

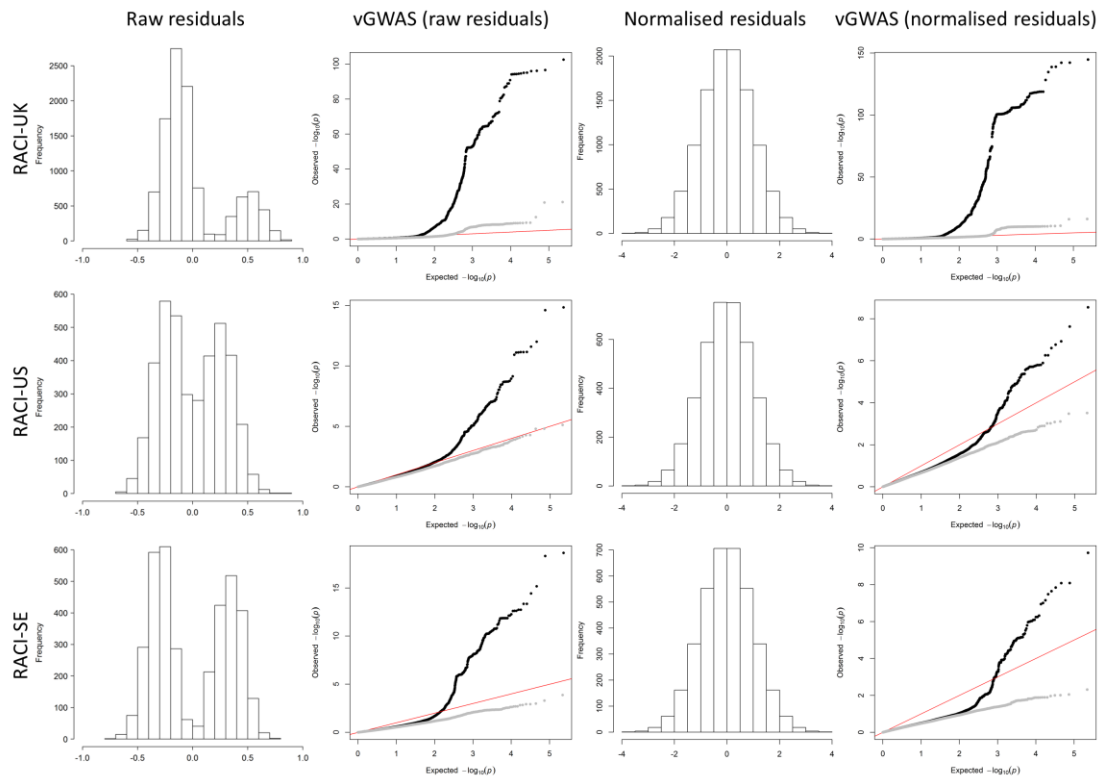
Major histocompatibility complex harbors widespread genotypic variability of non-additive risk of rheumatoid arthritis including epistasis

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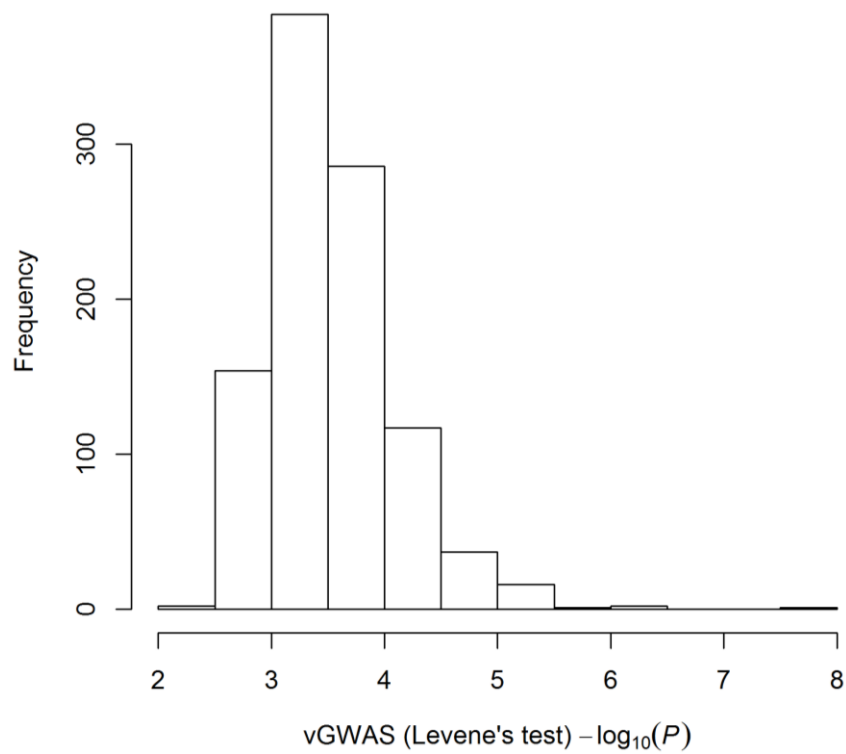
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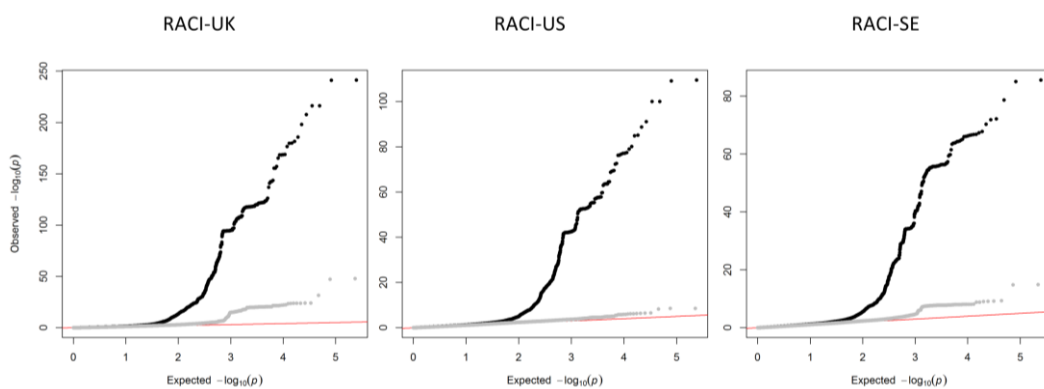


Supplementary Figure S1: Histograms of the environmental residuals (raw or normalized) and quantile-quantile plots of corresponding vGWAS analyses in RACI-UK (top row), RACI-US (middle row) and RACI-SE (bottom row). Series excluding MHC are in grey in QQ plots

