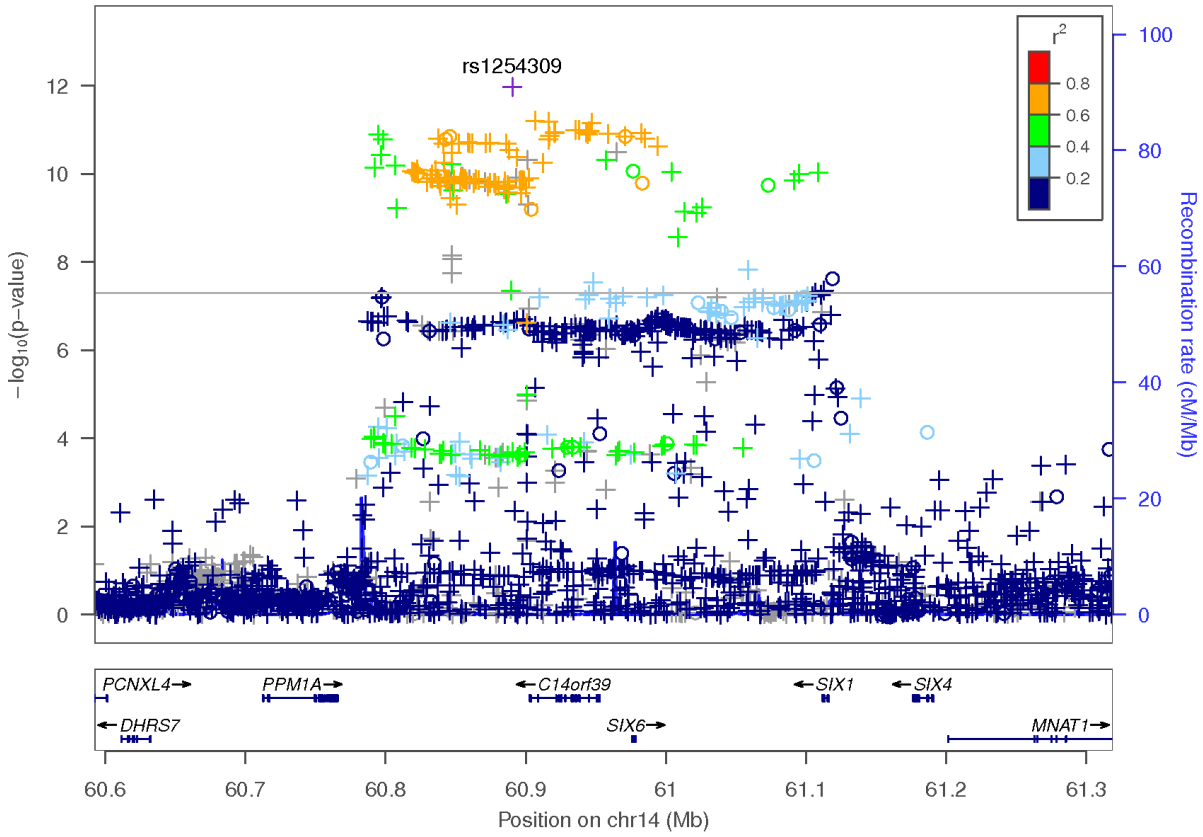

rs12686569
r²
0.8
0.6
0.4
0.2
−log10(p−value)
Recombination rate (cM/Mb)
40
30
20
10
5
0
100
80
60
40
20
0
108.7
108.8
108.9
109
109.1
109.2
109.3
Position on chr9 (Mb)

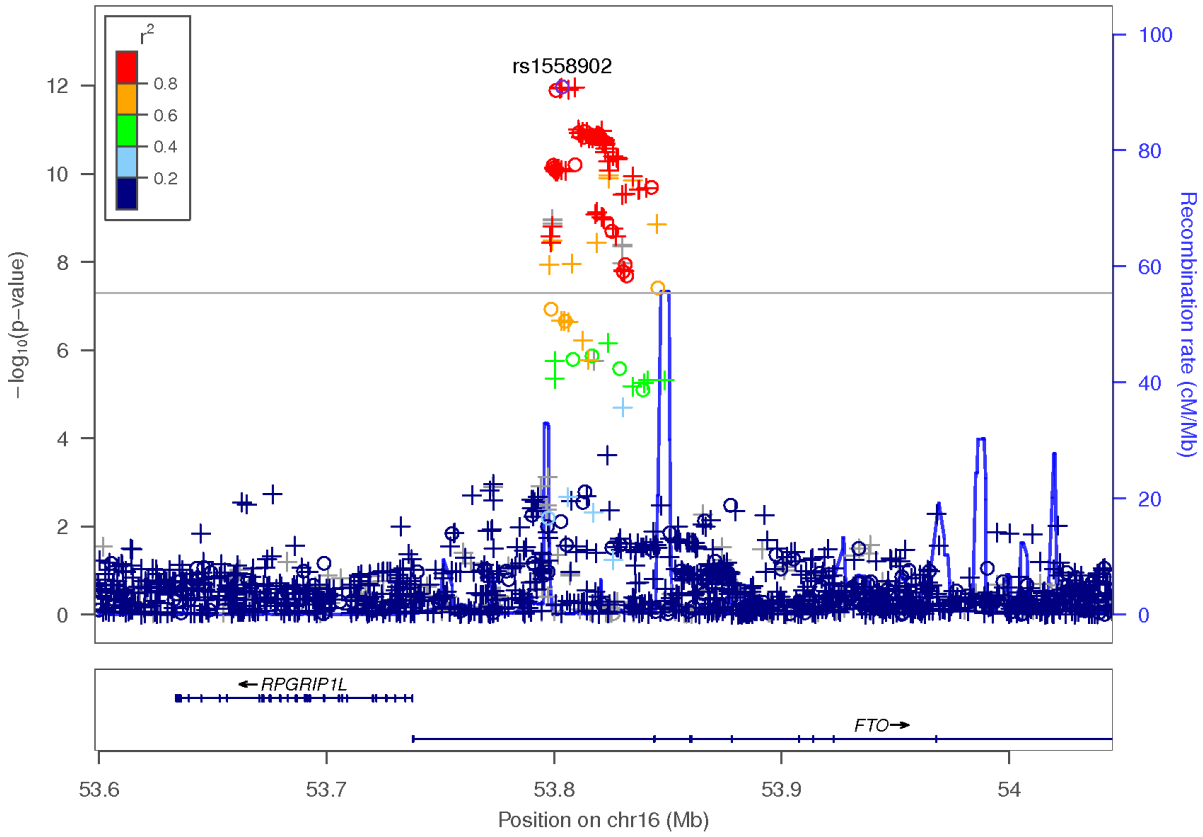

rs201205097
−log10(p−value)
Recombination rate (cM/Mb)
15
10
5
0
100
80
60
40
20
0
ACP1
FAM150B
TMEM18
LOC339822
0.3
0.4
0.5
0.6
0.7
0.8
Position on chr2 (Mb)

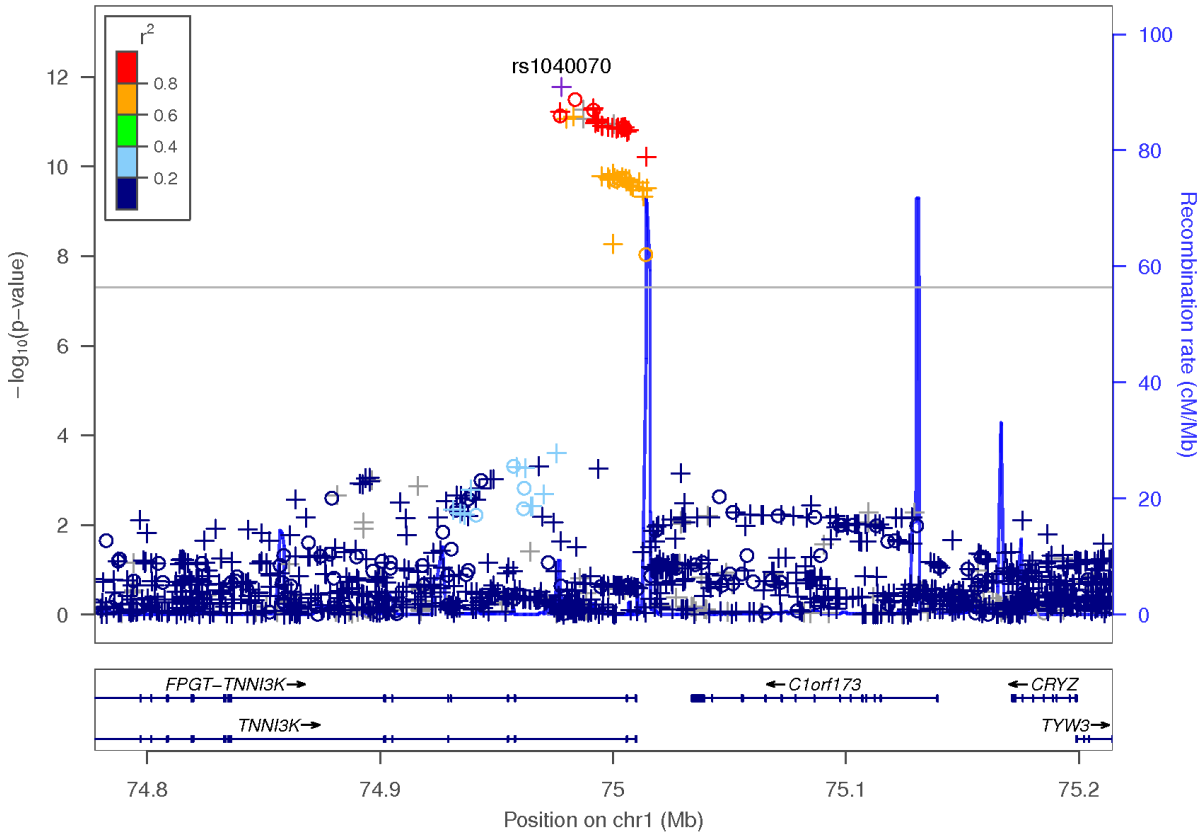

rs100537
r²
0.8
0.6
0.4
0.2
15
10
5
0
100
80
60
40
20
0
−log10(p−value)
Recombination rate (cM/Mb)
LMX1A
RXRG
LOC400794
MGST3
LRRC52
165.2
165.3
165.4
165.5
165.6
Position on chr1 (Mb)

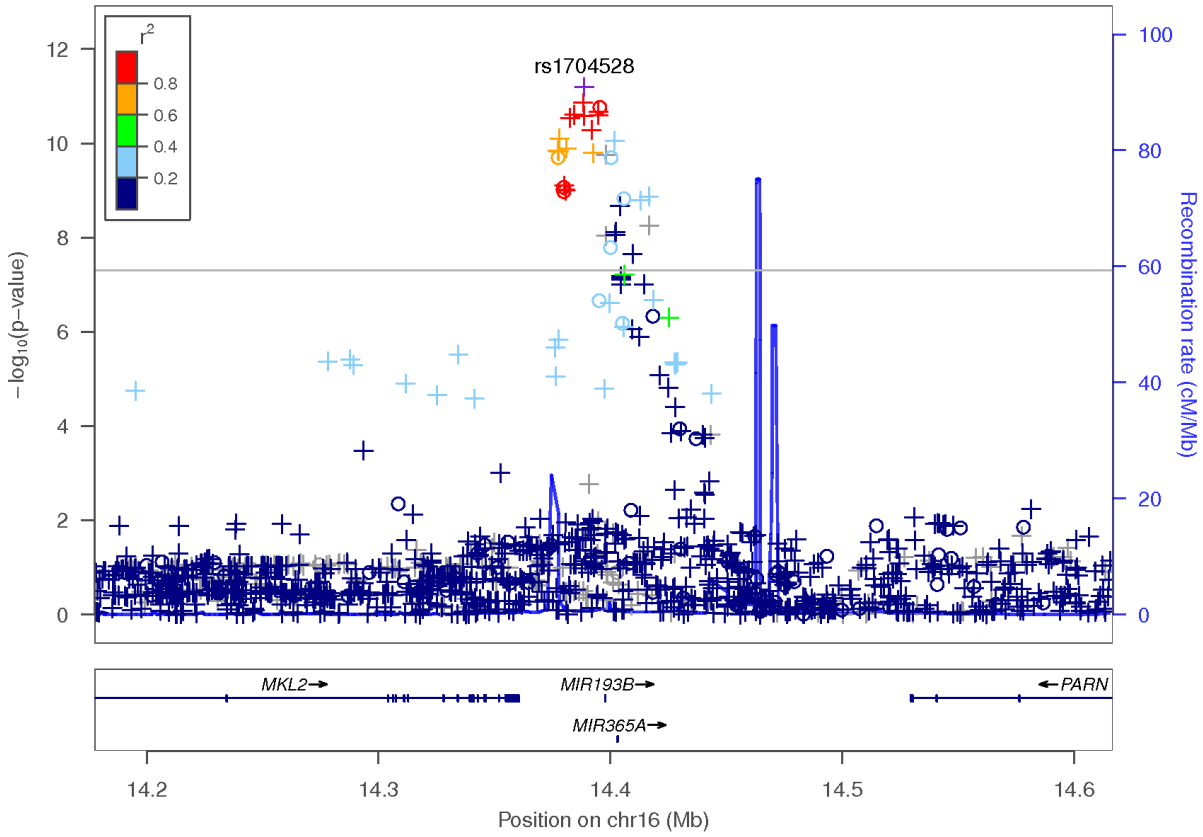

rs12894936
r²
0.8
0.6
0.4
0.2
15
10
5
0
100
80
60
40
20
0
−log10(p−value)
Recombination rate (cM/Mb)
EVL
YY1
MIR345
WDR25
LINC00523
DEGS2
SLC25A29
BEGAIN
SLC25A47
WARS
100.6
100.7
100.8
100.9
101
101.1
Position on chr14 (Mb)

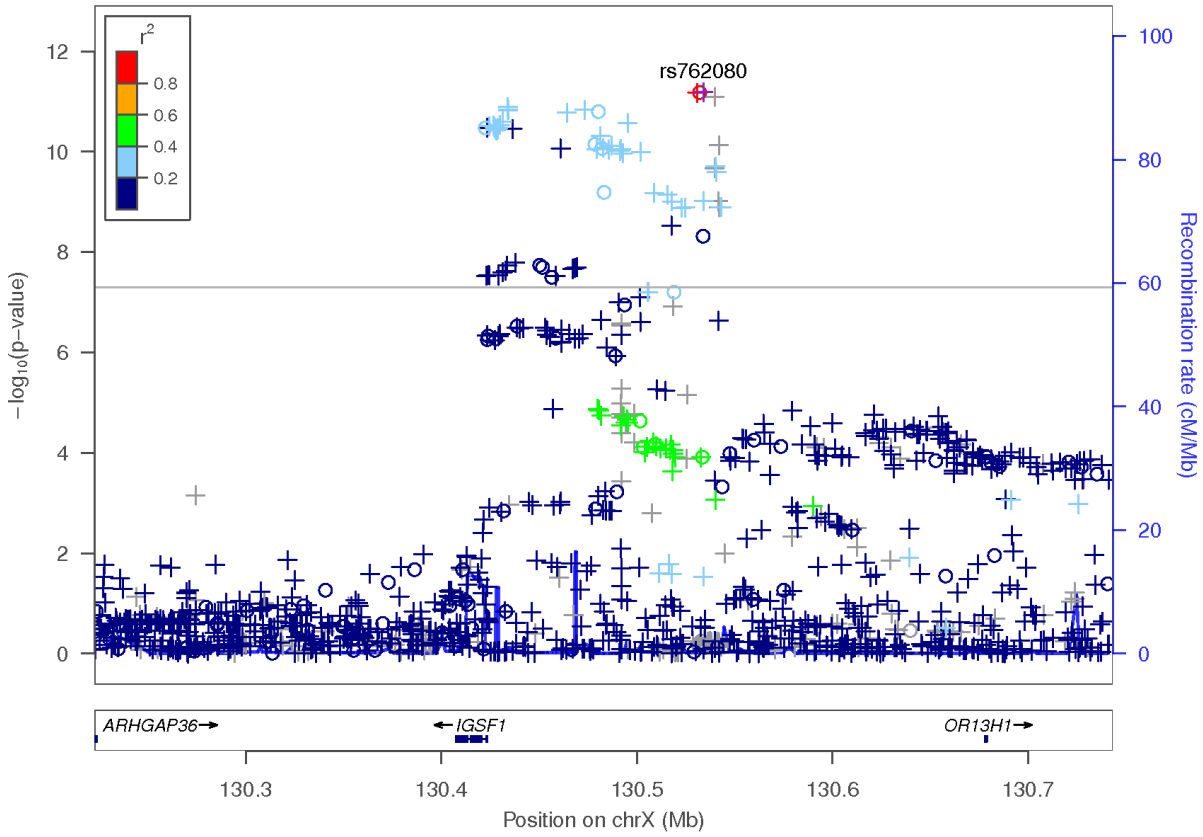

rs6438424
r²
0.8
0.6
0.4
0.2
−log10(p−value)
Recombination rate (cM/Mb)
117.4
117.5
117.6
117.7
117.8
Position on chr3 (Mb)

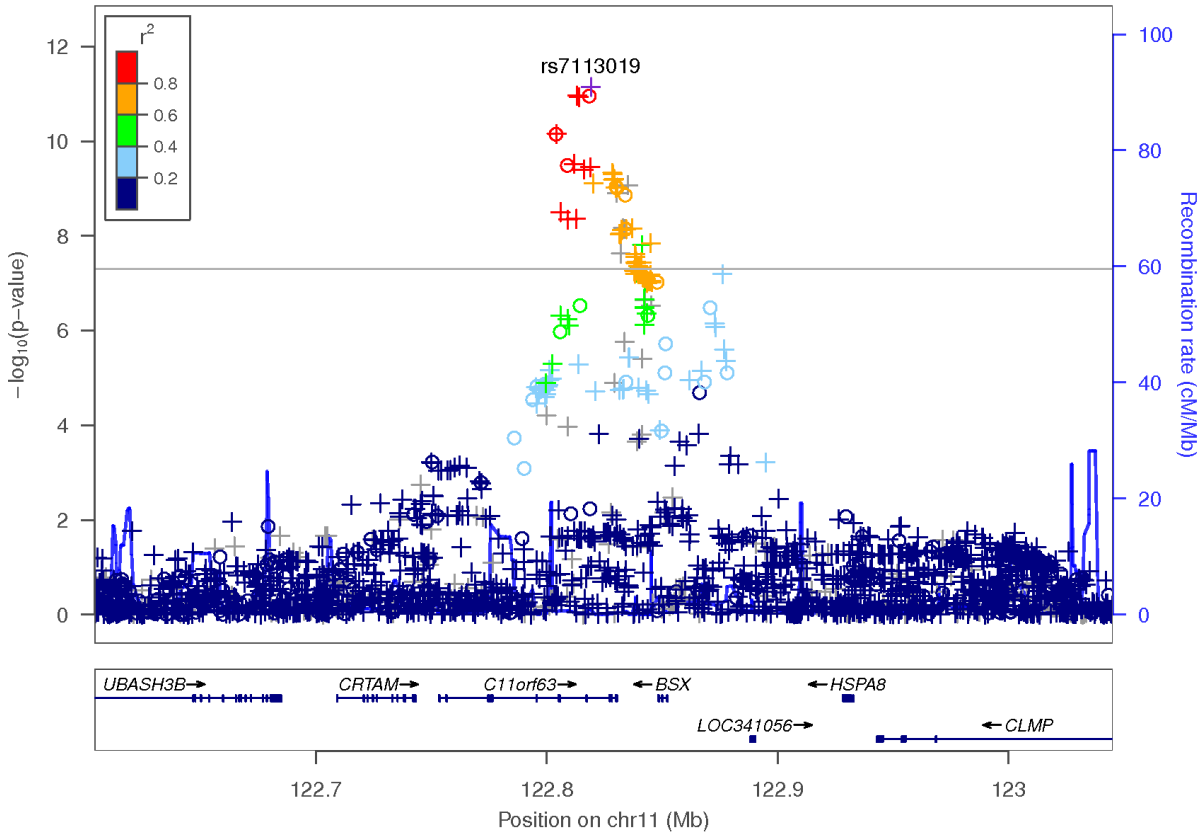

rs1254309
r²
0.8
0.6
0.4
0.2
−log10(p−value)
Recombination rate (cM/Mb)
PCNXL4
PPM1A
C14orf39
SIX1
SIX4
DHRS7
SIX6
MNAT1
60.6
60.7
60.8
60.9
61
61.1
61.2
61.3
Position on chr14 (Mb)

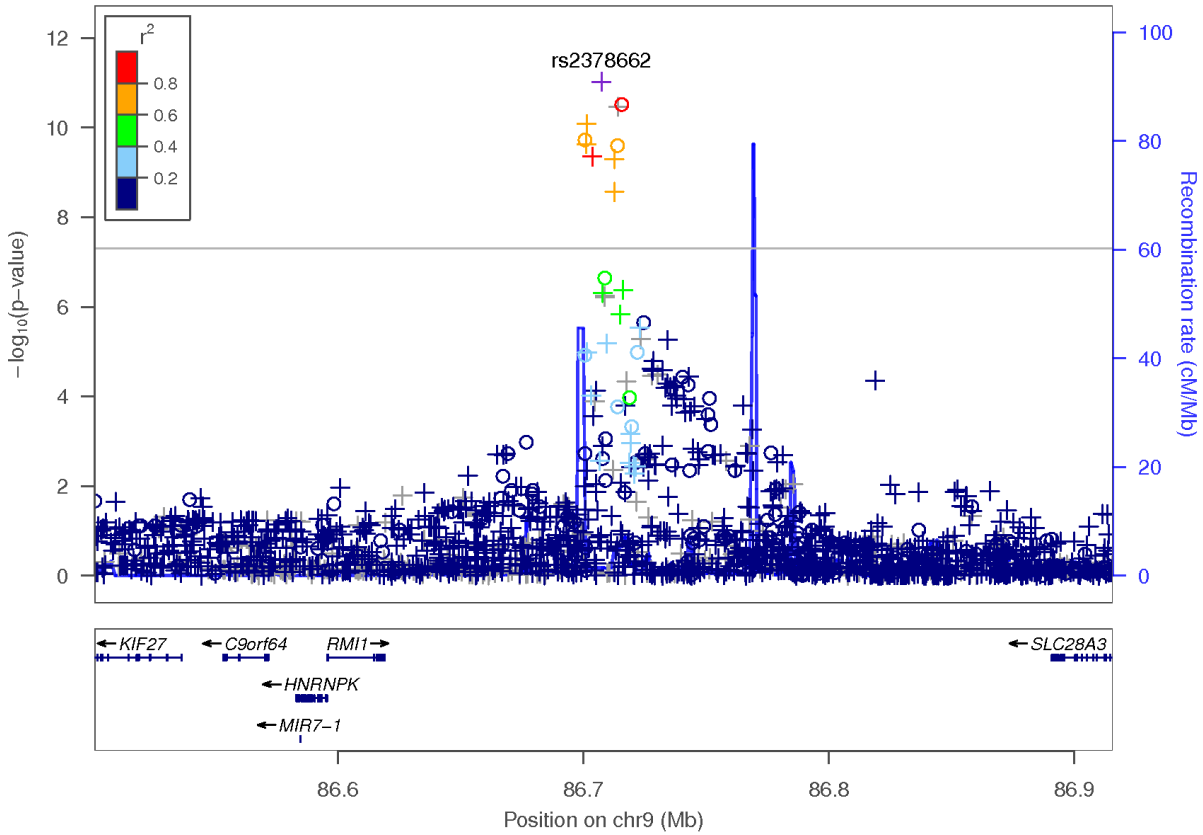

rs1558902
r²
0.8
0.6
0.4
0.2
−log10(p−value)
Recombination rate (cM/Mb)
RPGRIP1L
FTO
53.6
53.7
53.8
53.9
54
Position on chr16 (Mb)

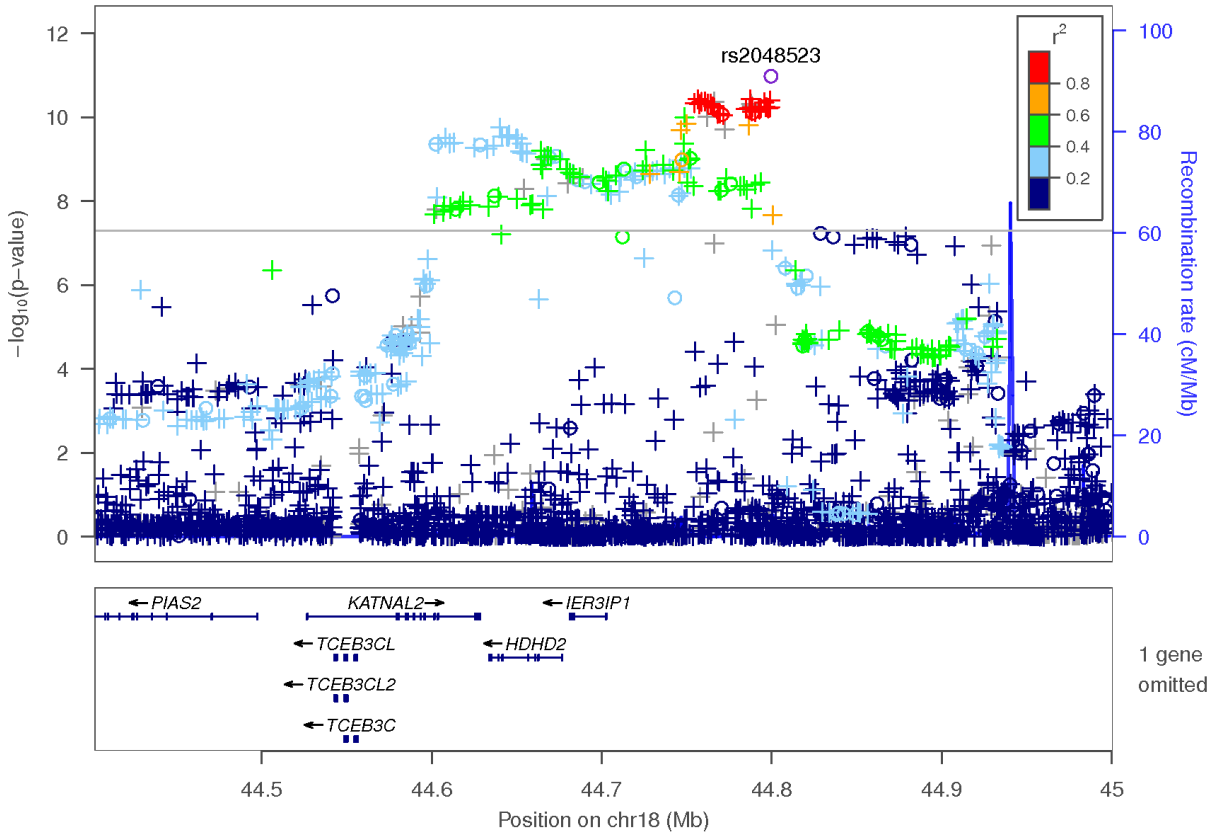

rs1040070
r²
0.8
0.6
0.4
0.2
−log10(p−value)
Recombination rate (cM/Mb)
FPGT−TNNI3K
TNNI3K
C1orf173
CRYZ
TYW3
74.8
74.9
75
75.1
75.2
Position on chr1 (Mb)