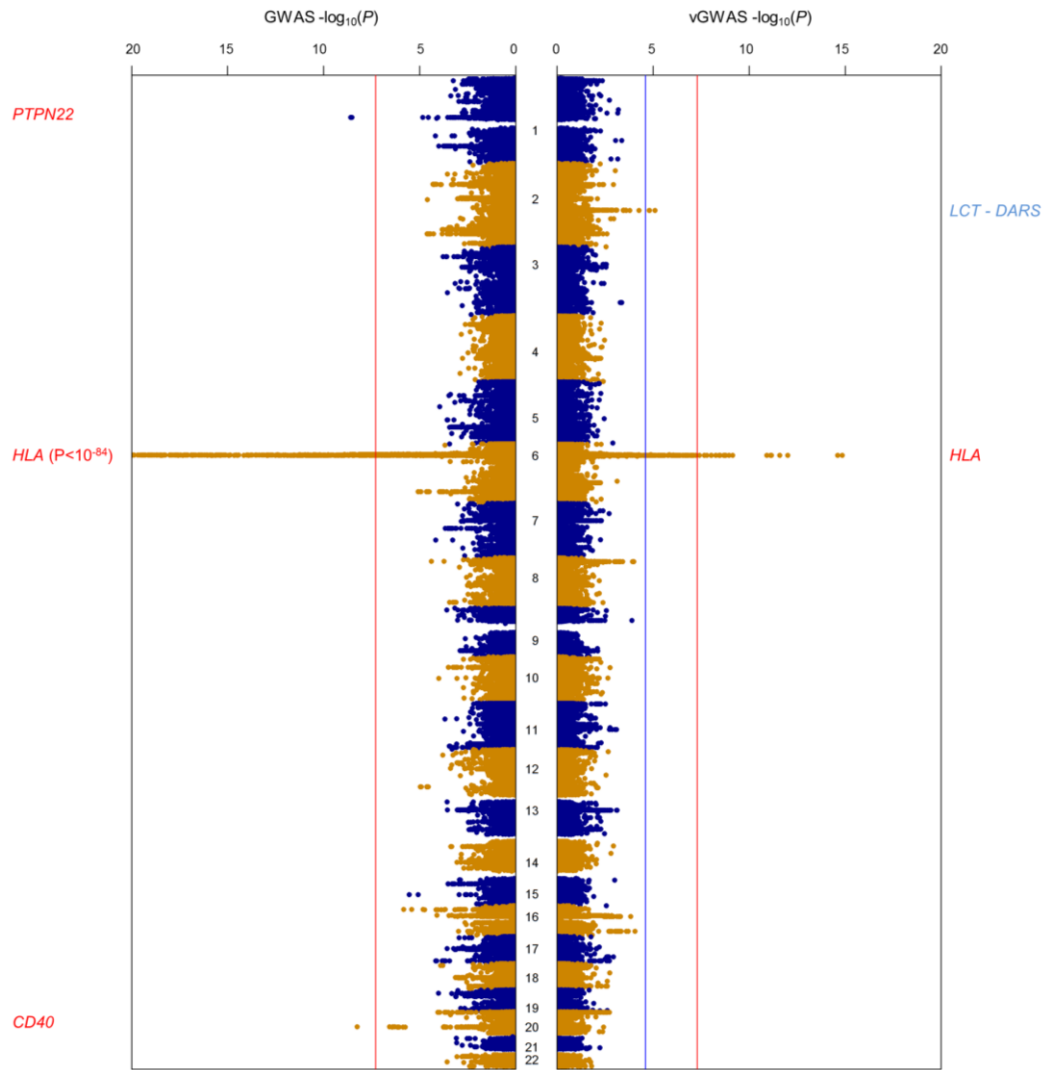
Histogram of RACI-UK 1000 permutations



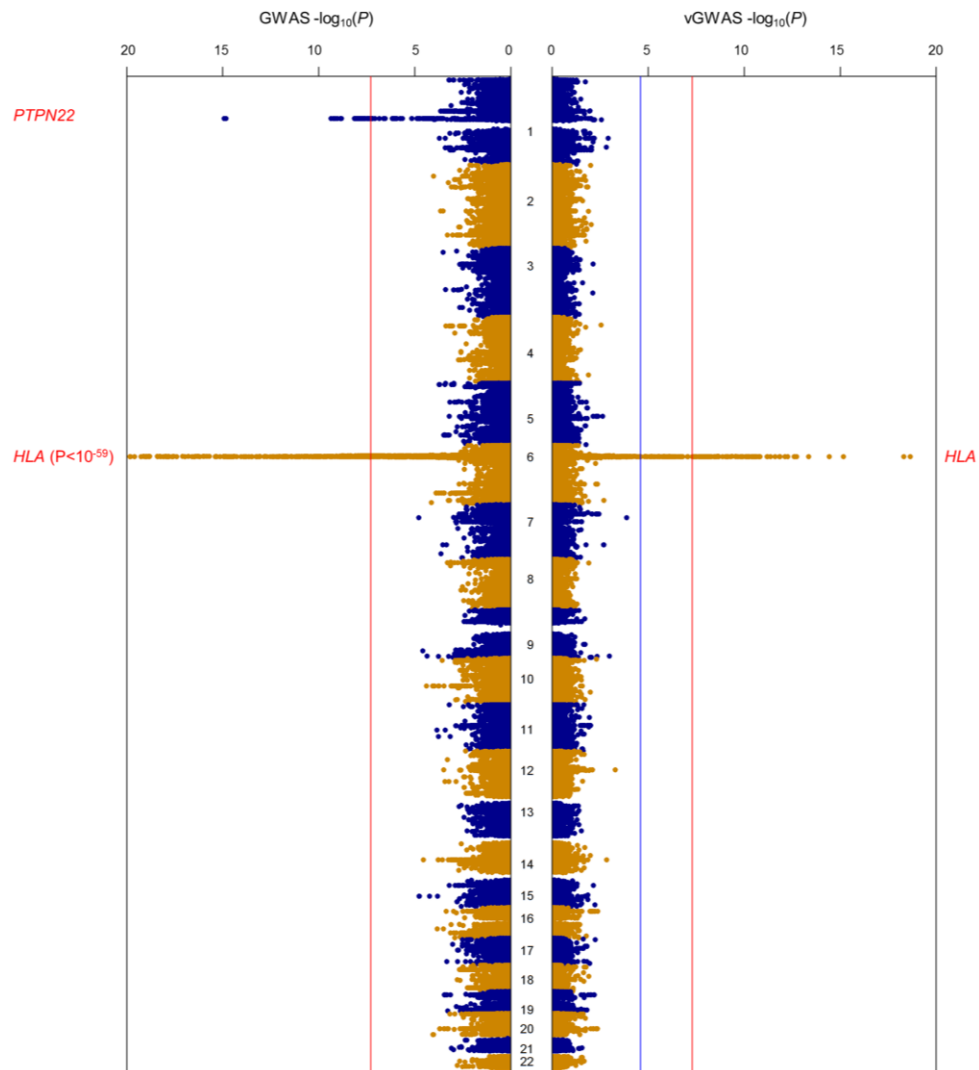
Supplementary Figure S2: Histograms of the lowest P values (at the $-\log_{10}$ scale) in each of the 1000 vGWASs based on randomly permuted environmental residuals in the RACI-UK cohort



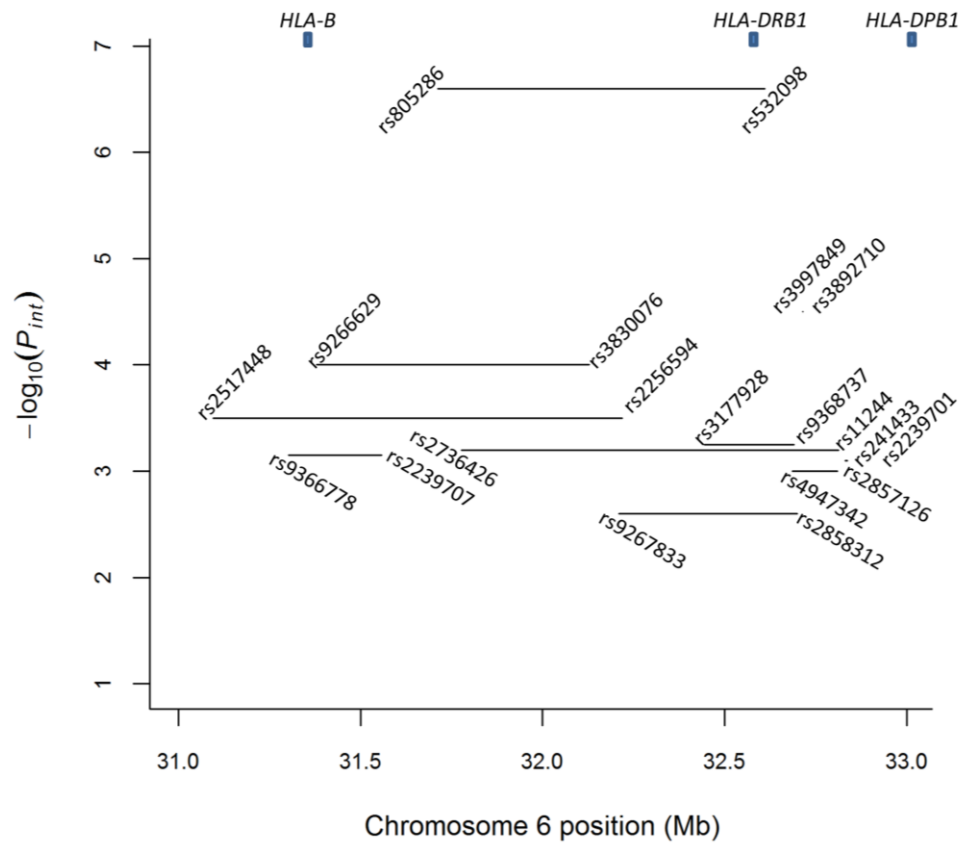
Supplementary Figure S3: Quantile-quantile plots of the conventional GWAS analyses (series excluding MHC are in grey) in RACI-UK, RACI-US and RACI-SE



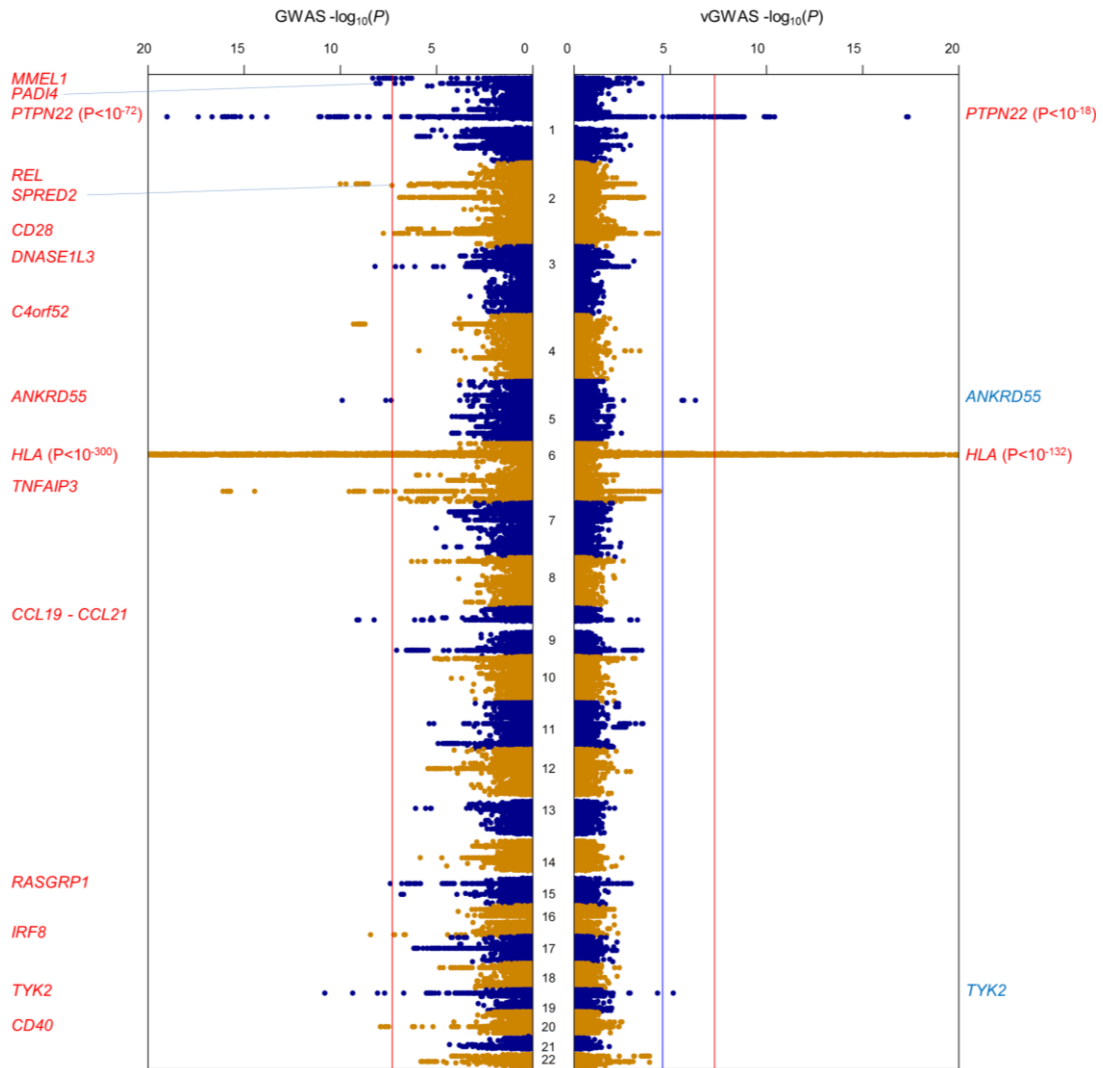
Supplementary Figure S4: Aligned Manhattan plots of GWAS (left) and vGWAS (right) analyses in RACI-US. P values are at the $-\log_{10}$ scale; red line represents GWAS genome-wide significance threshold; blue line represents vGWAS significance threshold derived from permutation; significant loci are annotated to genes in red (or blue if reached only the vGWAS significance threshold)



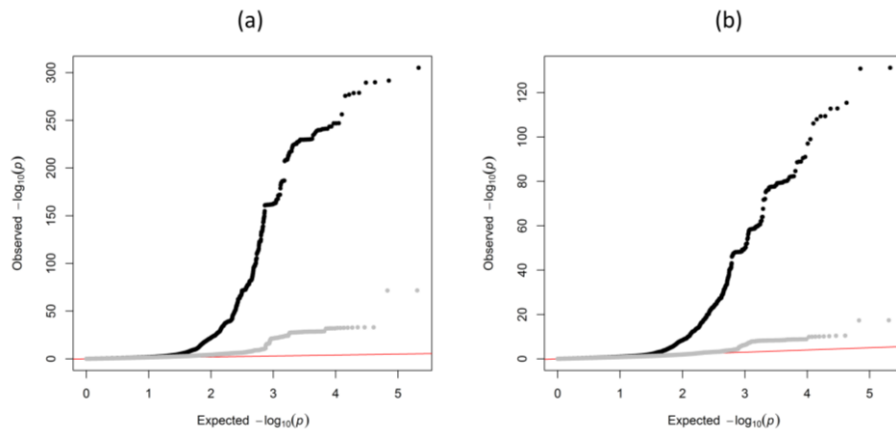
Supplementary Figure S5: Aligned Manhattan plots of GWAS (left) and vGWAS (right) analyses in RACI-SE. P values are at the $-\log_{10}$ scale; red line represents GWAS genome-wide significance threshold; blue line represents vGWAS significance threshold derived from permutation; significant loci are annotated to genes in red (or blue if reached only the vGWAS significance threshold)