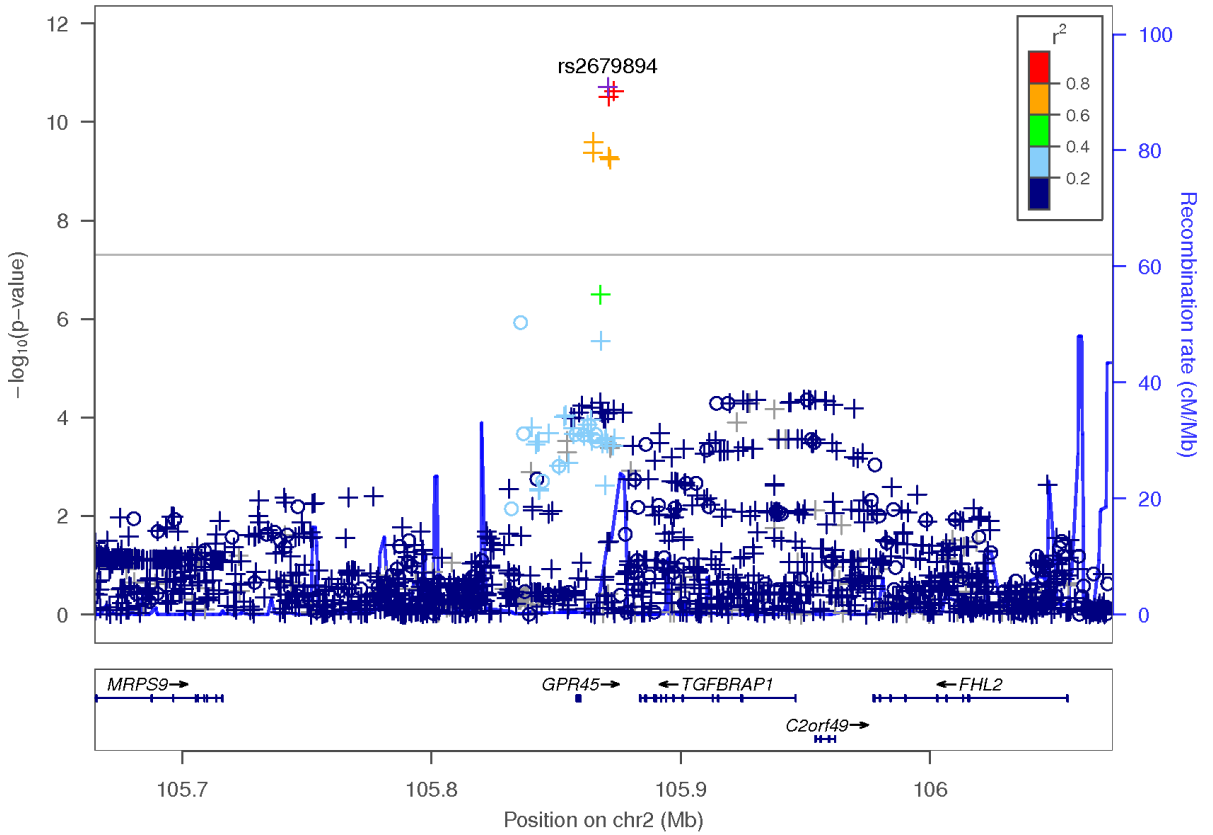

rs1704528
r²
0.8
0.6
0.4
0.2
−log10(p−value)
Recombination rate (cM/Mb)
MKL2
MIR193B
PARN
MIR365A
14.2
14.3
14.4
14.5
14.6
Position on chr16 (Mb)

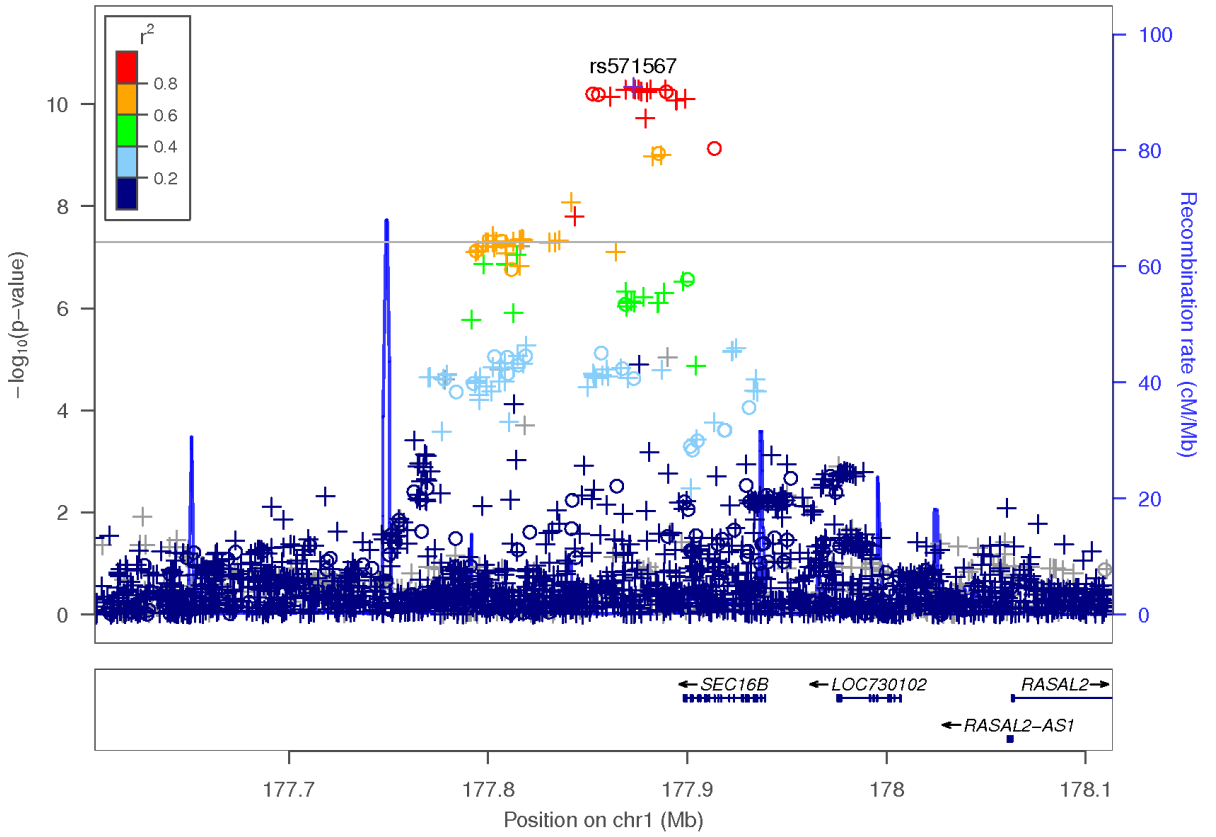

rs762080
r²
0.8
0.6
0.4
0.2
−log10(p−value)
Recombination rate (cM/Mb)
ARHGAP36
IGSF1
OR13H1
130.3
130.4
130.5
130.6
130.7
Position on chrX (Mb)

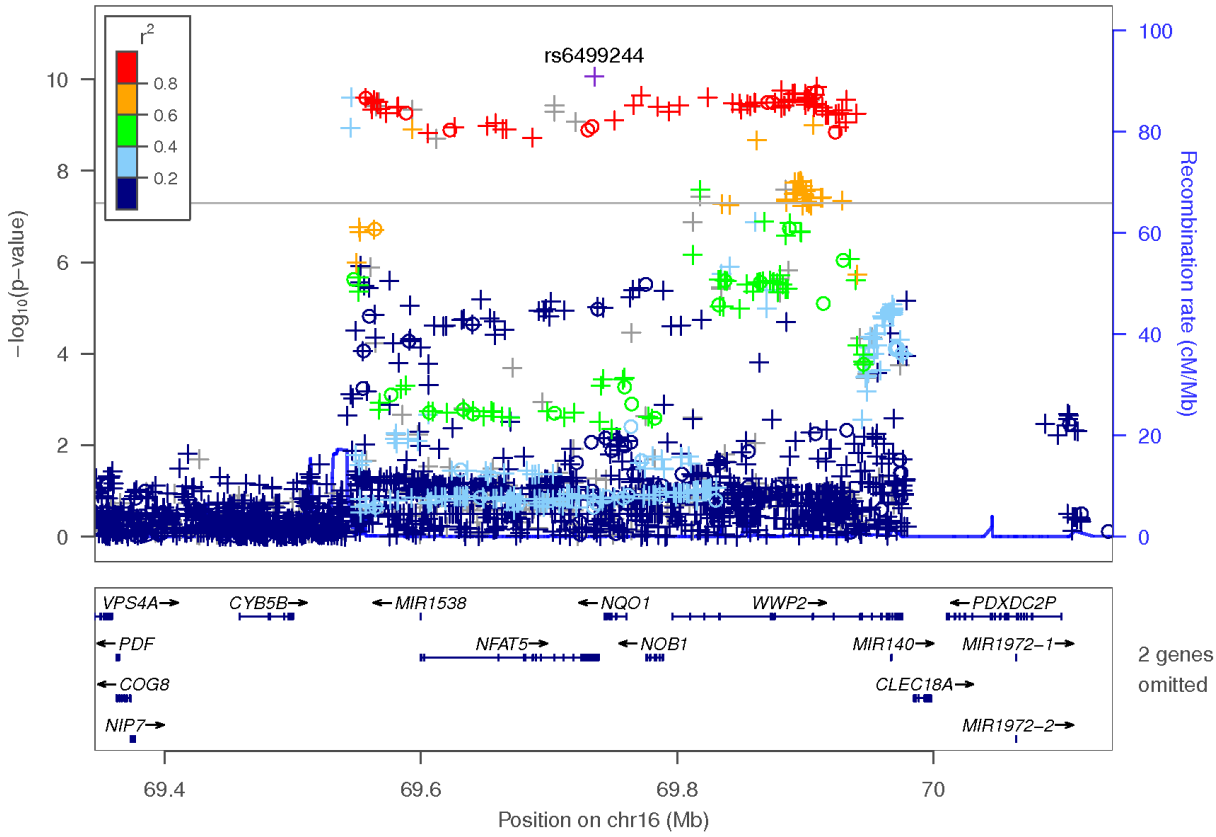

rs7113019
r2
0.8
0.6
0.4
0.2
−log10(p−value)
Recombination rate (cM/Mb)
UBASH3B
CRTAM
C11orf63
BSX
HSPA8
LOC341056
CLMP
122.7
122.8
122.9
123
Position on chr11 (Mb)

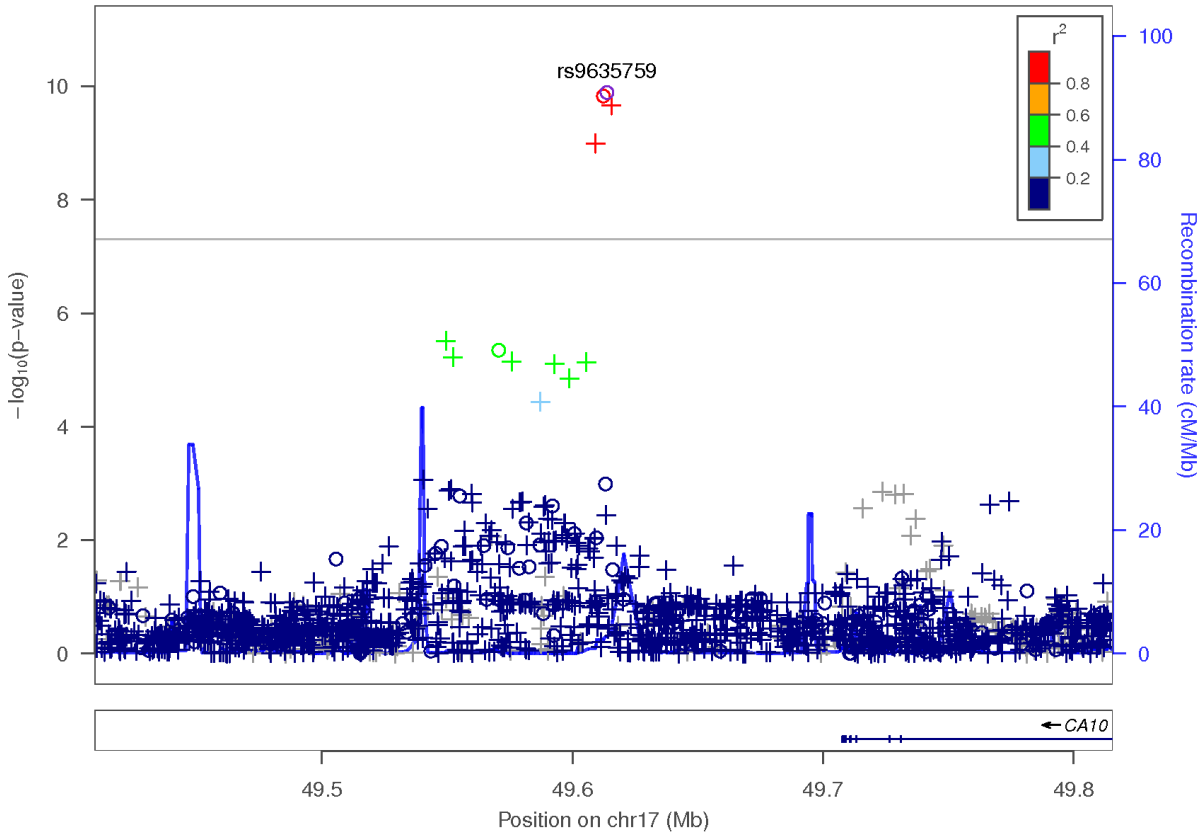

rs2378662
r2
0.8
0.6
0.4
0.2
−log10(p−value)
Recombination rate (cM/Mb)
KIF27
C9orf64
RMI1
SLC28A3
HNRNPK
MIR7−1
86.6
86.7
86.8
86.9
Position on chr9 (Mb)