Supplementary Figure S6: Alignment of ten independent epistatic pairs of SNPs within the MHC region in RACI-UK. Each horizontal line represents an interaction between a start SNP (left) and an end SNP (right) (lines very short for rs3997849 - rs3892710 and rs241433 - rs2239701); each dark small bar and a gene label at the top of graph represents a major RA gene within MHC; y-axis: conditional interaction P-values in the $-\log_{10}$ scale; x-axis: genomic location in megabase (GRCh38/hg38)



Supplementary Figure S7: Aligned Manhattan plots of GWAS (left) and vGWAS (right) analyses in the cohort combined RACI-UK, RACI-US and RACI-SE. P values are at the $-\log_{10}$ scale; red line represents GWAS genome-wide significance threshold; blue line represents vGWAS significance threshold derived from permutation; significant loci are annotated to genes in red (or blue if reached only the vGWAS significance threshold)



Supplementary Figure S8: Quantile-quantile plots of the GWAS and vGWAS analyses in the Combined cohort. (a) GWAS QQ plot with and without MHC (grey); (b) vGWAS QQ plot with and without MHC (grey)

Supplementary Table S1: Forward selection choose 20 independent GWAS

significant SNPs in RACI-UK

SNP	Chromosome	Position	GWAS_P_value
rs6931277	6	32 615 580	4.23E-242
rs17496549	6	32 441 931	6.61E-14
rs2476601	1	113 834 946	1.36E-48
rs2596560	6	31 387 541	2.15E-09
rs9277538	6	33 087 270	4.72E-20
rs2269425	6	32 155 862	5.71E-11
rs928722	6	137 652 695	1.70E-10
rs34536443	19	10 352 442	4.65E-09
rs3819721	6	32 837 021	4.70E-84
rs1233394	6	29 581 484	2.83E-10
rs4540292	6	31 349 405	1.39E-13
rs17422797	6	32 297 751	1.40E-15
rs9268543	6	32 417 024	1.63E-208
rs13196329	6	32 357 594	7.91E-10
rs10484565	6	32 827 255	2.65E-25
rs384247	6	32 216 797	3.90E-13
rs2524084	6	31 273 862	1.06E-15
rs2242656	6	31 646 325	5.74E-12
rs3104407	6	32 714 675	1.96E-41
rs2097431	6	32 623 056	9.29E-11

Supplementary Table S2: The directly replicated MHC SNPs and their P values in vGWAS and GWAS in three cohorts

SNP	Position	RACI-UK_vGWAS	RACI-UK_GWAS	RACI-US_vGWAS	RACI-US_GWAS	RACI-SE_vGWAS	RACI-SE_GWAS
rs2255221	31 463 914	9.55E-07	7.43E-12	4.07E-03	1.37E-08	1.04E-03	1.44E-05
rs2857694	31 620 093	9.71E-15	1.11E-28	6.17E-03	1.36E-08	9.02E-03	5.43E-17
rs2736171	31 627 710	4.08E-15	1.05E-29	4.01E-03	2.96E-08	9.16E-03	3.97E-17
rs2261033	31 635 814	4.31E-39	1.06E-67	1.52E-03	1.58E-27	1.69E-03	1.14E-24
rs28366155	31 690 857	5.61E-11	6.07E-19	4.91E-03	1.67E-11	1.10E-02	7.35E-05
rs6916278	31 710 997	4.80E-11	4.84E-19	8.99E-03	9.04E-11	9.73E-03	5.60E-05
rs805284	31 714 252	1.12E-31	1.46E-60	3.01E-04	1.46E-25	5.48E-03	1.55E-18
rs707939	31 758 911	3.30E-33	6.01E-62	1.24E-02	4.76E-21	1.20E-04	2.48E-22
rs2075800	31 810 169	8.59E-35	4.37E-65	1.15E-02	2.55E-21	2.53E-04	9.27E-23
rs521977	31 869 050	9.59E-14	4.82E-22	1.12E-03	6.01E-09	3.27E-02	1.14E-10
rs494620	31 870 936	8.28E-24	1.11E-43	2.69E-02	1.73E-17	6.17E-05	3.28E-22
rs614549	31 872 848	1.77E-27	1.26E-50	4.16E-02	1.45E-18	1.34E-04	4.60E-24
rs2736428	31 876 147	6.10E-30	3.33E-55	3.79E-02	3.54E-18	5.60E-04	8.13E-20
rs6907185	31 876 907	1.04E-08	6.14E-16	1.10E-03	2.70E-11	6.76E-06	2.01E-07
rs2844458	31 883 692	1.47E-30	1.29E-56	1.96E-02	1.56E-16	6.73E-04	1.41E-19
rs535586	31 892 560	1.84E-14	2.19E-24	9.44E-04	1.01E-07	1.77E-02	8.65E-11
rs644045	31 916 180	4.22E-22	1.21E-37	1.40E-02	1.41E-13	1.50E-02	1.13E-15
rs544167	31 922 381	1.38E-09	5.06E-17	1.45E-02	7.50E-10	2.77E-10	2.72E-10
rs2734335	31 926 167	1.15E-26	2.78E-47	1.20E-02	7.98E-17	1.26E-02	4.92E-17
rs3020644	31 926 849	1.98E-24	9.79E-45	4.37E-02	5.27E-11	1.75E-02	3.33E-10
rs621701	31 935 344	1.58E-09	5.96E-17	1.21E-02	2.96E-10	4.27E-10	3.27E-10
rs550605	31 939 370	4.05E-11	1.08E-20	1.13E-02	3.91E-11	2.20E-09	3.88E-11
rs541862	31 949 174	2.40E-11	3.78E-21	1.15E-02	9.04E-11	2.55E-09	5.74E-11
rs4151657	31 949 763	3.31E-33	6.38E-61	3.42E-02	1.25E-17	1.30E-03	8.18E-18
rs2072633	31 951 801	1.23E-29	3.41E-51	2.79E-03	9.57E-21	5.12E-03	7.57E-25