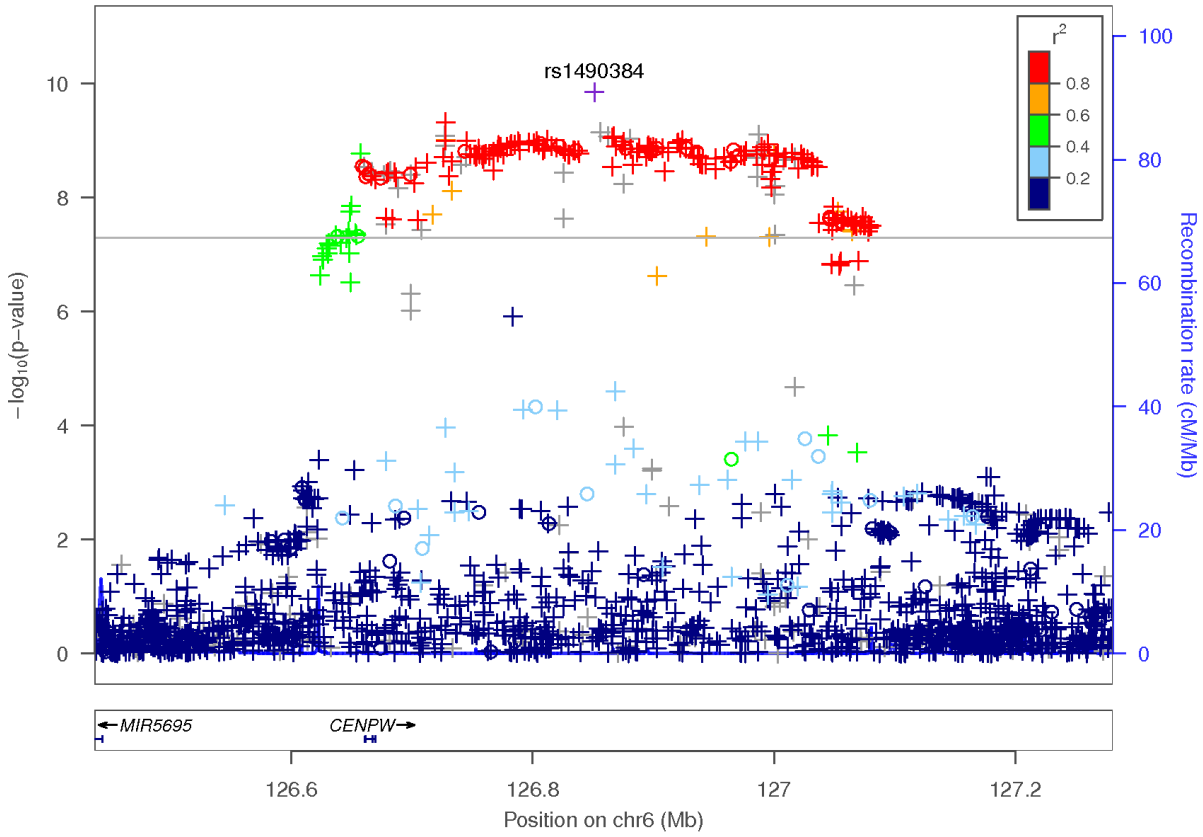

rs2048523
r²
0.8
0.6
0.4
0.2
−log10(p−value)
Recombination rate (cM/Mb)
PIAS2
KATNAL2
IER3IP1
TCEB3CL
HDHD2
TCEB3CL2
TCEB3C
1 gene
omitted
Position on chr18 (Mb)

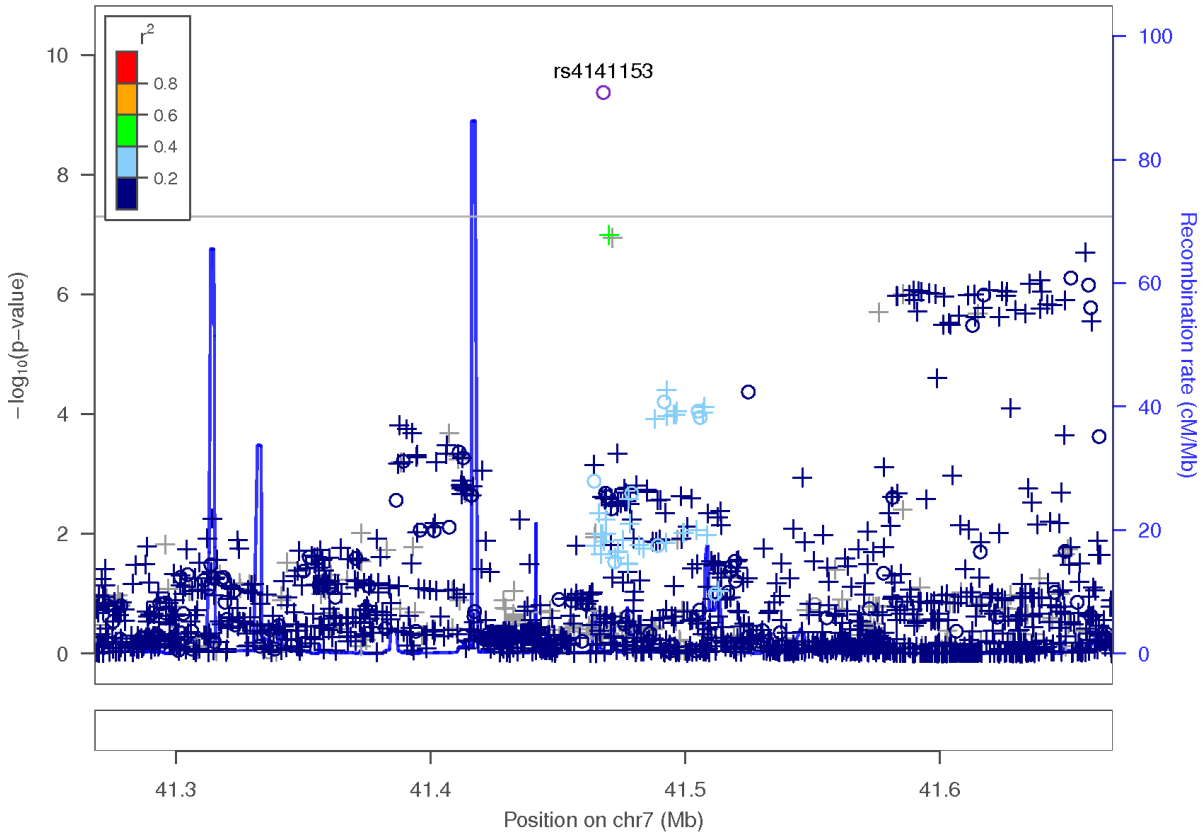

rs2679894
r²
0.8
0.6
0.4
0.2
−log10(p−value)
Recombination rate (cM/Mb)
MRPS9
GPR45
TGFBRAP1
FHL2
C2orf49
Position on chr2 (Mb)

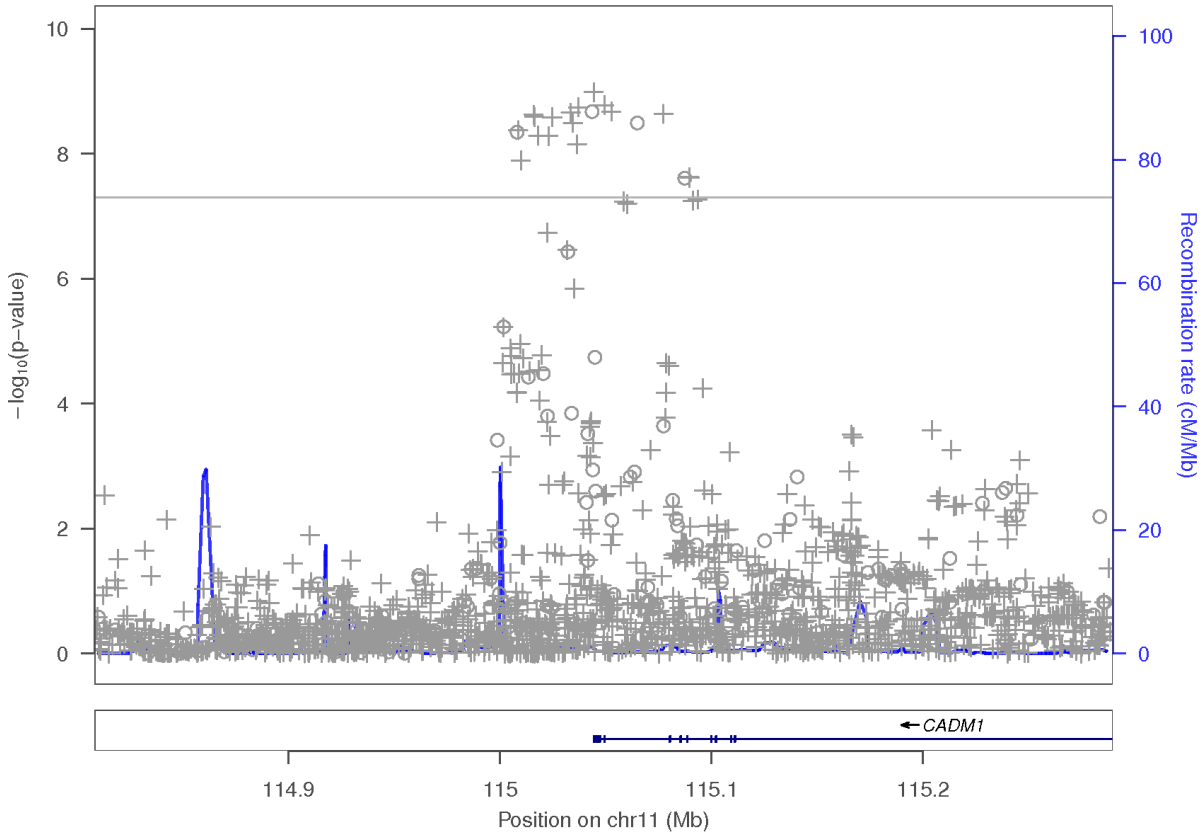

rs571567
r²
0.8
0.6
0.4
0.2
−log10(p−value)
Recombination rate (cM/Mb)
SEC16B
LOC730102
RASAL2
RASAL2−AS1
177.7
177.8
177.9
178
178.1
Position on chr1 (Mb)

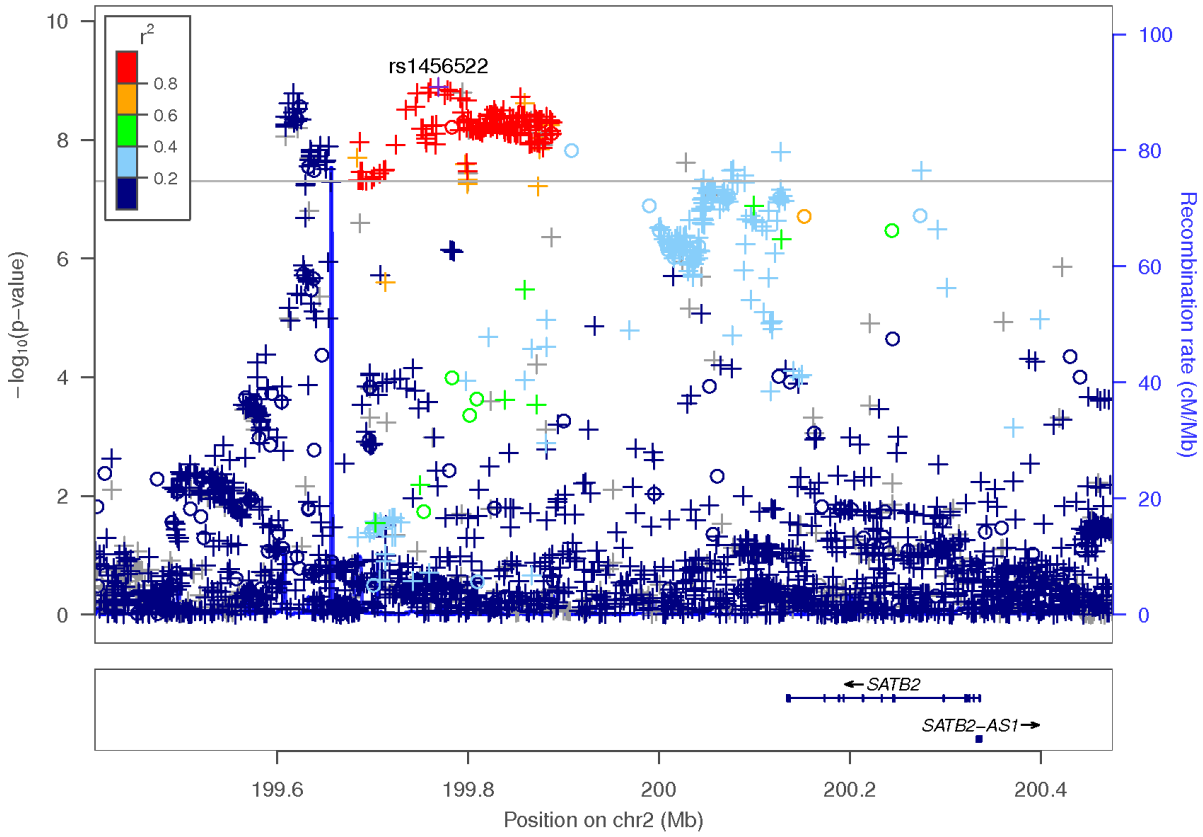

rs6499244
r²
0.8
0.6
0.4
0.2
−log10(p−value)
Recombination rate (cM/Mb)
VPS4A
CYB5B
MIR1538
NQO1
WWP2
PDXDC2P
PDF
NFAT5
NOB1
MIR140
MIR1972−1
COG8
CLEC18A
NIP7
MIR1972−2
2 genes omitted
69.4
69.6
69.8
70
Position on chr16 (Mb)

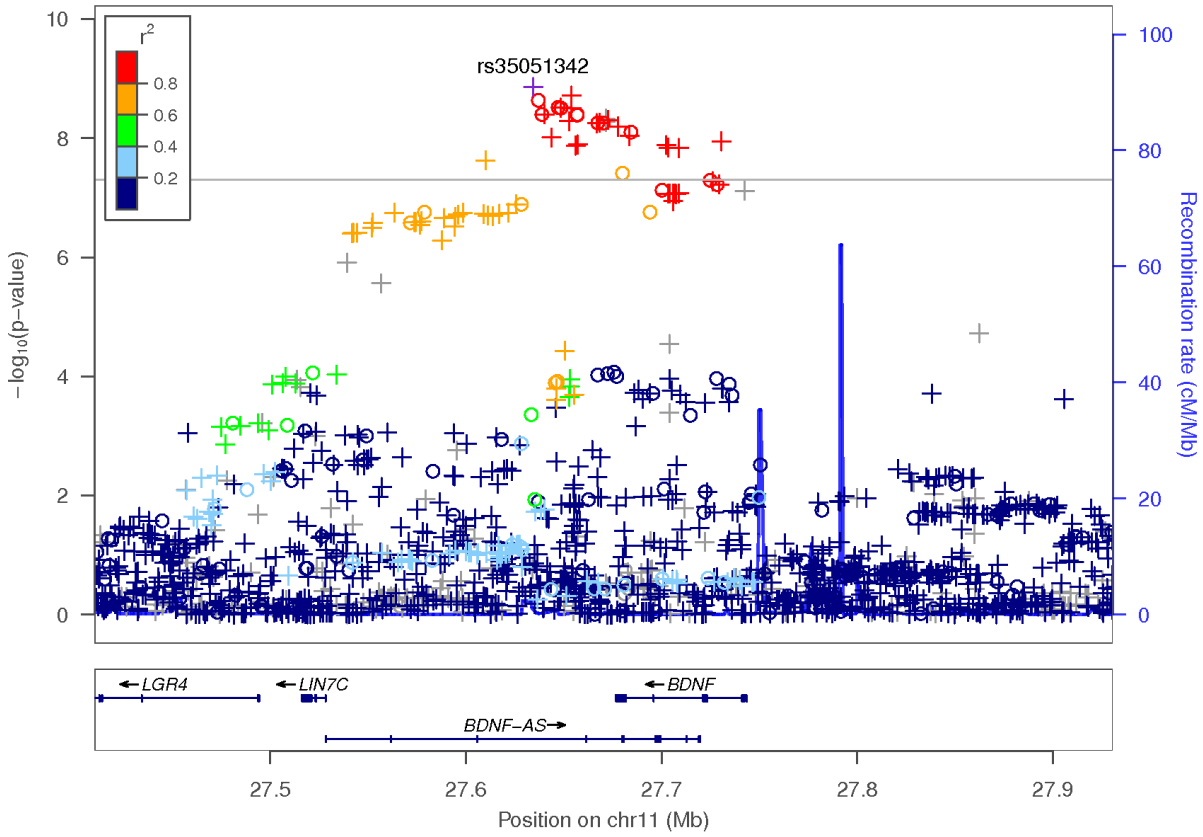

rs9635759
r²
0.8
0.6
0.4
0.2
−log10(p−value)
Recombination rate (cM/Mb)
CA10
49.5
49.6
49.7
49.8
Position on chr17 (Mb)