rs760070	31 952 179	2.54E-11	4.82E-21	1.11E-02	6.14E-11	2.55E-09	5.74E-11
rs592229	31 962 664	8.63E-21	9.51E-37	4.45E-03	1.81E-10	3.64E-03	1.45E-12
rs444921	31 964 400	2.92E-10	9.86E-19	4.97E-03	3.44E-09	1.56E-04	1.97E-06
rs406936	31 965 384	2.64E-10	7.66E-19	4.28E-03	1.01E-09	1.60E-04	2.17E-06
rs454212	31 966 595	2.60E-10	7.64E-19	4.60E-03	2.00E-09	1.51E-04	1.91E-06
rs449643	31 968 902	2.60E-10	7.64E-19	4.71E-03	1.56E-09	1.49E-04	1.91E-06
rs387608	31 973 780	2.30E-10	5.01E-19	4.75E-03	2.42E-09	1.31E-04	1.27E-06
rs389512	31 979 817	6.22E-10	2.43E-18	9.79E-03	5.64E-09	2.01E-04	3.56E-06
rs2857009	32 051 969	1.39E-36	5.15E-67	2.76E-02	5.06E-19	1.53E-04	5.42E-21
rs6902493	32 055 121	1.00E-36	2.63E-67	2.43E-02	1.41E-18	2.60E-04	2.98E-21
rs2239689	32 062 507	1.02E-36	3.76E-67	2.66E-02	1.95E-18	3.11E-04	2.85E-21
rs7766862	32 065 230	6.81E-37	2.03E-67	2.18E-02	1.79E-18	2.20E-04	1.12E-21
rs2071295	32 070 923	1.49E-36	1.01E-66	2.48E-02	1.09E-18	1.86E-04	1.68E-21
rs2071293	32 094 910	2.55E-36	1.81E-67	2.38E-02	1.05E-18	1.35E-04	4.49E-22
rs17421624	32 098 400	4.01E-36	3.26E-67	2.19E-02	5.07E-19	7.94E-05	3.27E-22
rs2269426	32 108 722	2.89E-09	1.47E-17	7.43E-03	7.50E-05	1.75E-02	9.71E-12
rs8111	32 115 398	4.44E-23	1.41E-44	4.09E-02	4.76E-13	4.06E-03	4.49E-16
rs2228628	32 121 077	1.88E-23	9.57E-45	4.71E-02	2.70E-12	4.20E-03	1.48E-16
rs9267803	32 133 985	8.67E-24	3.58E-46	2.70E-02	4.67E-13	3.82E-03	1.66E-17
rs4713505	32 137 224	3.10E-24	6.89E-46	3.44E-02	7.03E-12	4.53E-03	9.64E-17
rs4713506	32 146 203	8.28E-24	1.71E-46	4.03E-02	4.40E-11	9.86E-03	2.02E-16
rs9296009	32 146 738	2.47E-43	2.37E-79	1.62E-02	1.89E-40	4.06E-02	2.77E-21
rs10947233	32 156 647	1.93E-35	1.13E-68	2.09E-03	1.20E-25	4.10E-04	1.71E-22
rs2070600	32 183 666	3.55E-36	2.81E-69	3.22E-03	2.25E-26	7.26E-04	2.61E-23
rs1800684	32 184 217	3.92E-10	4.39E-17	1.07E-02	7.52E-07	4.90E-02	1.24E-04
rs2022059	32 188 712	2.04E-38	1.87E-72	3.61E-03	1.42E-23	1.61E-03	3.39E-21
rs8192575	32 198 607	7.80E-35	7.53E-65	1.96E-03	4.76E-22	8.04E-03	5.57E-19
rs2071285	32 212 654	5.90E-34	6.58E-64	1.92E-03	4.47E-22	8.20E-03	5.30E-19

rs2854050	32 217 828	2.28E-34	1.85E-64	1.91E-03	2.69E-22	7.41E-03	3.86E-19
rs375244	32 223 680	1.76E-10	3.37E-19	8.30E-03	1.44E-11	2.62E-02	8.59E-10
rs396960	32 223 804	5.33E-12	5.93E-22	3.86E-02	2.69E-10	2.01E-02	2.01E-06
rs3134929	32 224 330	4.57E-24	1.62E-43	5.58E-03	7.16E-23	3.05E-08	1.66E-21
rs3096702	32 224 554	1.67E-22	2.37E-42	2.94E-07	9.98E-25	3.72E-04	1.00E-16
rs397081	32 224 840	1.54E-06	7.40E-12	7.69E-04	1.42E-08	4.93E-08	8.34E-11
rs479536	32 225 901	2.86E-09	9.31E-16	4.71E-03	3.55E-09	2.24E-03	1.52E-05
rs9267853	32 227 474	1.44E-22	1.70E-42	3.81E-07	6.78E-24	3.55E-04	1.02E-16
rs6457499	32 231 171	1.03E-18	9.53E-35	3.29E-09	2.37E-26	7.05E-03	1.42E-13
rs9267873	32 231 575	2.19E-25	9.29E-47	2.12E-07	2.88E-24	1.67E-04	6.43E-17
rs9267911	32 237 333	2.19E-26	5.28E-47	1.52E-07	4.65E-26	4.29E-03	8.38E-19
rs6906128	32 238 527	4.91E-16	2.52E-30	9.38E-09	5.75E-25	5.87E-03	4.12E-13
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rs419132	32 243 022	6.01E-16	2.57E-31	4.73E-07	1.20E-16	1.06E-02	2.22E-11
rs412657	32 243 308	2.10E-29	8.81E-53	1.75E-03	8.83E-27	1.21E-04	5.57E-26
rs9267947	32 243 441	1.96E-22	2.70E-41	2.47E-03	3.90E-21	6.15E-04	1.28E-18
rs9267948	32 244 456	3.10E-36	9.95E-66	4.35E-07	1.43E-30	8.67E-05	3.56E-24
rs17576984	32 245 208	2.13E-07	3.12E-14	4.65E-02	1.73E-07	2.68E-09	1.75E-15
rs9267954	32 245 275	8.28E-57	6.31E-102	6.03E-04	8.28E-43	1.55E-06	7.78E-33
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rs454748	32 245 433	3.75E-27	1.73E-47	1.53E-03	7.57E-20	1.26E-03	2.30E-21
rs9267956	32 245 861	6.52E-38	6.53E-69	8.99E-04	1.53E-30	7.64E-06	8.61E-26
rs440169	32 246 011	1.88E-28	1.64E-51	3.78E-03	2.86E-21	4.47E-04	2.29E-23
rs9267958	32 246 839	1.61E-28	1.20E-51	3.71E-03	3.48E-21	4.32E-04	2.38E-23
rs563412	32 247 286	8.85E-29	7.23E-52	5.55E-03	1.64E-21	5.31E-04	7.11E-24
rs405875	32 247 411	6.85E-29	4.79E-52	6.01E-03	1.05E-21	4.19E-04	6.01E-24
rs1559876	32 247 992	1.53E-37	1.82E-68	9.42E-04	2.24E-29	1.20E-05	1.04E-25
rs2894239	32 248 019	1.61E-28	1.20E-51	4.79E-03	1.19E-20	4.39E-04	2.66E-23