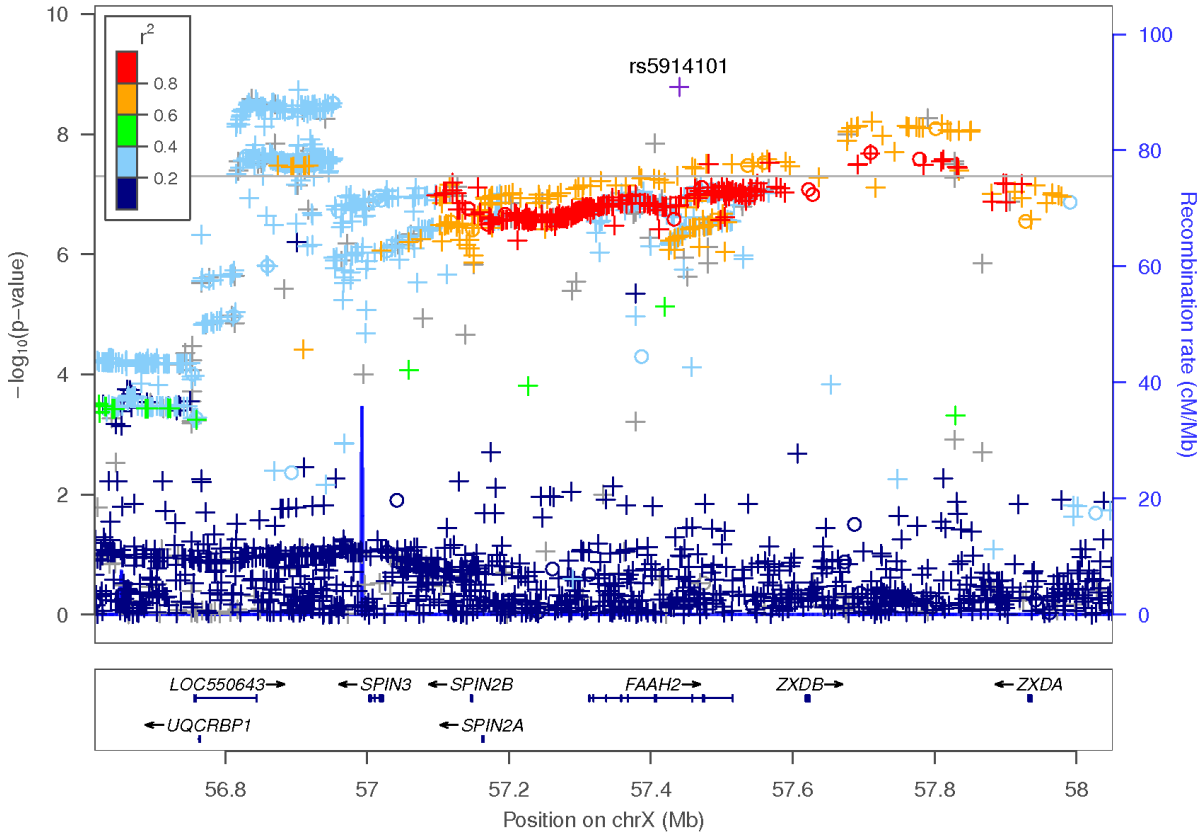

rs1490384
r²
0.8
0.6
0.4
0.2
−log10(p−value)
Recombination rate (cM/Mb)
MIR5695
CENPW
126.6
126.8
127
127.2
Position on chr6 (Mb)

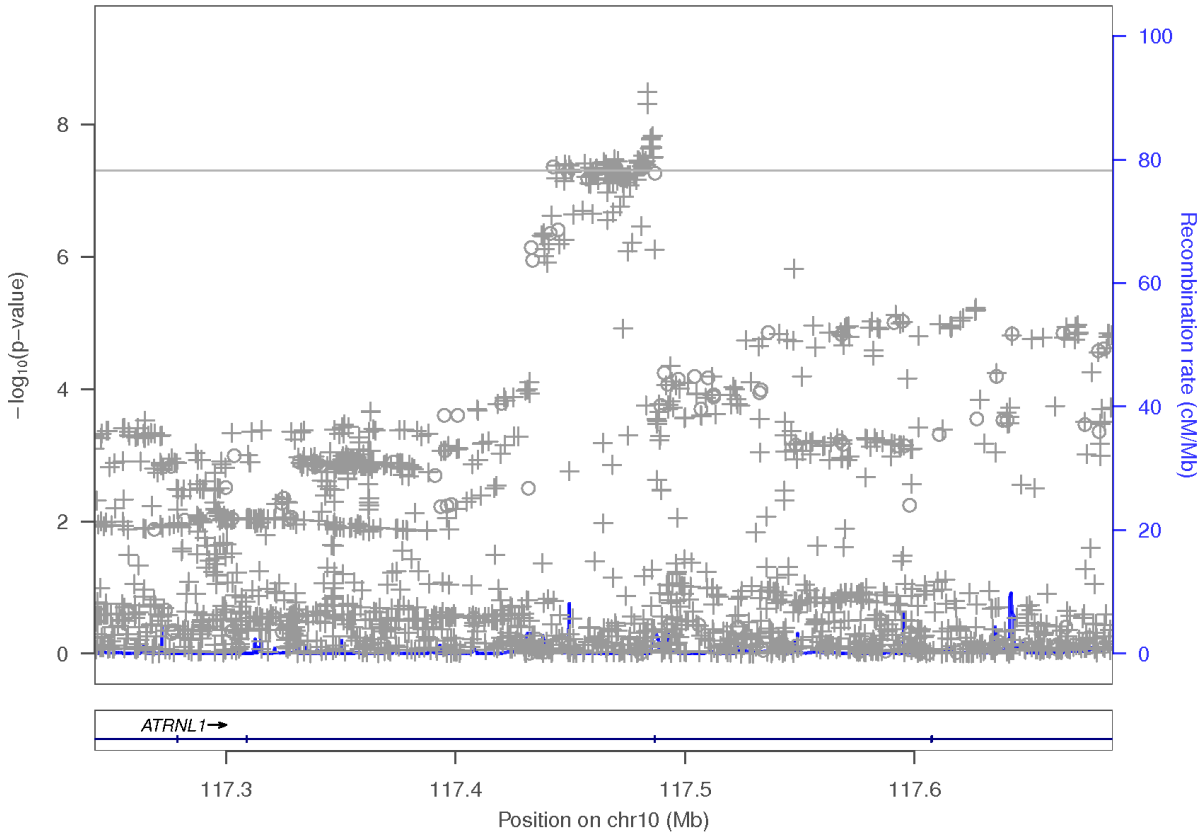

r²
0.8
0.6
0.4
0.2
rs4141153
−log10(p−value)
Recombination rate (cM/Mb)
Position on chr7 (Mb)
41.3
41.4
41.5
41.6

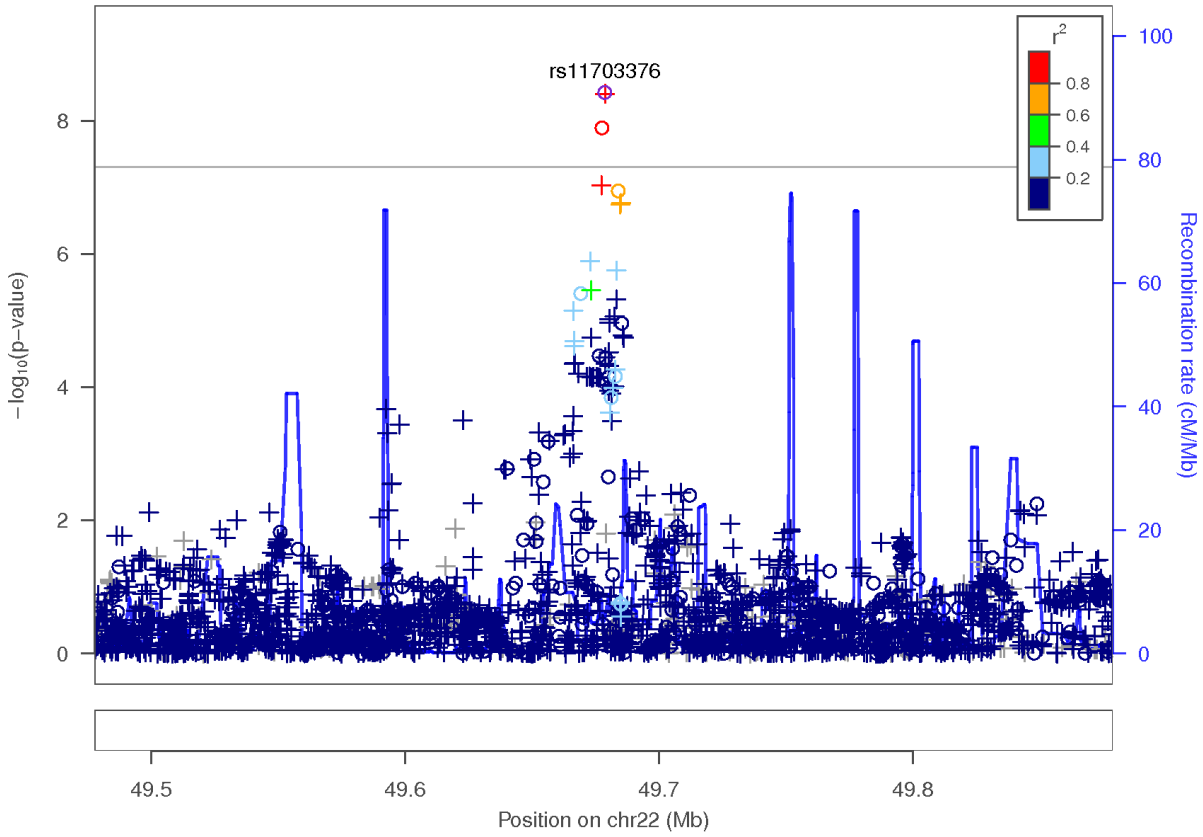

−log10(p−value)
Recombination rate (cM/Mb)
CADM1
Position on chr11 (Mb)
114.9
115
115.1
115.2

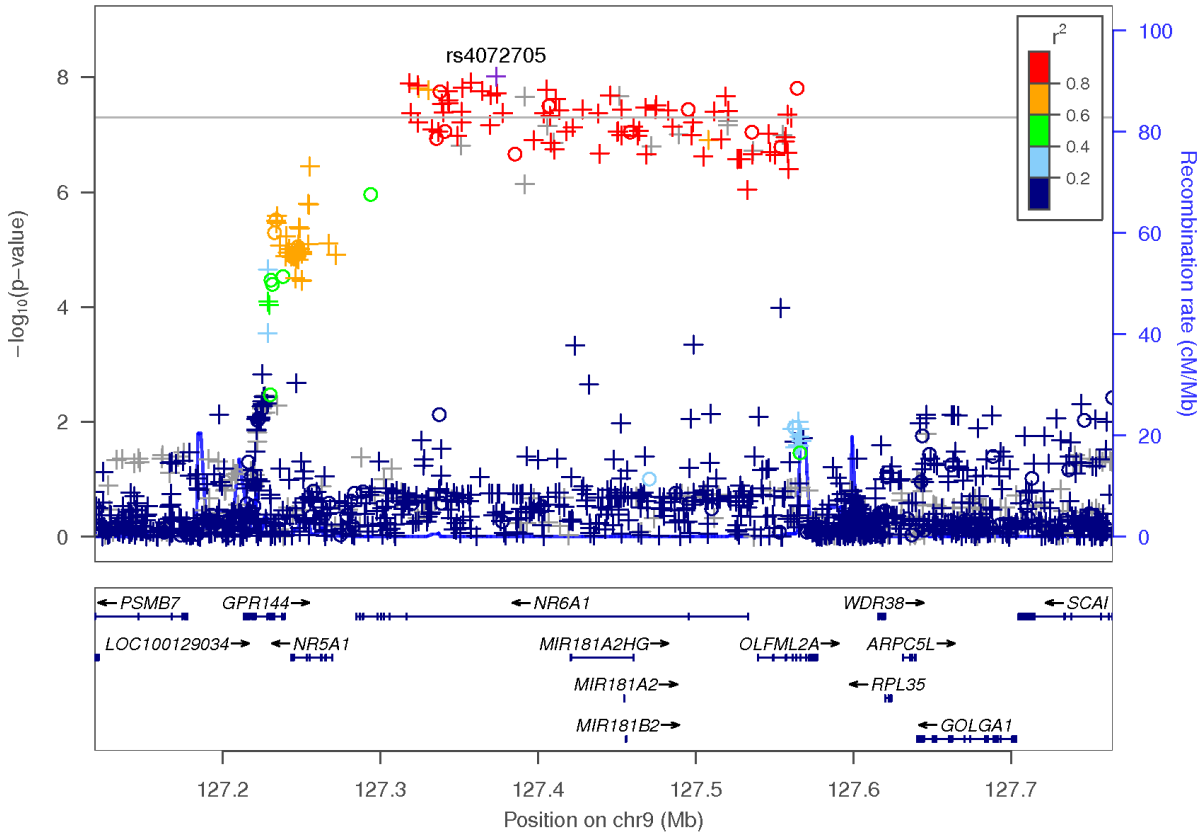

rs1456522
r²
0.8
0.6
0.4
0.2
−log10(p−value)
Recombination rate (cM/Mb)
SATB2
SATB2−AS1
199.6
199.8
200
200.2
200.4
Position on chr2 (Mb)