rs2395110	32 248 099	6.85E-29	4.79E-52	6.01E-03	1.05E-21	4.19E-04	6.01E-24
rs3115576	32 249 073	1.63E-28	1.19E-51	3.71E-03	3.48E-21	3.91E-04	1.85E-23
rs6457508	32 249 186	1.61E-28	1.20E-51	3.61E-03	3.80E-21	4.86E-04	2.40E-23
rs6457509	32 249 241	3.48E-28	3.70E-51	3.69E-03	2.49E-21	4.05E-04	1.37E-23
rs6936204	32 249 315	7.53E-35	3.84E-58	8.77E-04	2.56E-28	7.28E-05	3.14E-29
rs9267970	32 249 383	1.72E-28	1.32E-51	3.71E-03	3.48E-21	3.96E-04	1.79E-23
rs2894240	32 250 069	1.61E-28	1.20E-51	3.71E-03	3.48E-21	4.23E-04	2.69E-23
rs3115573	32 251 066	1.61E-28	1.20E-51	3.71E-03	3.48E-21	4.11E-04	2.24E-23
rs9267992	32 252 620	2.80E-15	3.21E-25	8.87E-03	9.91E-11	1.65E-02	1.97E-06
rs3115572	32 252 707	5.45E-26	3.08E-43	5.58E-03	2.19E-19	1.40E-04	8.91E-23
rs3130316	32 253 451	4.92E-26	2.28E-43	5.32E-03	2.92E-19	1.37E-04	1.08E-22
rs3115570	32 254 929	1.53E-28	2.25E-51	2.49E-03	2.14E-21	4.92E-04	1.47E-22
rs3130320	32 255 481	8.81E-40	1.09E-65	1.07E-03	6.97E-30	4.42E-06	4.02E-33
rs9268103	32 277 593	9.98E-15	1.79E-26	6.47E-03	4.68E-11	4.49E-02	1.04E-07
rs9268132	32 286 877	5.13E-53	6.05E-95	1.79E-05	3.23E-43	1.11E-06	4.15E-35
rs9268145	32 289 507	3.62E-95	3.75E-169	8.30E-07	2.36E-77	2.80E-11	7.73E-67
rs4713518	32 289 560	5.83E-53	6.11E-95	2.48E-05	1.44E-42	1.02E-06	7.43E-35
rs9268148	32 291 750	1.03E-14	1.85E-26	6.46E-03	4.73E-11	4.92E-02	4.71E-08
rs482194	32 292 782	4.86E-53	5.36E-95	1.88E-05	3.97E-43	1.35E-06	6.21E-35
rs7775397	32 293 475	9.68E-07	1.60E-10	4.24E-02	1.81E-06	8.38E-05	1.44E-09
rs560505	32 293 994	1.91E-54	1.76E-97	1.35E-05	9.89E-43	5.12E-07	1.15E-36
rs28366174	32 298 713	4.30E-10	8.69E-18	2.58E-04	1.40E-09	9.71E-05	4.39E-07
rs537757	32 300 724	4.49E-53	4.63E-95	1.27E-05	2.00E-43	1.11E-06	4.25E-35
rs477005	32 302 723	2.09E-54	2.00E-97	8.22E-06	7.08E-43	4.36E-07	8.17E-37
rs3864299	32 303 897	5.36E-18	2.33E-29	4.94E-02	7.00E-16	9.38E-07	3.84E-23
rs9268177	32 307 105	1.23E-06	2.59E-10	4.28E-02	1.87E-06	8.38E-05	1.44E-09
rs502626	32 310 489	3.24E-53	3.10E-95	2.26E-05	8.38E-43	1.24E-06	5.51E-35
rs9268199	32 310 858	2.32E-20	1.09E-34	2.01E-02	3.71E-17	1.43E-03	5.28E-15

rs6939410	32 312 405	5.64E-19	8.87E-31	4.65E-02	5.45E-18	1.37E-06	1.50E-23
rs1018433	32 313 733	4.03E-18	1.51E-29	3.95E-02	3.84E-16	8.38E-07	5.70E-23
rs547261	32 314 256	2.72E-53	2.39E-95	4.18E-05	1.49E-43	1.21E-06	5.21E-35
rs6910071	32 315 077	6.89E-95	4.11E-169	9.82E-07	4.98E-77	2.99E-11	5.21E-67
rs531094	32 318 325	4.46E-53	4.35E-95	2.55E-05	5.01E-43	1.19E-06	4.06E-35
rs539703	32 320 685	5.11E-53	6.65E-95	2.72E-05	3.19E-43	1.15E-06	3.08E-35
rs546857	32 321 463	1.80E-54	1.60E-97	1.47E-05	1.14E-42	4.93E-07	8.41E-37
rs547077	32 321 541	1.27E-53	1.06E-95	6.04E-05	1.57E-43	1.38E-06	7.50E-36
rs570963	32 321 817	1.18E-09	1.19E-16	2.47E-03	7.35E-12	2.16E-02	3.01E-06
rs9268235	32 322 431	9.68E-07	1.60E-10	4.24E-02	1.81E-06	1.11E-04	2.04E-09
rs521828	32 323 866	4.11E-26	3.25E-43	2.20E-03	1.52E-26	3.01E-05	1.66E-24
rs523627	32 324 060	3.73E-53	2.64E-95	2.55E-05	5.01E-43	1.32E-06	5.37E-35
rs525607	32 324 307	1.06E-53	6.43E-96	6.04E-05	1.57E-43	1.50E-06	9.93E-36
rs552339	32 324 938	4.19E-53	3.27E-95	2.55E-05	5.01E-43	1.32E-06	5.37E-35
rs504203	32 327 066	4.08E-53	2.95E-95	2.51E-05	3.99E-43	1.37E-06	7.21E-35
rs505274	32 327 215	3.86E-53	2.59E-95	2.51E-05	3.99E-43	1.49E-06	7.35E-35
rs508805	32 327 573	4.50E-53	3.38E-95	2.51E-05	3.99E-43	1.51E-06	9.35E-35
rs524578	32 327 580	1.15E-53	7.18E-96	6.03E-05	1.25E-43	1.54E-06	1.34E-35
rs9348880	32 329 003	1.37E-53	8.51E-96	6.67E-05	2.59E-43	1.56E-06	1.02E-35
rs9348881	32 329 065	1.33E-54	2.67E-97	6.95E-05	2.39E-43	1.56E-06	1.02E-35
rs9368713	32 329 560	2.17E-53	7.31E-96	2.74E-05	4.21E-43	1.52E-06	5.64E-35
rs9405090	32 330 595	6.25E-53	4.85E-95	2.85E-05	8.24E-43	1.38E-06	5.52E-35
rs3129949	32 331 037	9.55E-18	7.23E-30	2.23E-03	1.33E-20	4.17E-05	2.54E-17
rs1003878	32 332 045	8.77E-18	6.61E-30	2.23E-03	1.33E-20	4.17E-05	2.54E-17
rs910052	32 332 096	5.30E-53	4.02E-95	2.85E-05	8.24E-43	1.38E-06	5.52E-35
rs9366793	32 333 512	1.37E-53	8.51E-96	6.67E-05	2.59E-43	1.64E-06	1.05E-35
rs9348882	32 333 545	5.14E-53	3.96E-95	2.85E-05	8.24E-43	1.38E-06	5.52E-35
rs9380290	32 333 675	1.33E-53	8.41E-96	6.67E-05	2.59E-43	1.56E-06	1.02E-35

rs9357140	32 333 737	6.40E-53	5.11E-95	2.91E-05	1.11E-42	1.53E-06	7.35E-35
rs1474729	32 334 268	6.35E-53	4.69E-95	2.47E-05	5.20E-43	1.38E-06	5.52E-35
rs1474728	32 334 290	6.05E-53	4.80E-95	2.69E-05	6.46E-43	1.22E-06	4.97E-35
rs1265757	32 334 605	9.40E-07	1.60E-10	4.24E-02	1.81E-06	1.11E-04	2.04E-09
rs10807100	32 335 291	5.30E-53	4.02E-95	2.85E-05	8.24E-43	1.29E-06	5.13E-35
rs6929776	32 335 734	1.37E-53	8.51E-96	6.75E-05	2.79E-43	1.56E-06	1.02E-35
rs1265754	32 335 915	9.98E-07	1.72E-10	4.62E-02	1.69E-06	1.21E-04	2.40E-09
rs28361060	32 336 071	9.27E-95	1.90E-169	8.61E-07	6.34E-77	2.66E-11	3.54E-67
rs6930681	32 336 254	5.30E-53	4.02E-95	2.85E-05	8.24E-43	1.38E-06	5.52E-35
rs926594	32 337 593	5.70E-53	4.92E-95	2.67E-05	6.67E-43	1.38E-06	5.52E-35
rs9368716	32 338 313	8.41E-33	4.90E-60	1.54E-04	1.27E-27	1.24E-04	6.55E-28
rs2022534	32 339 360	5.30E-53	4.02E-95	2.78E-05	8.36E-43	9.84E-07	7.13E-35
rs2022533	32 339 483	1.37E-53	8.51E-96	6.67E-05	2.59E-43	1.06E-06	1.32E-35
rs1033500	32 339 605	4.21E-53	2.52E-95	2.88E-05	8.63E-43	4.05E-07	3.92E-35
rs2143468	32 341 226	1.44E-50	9.44E-91	5.30E-05	2.42E-41	6.35E-07	1.28E-33
rs2143466	32 341 546	1.21E-50	1.38E-89	1.76E-05	2.20E-40	9.57E-07	6.93E-34
rs2143465	32 341 575	5.30E-53	4.02E-95	2.85E-05	8.24E-43	1.07E-06	7.19E-35
rs3117137	32 342 134	8.34E-18	9.95E-30	2.02E-03	1.31E-20	4.17E-05	2.54E-17
rs9268260	32 343 190	5.30E-53	4.02E-95	2.85E-05	8.24E-43	9.84E-07	7.13E-35
rs4959094	32 345 359	6.22E-53	5.35E-95	2.85E-05	8.24E-43	1.03E-06	9.12E-35
rs4959025	32 345 366	6.22E-53	5.35E-95	2.85E-05	8.24E-43	9.84E-07	7.13E-35
rs4959026	32 345 684	6.17E-53	5.68E-95	2.85E-05	8.24E-43	9.04E-07	5.12E-35
rs4959096	32 346 899	5.40E-53	4.50E-95	2.92E-05	1.04E-42	9.84E-07	7.13E-35
rs9268283	32 347 396	5.64E-53	4.88E-95	2.92E-05	1.04E-42	9.84E-07	7.13E-35
rs9268284	32 347 439	5.40E-53	4.50E-95	2.92E-05	1.04E-42	1.01E-06	9.20E-35
rs9268285	32 347 780	5.40E-53	4.50E-95	2.92E-05	1.04E-42	9.84E-07	7.13E-35
rs2076542	32 349 350	7.13E-53	6.73E-95	2.93E-05	2.74E-42	9.35E-07	4.92E-35
rs2076541	32 349 438	5.40E-53	4.50E-95	2.98E-05	1.33E-42	1.04E-06	7.18E-35

rs2076540	32 349 499	2.29E-54	1.76E-97	1.57E-05	1.87E-42	4.12E-07	1.50E-36
rs2076538	32 349 694	6.22E-53	5.35E-95	2.85E-05	8.24E-43	9.84E-07	7.13E-35
rs761187	32 350 259	2.97E-54	2.58E-97	1.62E-05	2.35E-42	3.97E-07	1.24E-36
rs3117119	32 350 833	3.14E-16	1.79E-28	5.96E-03	8.93E-12	2.81E-02	1.07E-07
rs3132963	32 352 376	2.90E-16	1.71E-28	3.54E-03	5.00E-12	2.74E-02	1.14E-07
rs2395149	32 357 785	9.40E-07	1.60E-10	4.24E-02	1.81E-06	1.11E-04	2.04E-09
rs9268326	32 362 376	5.30E-53	4.02E-95	2.74E-05	8.61E-43	9.84E-07	7.13E-35
rs9268343	32 364 047	6.12E-53	7.18E-95	3.35E-05	2.30E-42	9.84E-07	7.13E-35
rs9268345	32 364 064	5.30E-53	4.02E-95	2.73E-05	6.68E-43	9.84E-07	7.13E-35
rs9268362	32 365 564	2.30E-95	1.55E-169	8.53E-07	8.61E-78	3.84E-11	8.63E-67
rs3129927	32 366 050	9.40E-07	1.60E-10	4.24E-02	1.81E-06	1.54E-04	3.26E-09
rs9268368	32 366 178	5.30E-53	4.02E-95	2.73E-05	6.68E-43	9.84E-07	7.13E-35
rs2073046	32 368 297	5.30E-53	4.02E-95	2.73E-05	6.68E-43	9.84E-07	7.13E-35
rs3129938	32 368 718	3.18E-16	1.92E-28	6.03E-03	6.64E-12	2.91E-02	1.46E-07
rs9268384	32 368 809	5.30E-53	4.02E-95	2.78E-05	5.82E-43	7.76E-07	3.85E-35
rs3129943	32 370 918	2.23E-19	1.43E-32	9.71E-04	1.38E-20	1.52E-05	5.58E-20
rs2073044	32 371 209	1.46E-79	1.50E-141	2.14E-08	2.18E-69	2.45E-12	2.84E-62
rs2076536	32 371 571	2.77E-41	3.10E-72	3.86E-08	1.64E-40	1.50E-04	8.47E-25
rs9268401	32 373 541	2.94E-65	4.66E-119	8.87E-06	4.31E-53	6.82E-09	2.69E-56
rs9268403	32 373 696	4.00E-65	6.67E-119	8.87E-06	4.31E-53	7.36E-09	1.95E-56
rs9268404	32 373 942	2.73E-65	3.15E-119	8.04E-06	2.67E-53	5.97E-09	1.26E-56
rs9268428	32 377 196	3.28E-65	5.21E-119	8.87E-06	4.31E-53	7.36E-09	1.95E-56
rs2395153	32 377 818	9.62E-82	1.57E-137	2.43E-15	3.56E-64	2.27E-19	1.35E-65
rs9268456	32 382 169	3.57E-65	6.81E-119	1.02E-05	6.59E-53	7.08E-09	2.13E-56
rs9268459	32 382 999	4.18E-65	7.29E-119	9.51E-06	4.81E-53	6.31E-09	2.44E-56
rs4373382	32 383 091	4.44E-72	1.35E-121	7.67E-12	3.27E-54	1.83E-13	1.53E-55
rs4424066	32 386 651	2.05E-72	4.34E-122	1.19E-11	9.68E-54	7.40E-13	2.57E-54
rs3129948	32 386 867	3.60E-30	6.64E-53	7.18E-05	7.01E-28	7.31E-05	1.73E-15