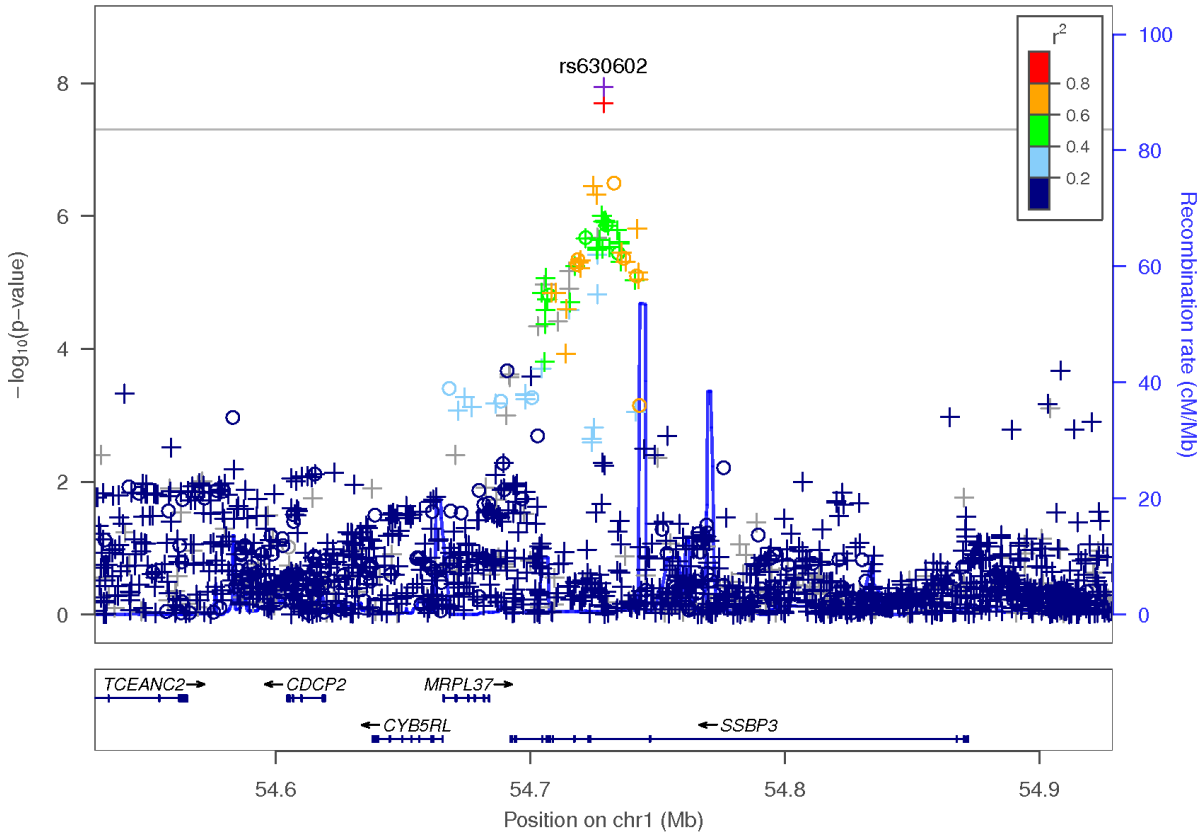

rs35051342
r²
0.8
0.6
0.4
0.2
−log10(p−value)
Recombination rate (cM/Mb)
LGR4
LIN7C
BDNF
BDNF−AS
27.5
27.6
27.7
27.8
27.9
Position on chr11 (Mb)

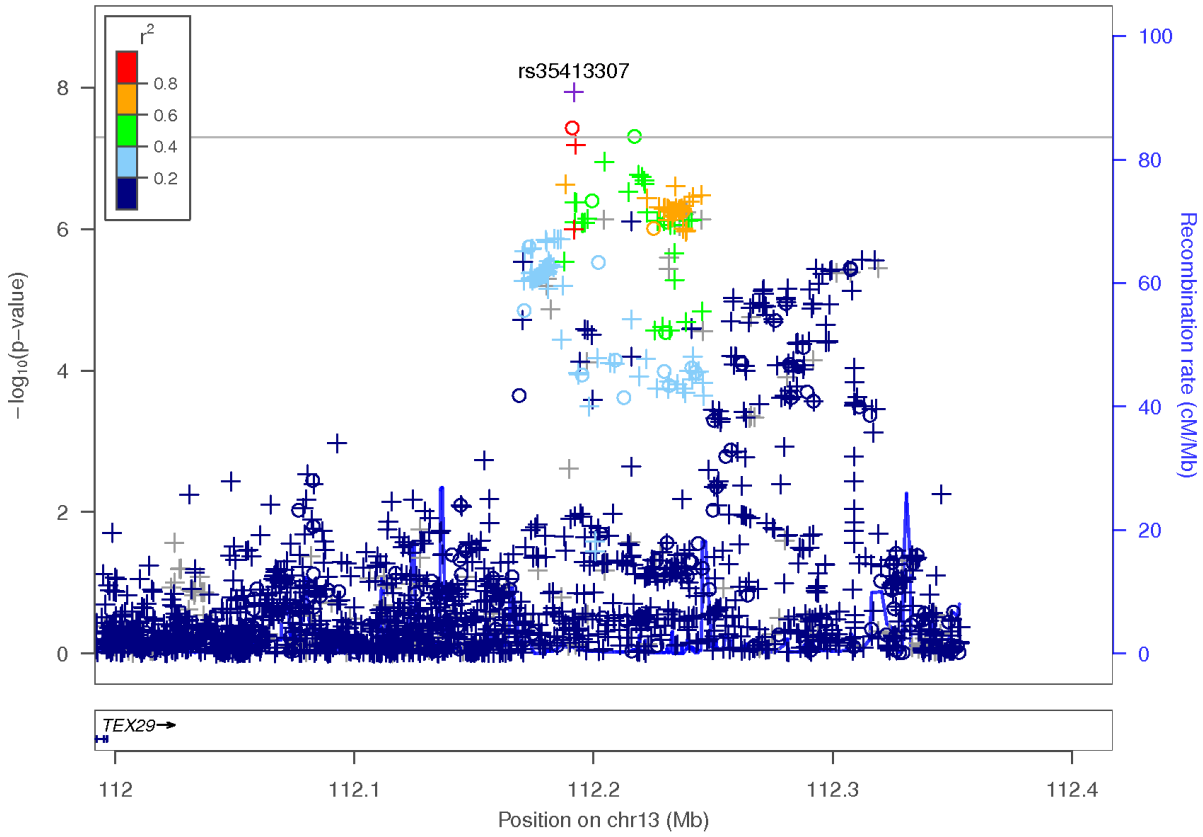

rs5914101
r2
0.8
0.6
0.4
0.2
−log10(p−value)
Recombination rate (cM/Mb)
LOC550643
SPIN3
SPIN2B
FAAH2
ZXDB
ZXDA
UQCRBP1
SPIN2A
Position on chrX (Mb)

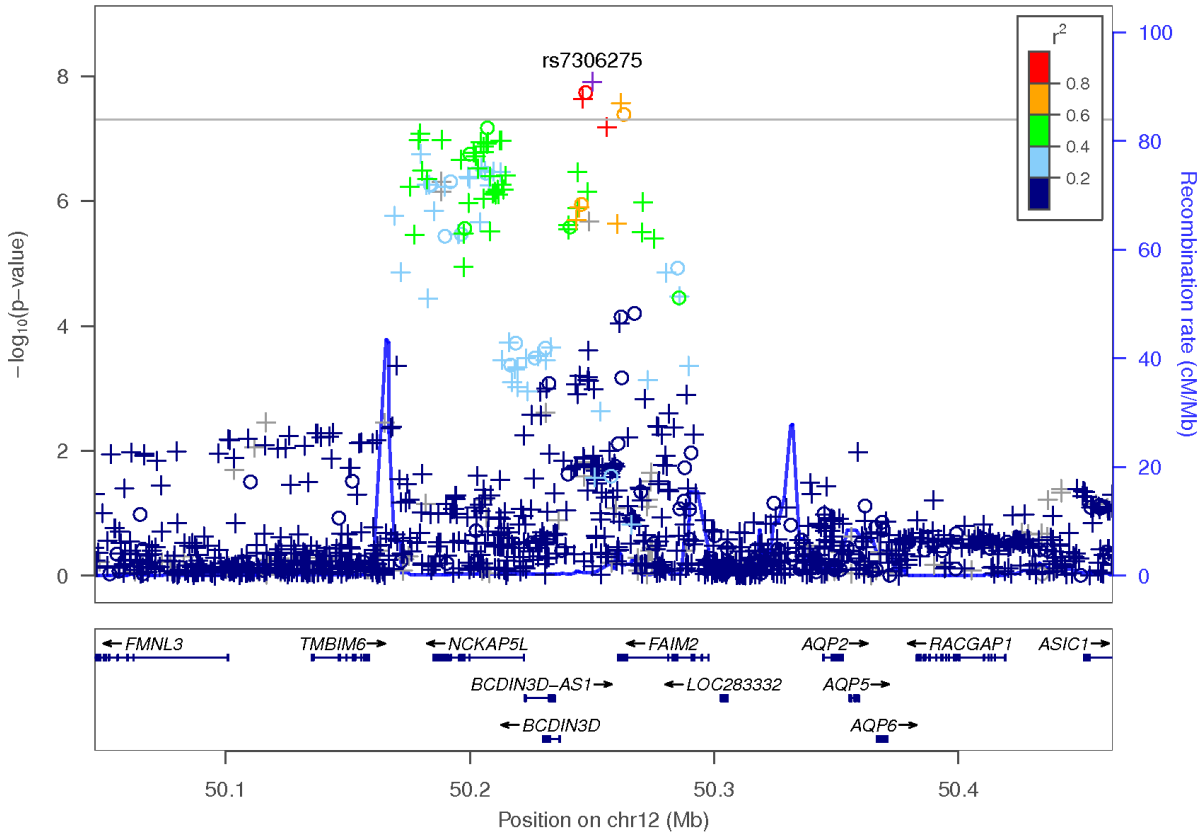

−log10(p−value)
Recombination rate (cM/Mb)
ATRNL1
Position on chr10 (Mb)

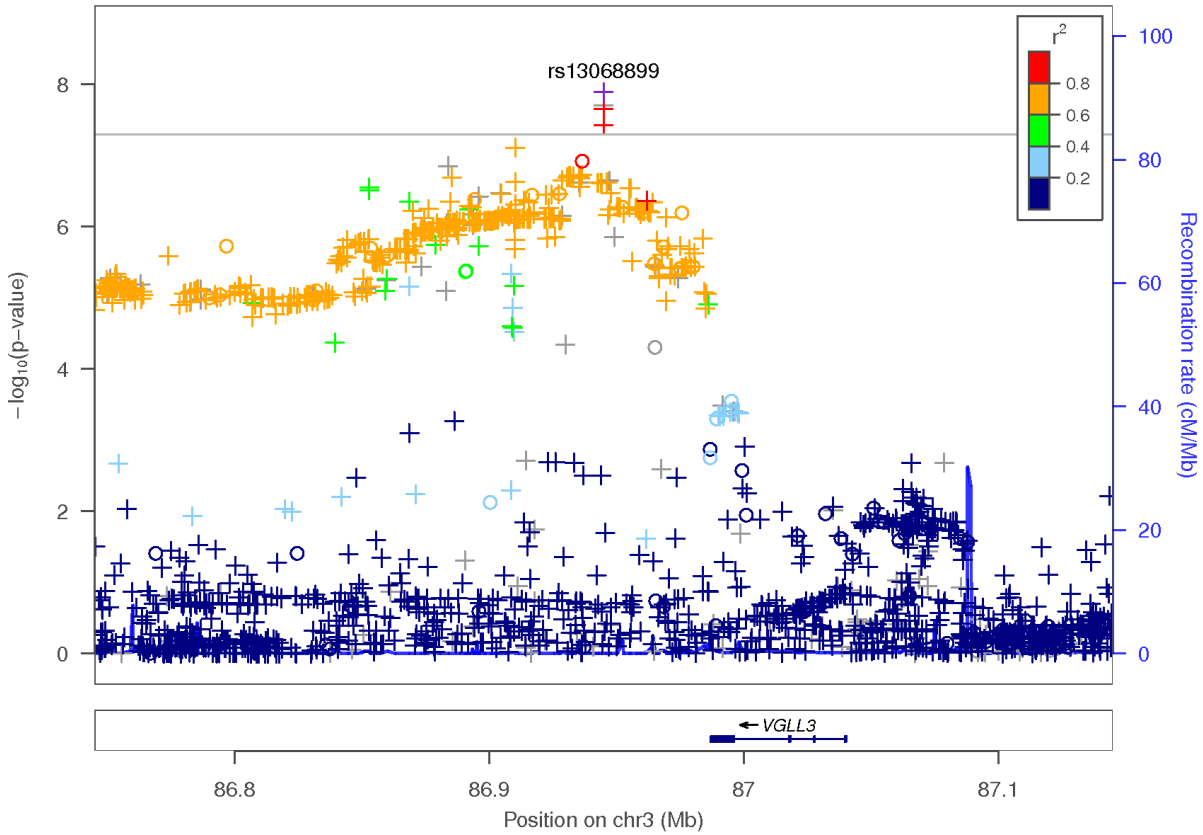

rs11703376
r²
0.8
0.6
0.4
0.2
−log10(p−value)
Recombination rate (cM/Mb)
Position on chr22 (Mb)
49.5
49.6
49.7
49.8

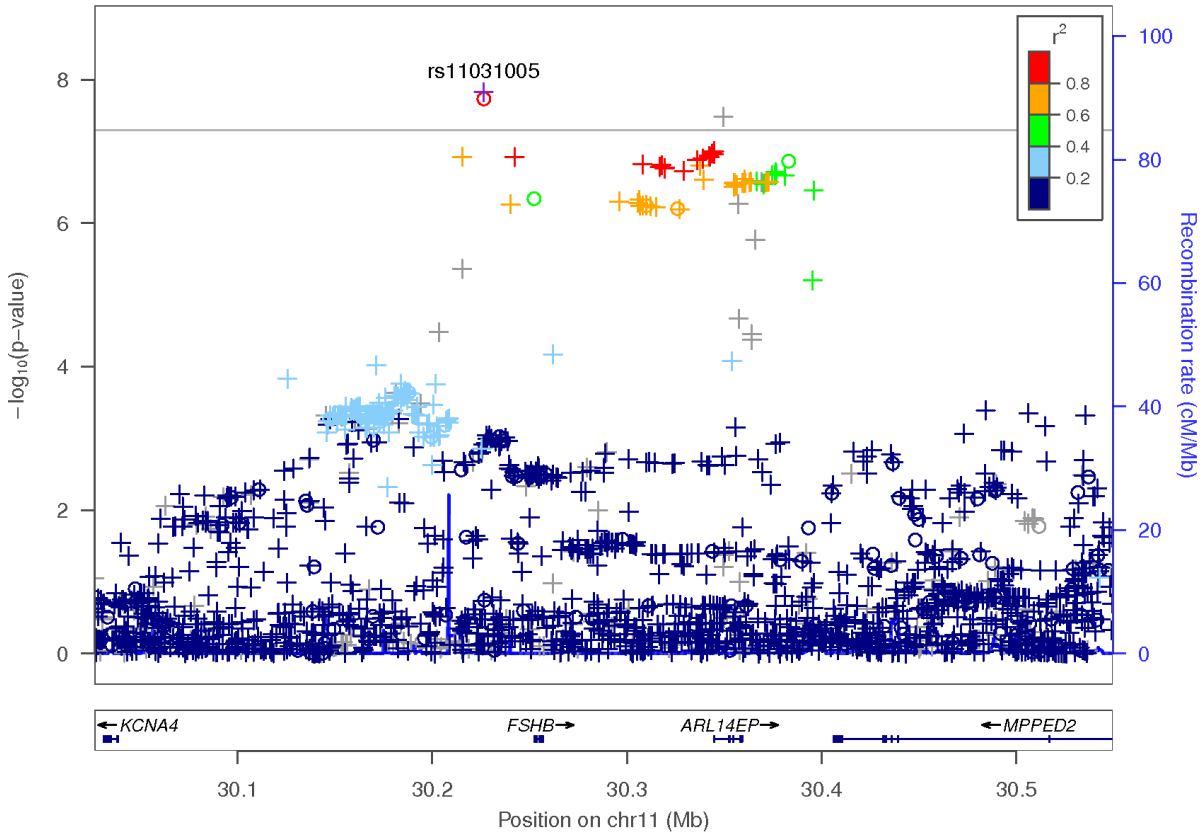

rs4072705
r²
0.8
0.6
0.4
0.2
−log10(p−value)
Recombination rate (cM/Mb)
PSMB7
GPR144
NR6A1
WDR38
SCAI
LOC100129034
NR5A1
MIR181A2HG
OLFML2A
ARPC5L
MIR181A2
RPL35
MIR181B2
GOLGA1
Position on chr9 (Mb)
127.2
127.3
127.4
127.5
127.6
127.7

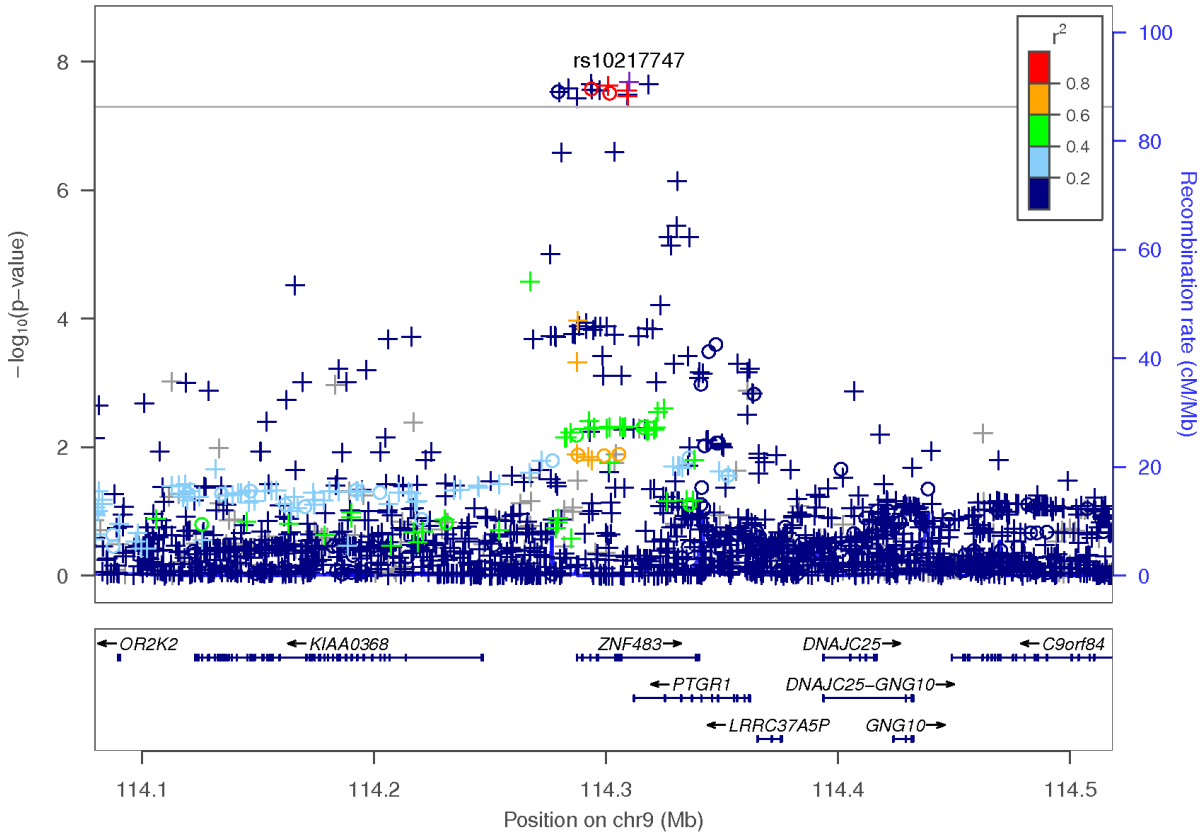

rs630602
r2
0.8
0.6
0.4
0.2
−log10(p−value)
Recombination rate (cM/Mb)
TCEANC2
CDCP2
MRPL37
CYB5RL
SSBP3
54.6
54.7
54.8
54.9
Position on chr1 (Mb)

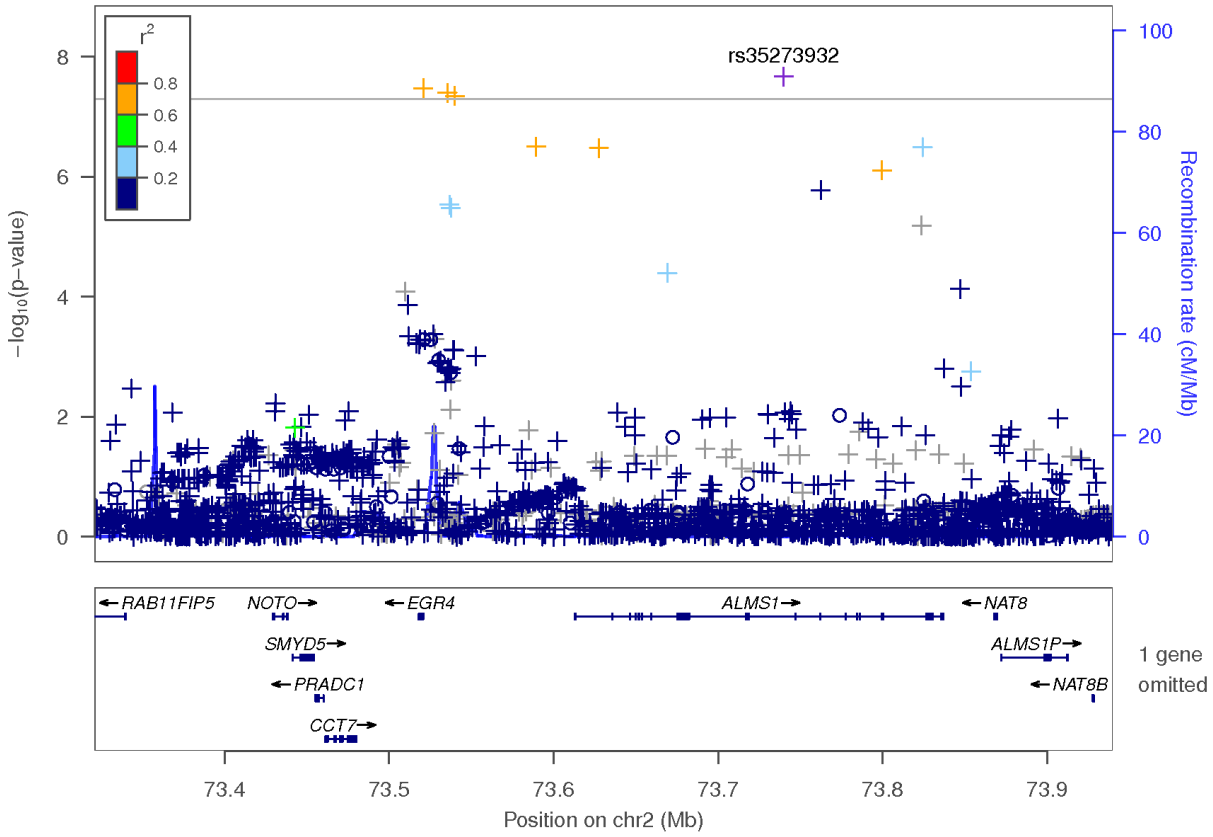

rs35413307
r2
0.8
0.6
0.4
0.2
−log10(p−value)
Recombination rate (cM/Mb)
TEX29
112
112.1
112.2
112.3
112.4
Position on chr13 (Mb)

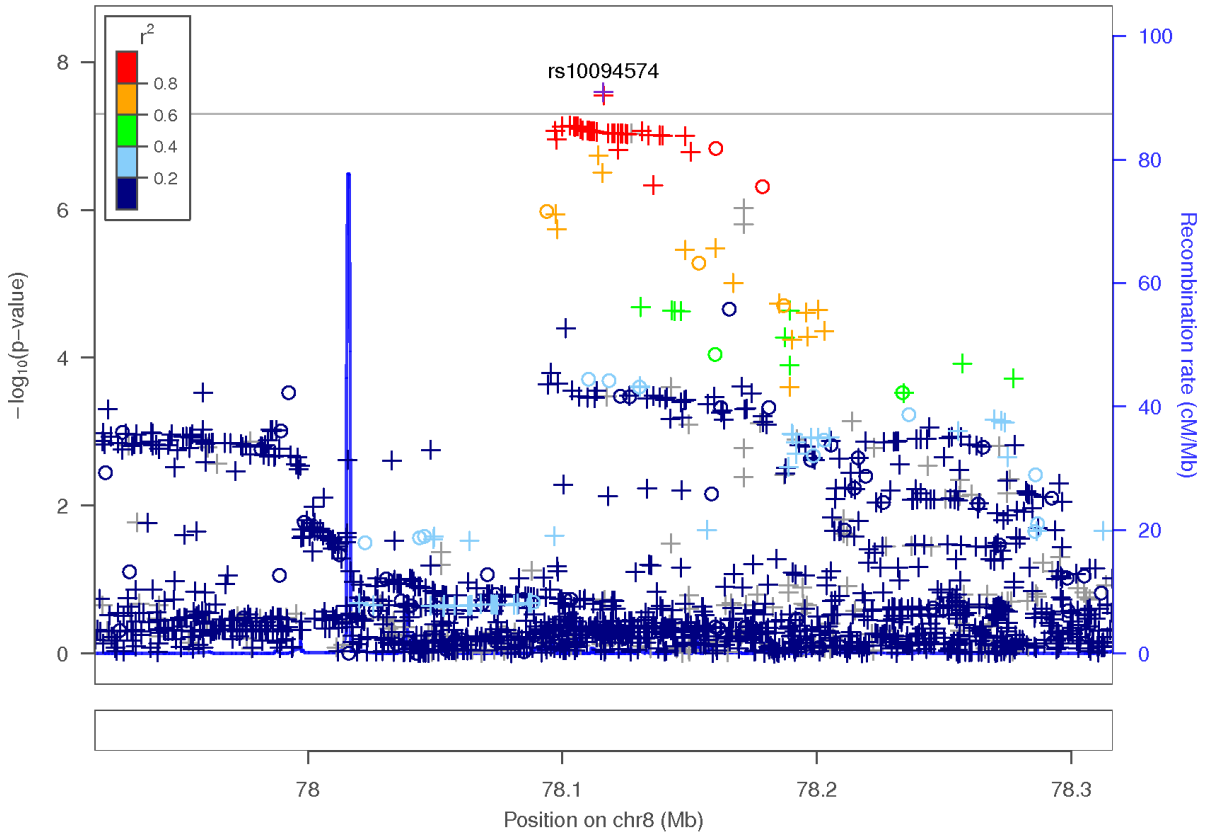

rs7306275
r²
0.8
0.6
0.4
0.2
−log10(p−value)
Recombination rate (cM/Mb)
FMNL3
TMBIM6
NCKAP5L
FAIM2
AQP2
RACGAPI
ASIC1
BCDIN3D−AS1
LOC283332
AQP5
BCDIN3D
AQP6
Position on chr12 (Mb)

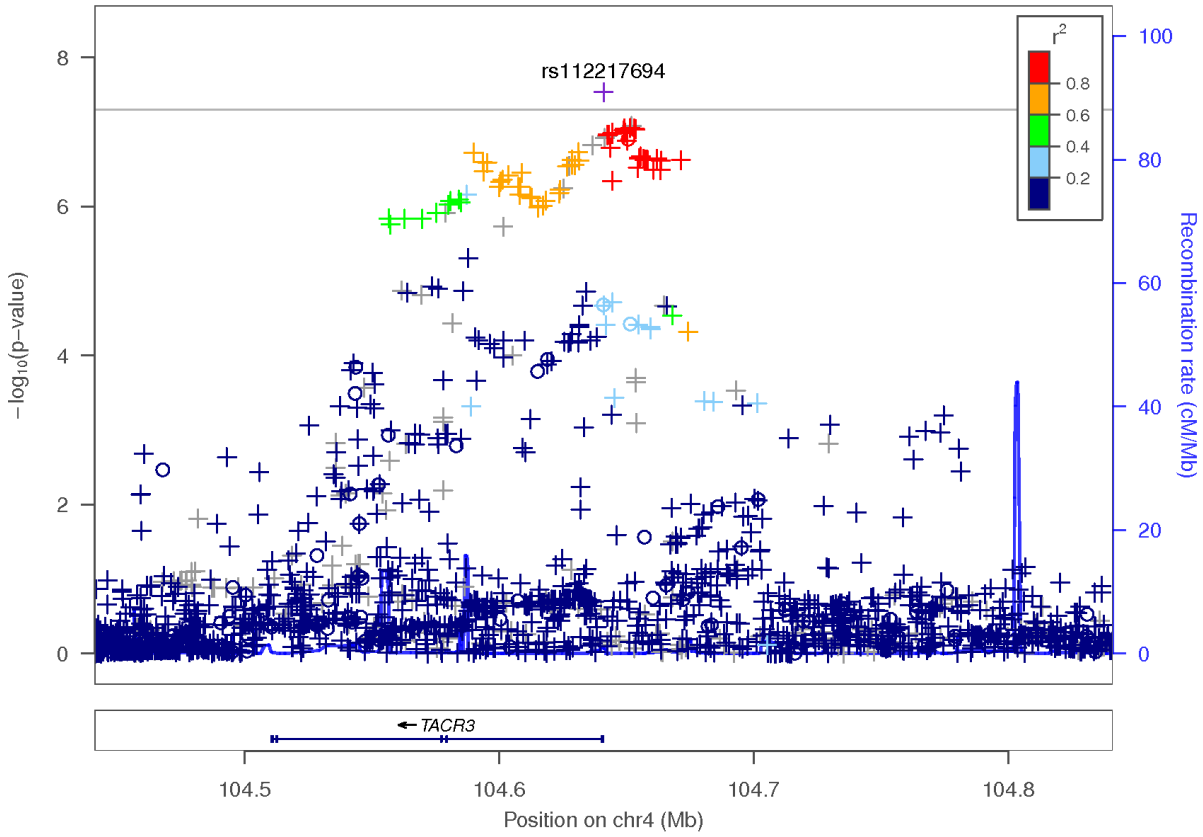

rs13068899
r²
0.8
0.6
0.4
0.2
−log10(p−value)
Recombination rate (cM/Mb)
VGLL3
Position on chr3 (Mb)

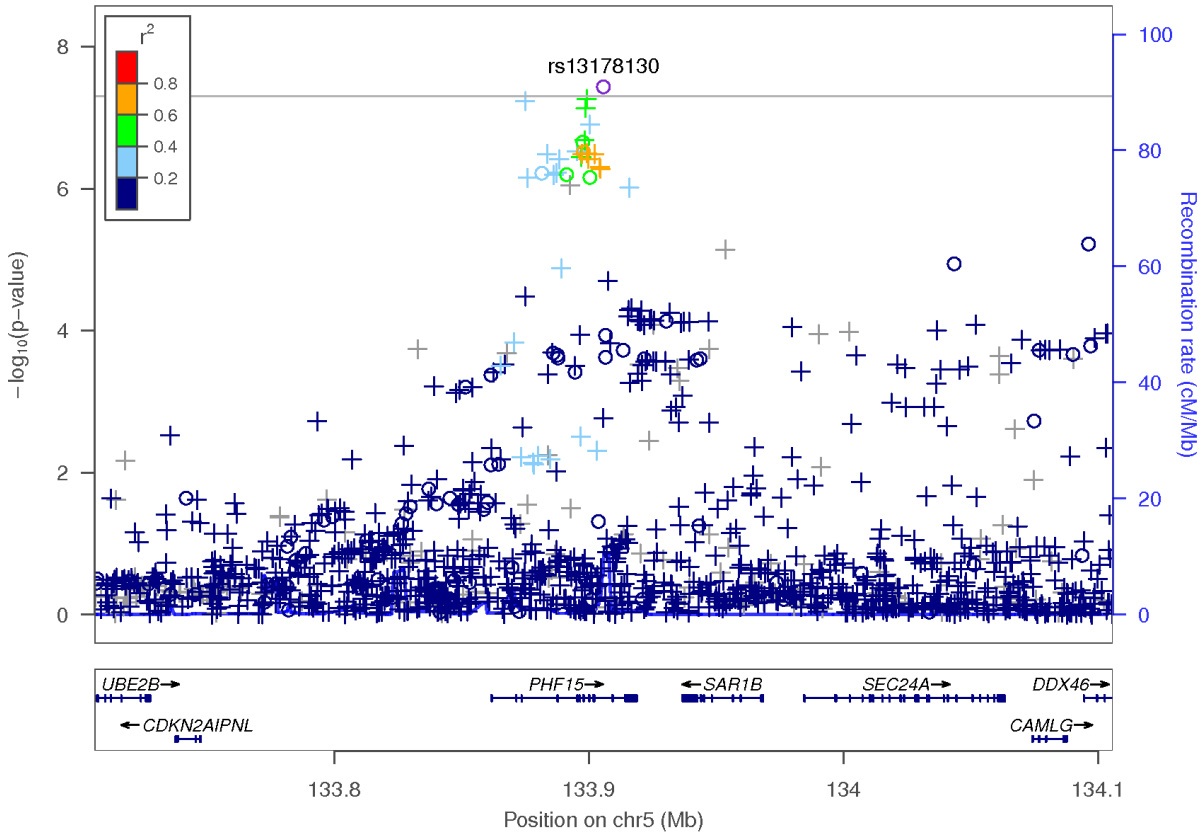

rs11031005
r²
0.8
0.6
0.4
0.2
−log₁₀(p−value)
Recombination rate (cM/Mb)
KCNA4
FSHB
ARL14EP
MPPED2
Position on chr11 (Mb)

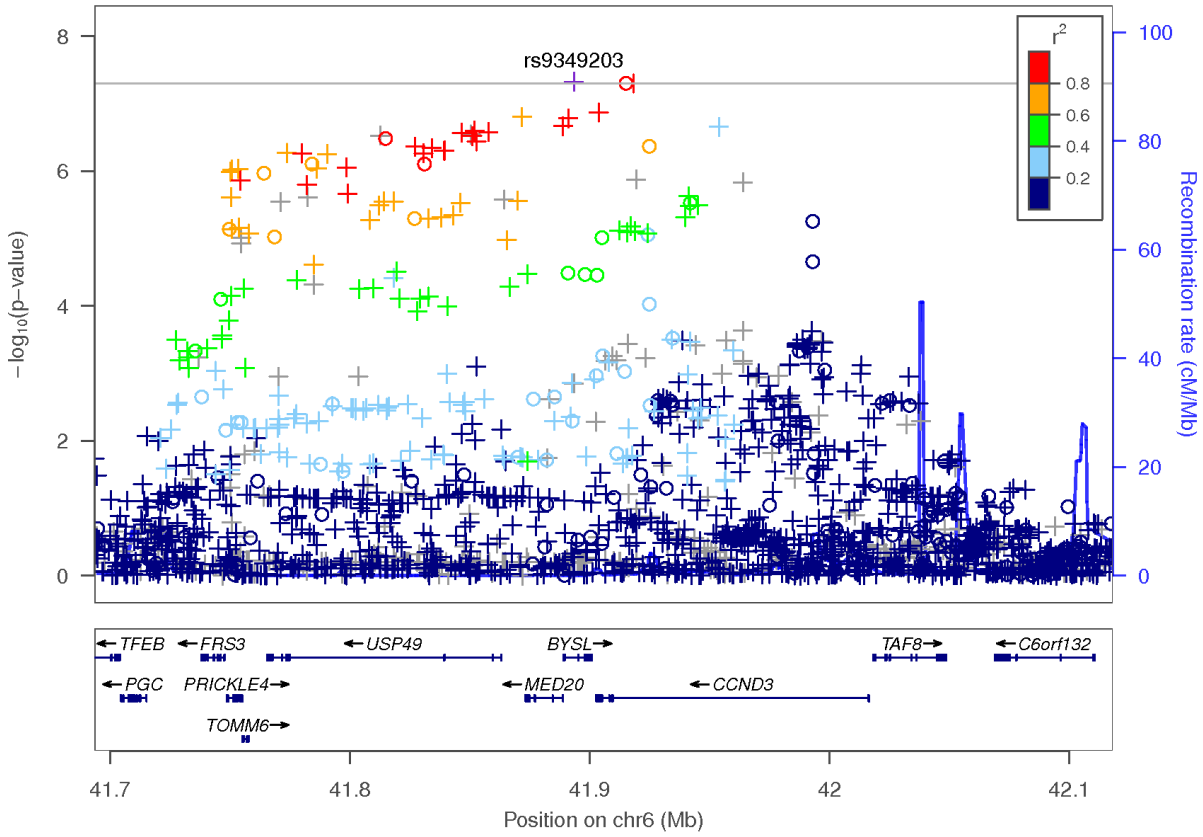

rs10217747
r²
0.8
0.6
0.4
0.2
−log₁₀(p−value)
Recombination rate (cM/Mb)
OR2K2
KIAA0368
ZNF483
DNAJC25
C9orf84
PTGR1
DNAJC25−GNG10
LRRC37A5P
GNG10
Position on chr9 (Mb)

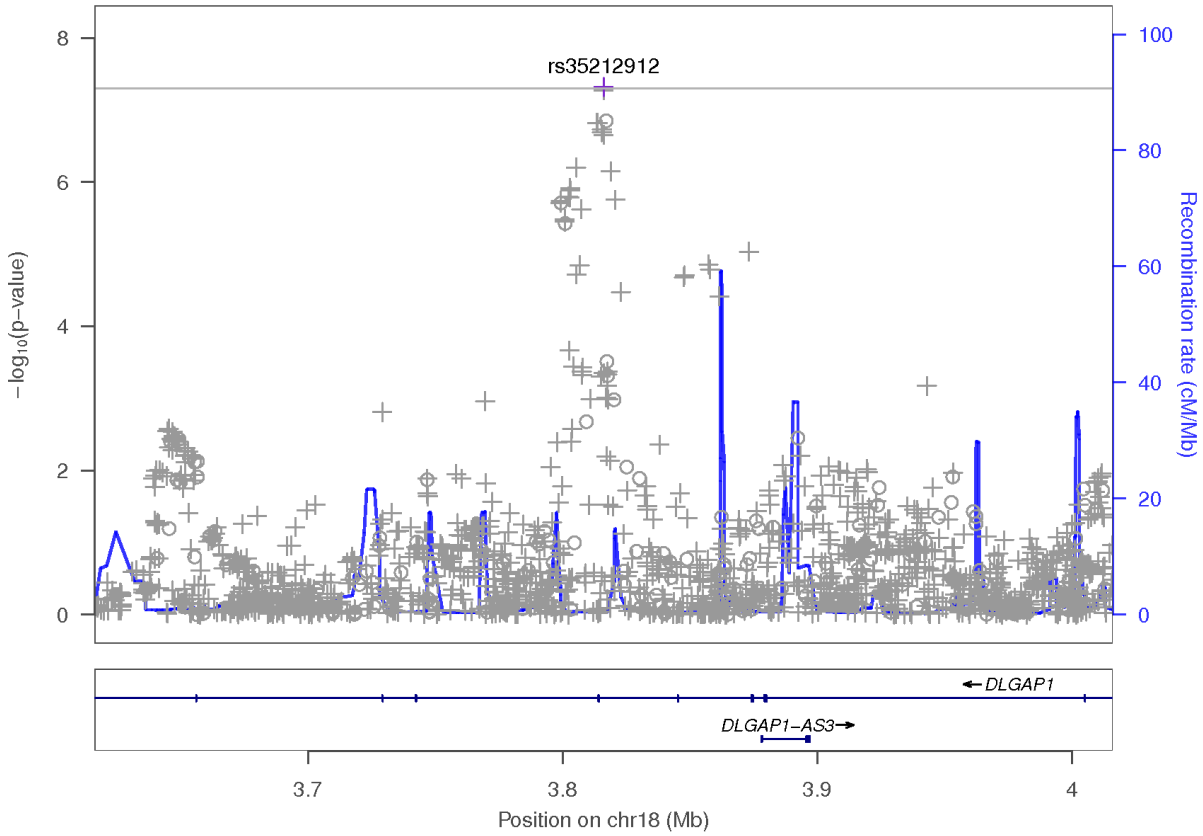

rs35273932
r²
0.8
0.6
0.4
0.2
−log10(p−value)
Recombination rate (cM/Mb)
RAB11FIP5
NOTO
EGR4
ALMS1
NAT8
SMYD5
ALMS1P
PRADC1
NAT8B
CCT7
1 gene omitted
73.4
73.5
73.6
73.7
73.8
73.9
Position on chr2 (Mb)


rs10094574
r²
0.8
0.6
0.4
0.2
−log10(p−value)
Recombination rate (cM/Mb)
78
78.1
78.2
78.3
Position on chr8 (Mb)


rs112217694
r2
0.8
0.6
0.4
0.2
−log10(p−value)
Recombination rate (cM/Mb)
TACR3
104.5
104.6
104.7
104.8
Position on chr4 (Mb)


rs13178130
r2
0.8
0.6
0.4
0.2
−log10(p−value)
Recombination rate (cM/Mb)
UBE2B
CDKN2AIPNL
PHF15
SAR1B
SEC24A
DDX46
CAMLG
133.8
133.9
134
134.1
Position on chr5 (Mb)


rs9349203
r²
0.8
0.6
0.4
0.2
−log10(p−value)
Recombination rate (cM/Mb)
TFEB
FRS3
USP49
BYSL
TAF8
C6orf132
PGC
PRICKLE4
MED20
CCND3
TOMM6
41.7
41.8
41.9
42
42.1
Position on chr6 (Mb)


rs35212912
−log10(p−value)
Recombination rate (cM/Mb)
DLGAP1
DLGAP1−AS3
3.7
3.8
3.9
4
Position on chr18 (Mb)

Text