rs9268472	32 387 828	1.10E-72	1.12E-122	7.74E-12	3.35E-54	1.86E-13	3.01E-55
rs9268474	32 389 388	9.38E-65	2.38E-118	8.71E-06	2.41E-53	7.36E-09	1.95E-56
rs3129950	32 390 424	2.49E-07	8.57E-12	2.65E-02	1.03E-07	1.50E-04	4.33E-11
rs9268475	32 390 454	9.38E-65	2.38E-118	8.71E-06	2.41E-53	7.36E-09	1.95E-56
rs3117098	32 390 736	6.21E-30	1.54E-52	6.14E-05	4.98E-28	7.11E-05	1.96E-15
rs17577980	32 392 044	1.39E-07	1.71E-15	1.71E-09	3.85E-13	4.44E-03	8.91E-06
rs3817973	32 393 334	2.61E-72	3.52E-122	7.23E-12	1.77E-54	2.36E-13	2.94E-55
rs2076530	32 396 039	1.81E-70	3.53E-119	2.54E-12	1.75E-55	2.47E-13	5.18E-54
rs9268480	32 396 067	5.06E-65	1.30E-118	8.71E-06	2.41E-53	7.36E-09	1.95E-56
rs2076529	32 396 178	1.28E-72	1.52E-122	7.23E-12	1.77E-54	2.36E-13	2.94E-55
rs28366191	32 396 413	4.88E-10	8.61E-18	3.92E-04	1.11E-10	5.19E-03	2.22E-05
rs9268481	32 396 579	5.06E-65	1.30E-118	8.71E-06	2.41E-53	6.89E-09	8.73E-57
rs3129954	32 397 803	3.54E-30	6.11E-53	6.01E-05	6.41E-28	7.11E-05	1.96E-15
rs3129955	32 398 063	9.55E-31	7.11E-54	6.70E-05	6.46E-28	1.06E-04	1.36E-14
rs2294880	32 399 945	2.77E-64	1.92E-117	4.76E-06	1.45E-53	5.68E-09	9.79E-57
rs9268482	32 400 000	5.06E-65	1.30E-118	8.71E-06	2.41E-53	7.36E-09	1.95E-56
rs2294878	32 400 018	1.71E-63	9.84E-109	6.98E-12	1.66E-48	8.36E-08	1.02E-43
rs3817966	32 400 070	3.52E-65	2.56E-118	5.83E-06	5.75E-52	3.08E-09	1.17E-57
rs3817963	32 400 310	3.52E-65	2.56E-118	4.99E-06	3.78E-52	3.08E-09	1.17E-57
rs3817962	32 400 537	5.55E-65	1.44E-118	1.21E-05	3.16E-53	7.36E-09	1.95E-56
rs2076525	32 402 839	5.28E-65	1.50E-118	8.73E-06	3.52E-53	6.64E-09	1.49E-56
rs2076523	32 403 058	8.97E-44	2.49E-81	6.58E-05	4.15E-34	1.92E-08	2.24E-32
rs2076522	32 403 402	7.35E-65	2.65E-118	9.27E-06	3.02E-53	8.36E-09	1.31E-56
rs3793127	32 404 138	8.77E-88	1.47E-180	4.26E-07	7.26E-78	1.34E-09	2.31E-67
rs10947260	32 405 408	3.74E-09	1.98E-16	1.74E-02	1.92E-11	6.82E-16	2.20E-15
rs10947261	32 405 455	2.70E-08	2.14E-15	8.81E-03	4.72E-11	4.46E-14	8.55E-14
rs10947262	32 405 535	2.76E-08	2.22E-15	8.69E-03	3.48E-11	4.46E-14	8.55E-14
rs3806156	32 405 921	9.33E-44	2.50E-81	5.94E-05	4.56E-34	1.63E-08	2.01E-32

rs3806157	32 406 024	1.70E-43	2.82E-81	7.36E-05	6.12E-35	3.37E-08	1.36E-31
rs3763307	32 406 845	5.28E-65	1.50E-118	8.71E-06	2.41E-53	8.09E-09	1.06E-56
rs3763308	32 406 863	1.74E-05	1.91E-10	7.60E-03	1.45E-08	1.12E-08	5.93E-09
rs9268494	32 407 575	6.71E-68	1.30E-122	6.67E-07	5.89E-58	3.81E-11	2.74E-65
rs9268497	32 407 647	4.51E-68	9.95E-123	6.32E-07	5.92E-58	4.27E-11	4.62E-65
rs9268499	32 407 918	1.16E-62	5.79E-114	8.65E-06	3.73E-51	2.26E-09	4.57E-58
rs6926737	32 407 968	2.52E-63	4.67E-108	1.14E-09	2.86E-58	5.24E-11	6.52E-56
rs3763311	32 408 399	2.07E-62	2.41E-114	1.53E-05	2.94E-52	5.08E-09	6.98E-57
rs9268507	32 409 762	1.28E-63	1.70E-108	2.05E-09	2.44E-58	6.22E-11	5.92E-56
rs5007265	32 411 089	8.93E-64	9.82E-109	2.00E-09	1.71E-58	5.69E-11	4.49E-56
rs3129961	32 411 163	1.15E-30	1.73E-53	8.26E-05	4.68E-28	7.46E-05	1.59E-15
rs5007263	32 411 205	8.93E-64	9.82E-109	2.00E-09	1.71E-58	5.69E-11	4.49E-56
rs5007259	32 411 324	8.93E-64	9.82E-109	2.05E-09	2.44E-58	5.69E-11	4.49E-56
rs9268515	32 411 518	1.82E-82	8.63E-199	2.24E-05	8.34E-81	1.48E-08	5.04E-71
rs9268516	32 411 712	1.28E-63	3.41E-116	1.31E-05	2.70E-53	1.48E-08	1.35E-56
rs17208888	32 411 729	9.46E-08	9.71E-16	7.28E-10	1.81E-13	4.16E-03	5.94E-06
rs6932542	32 412 485	1.98E-63	3.75E-108	1.91E-09	3.33E-58	5.43E-11	4.17E-56
rs9279640	32 412 623	9.53E-31	1.38E-53	8.26E-05	4.68E-28	7.46E-05	1.59E-15
rs4502931	32 413 005	1.13E-63	1.93E-108	2.13E-09	9.44E-58	1.78E-11	1.24E-55
rs9268528	32 415 331	2.11E-53	5.56E-98	5.15E-04	1.75E-37	3.93E-08	7.46E-42
rs9268541	32 416 750	1.83E-08	1.64E-14	6.46E-04	5.25E-09	1.40E-03	1.16E-05
rs9268542	32 416 944	9.91E-52	2.07E-95	6.14E-04	2.08E-36	8.49E-08	3.65E-40
rs9268543	32 417 024	3.66E-83	1.63E-208	6.07E-05	1.88E-89	9.08E-08	6.14E-73
rs9268556	32 419 187	9.91E-52	2.07E-95	6.14E-04	2.08E-36	8.49E-08	3.65E-40
rs2395163	32 420 032	1.48E-89	2.18E-186	2.23E-07	7.66E-86	7.96E-09	1.40E-67
rs9268557	32 421 528	7.59E-73	6.35E-123	1.76E-06	4.01E-52	1.36E-09	6.56E-55
rs3135363	32 421 871	8.75E-24	1.36E-43	5.75E-04	2.39E-32	8.45E-06	2.06E-34
rs2187818	32 427 791	3.45E-58	8.17E-104	8.05E-04	7.29E-38	1.50E-10	4.52E-43

rs9268585	32 429 626	3.18E-58	7.13E-104	7.82E-04	7.96E-38	1.54E-10	5.20E-43
rs9268589	32 430 425	2.82E-58	2.69E-104	8.85E-04	2.25E-37	5.87E-11	5.18E-43
rs9268606	32 432 293	2.33E-58	2.55E-104	8.91E-04	2.88E-37	5.87E-11	5.18E-43
rs984778	32 432 311	7.64E-48	1.02E-81	2.86E-02	6.92E-33	1.54E-03	6.53E-24
rs9501626	32 432 567	1.57E-16	3.87E-28	2.25E-02	4.34E-14	1.33E-08	2.98E-13
rs3135338	32 433 440	5.01E-48	5.01E-82	2.90E-02	5.85E-33	1.53E-03	6.32E-24
rs3135335	32 434 068	5.58E-48	6.01E-82	2.90E-02	7.96E-33	1.50E-03	6.87E-24
rs2027856	32 434 928	1.57E-16	3.87E-28	2.25E-02	4.34E-14	1.94E-08	3.79E-13
rs9268614	32 435 001	1.63E-91	3.02E-182	2.62E-07	1.57E-85	8.71E-09	1.59E-67
rs9268615	32 435 112	7.43E-59	7.82E-105	9.35E-04	4.22E-37	2.74E-10	1.45E-42
rs3129868	32 436 600	4.53E-16	7.93E-27	2.90E-03	2.10E-11	1.73E-03	1.43E-06
rs2395173	32 437 082	1.22E-47	1.85E-81	2.83E-02	4.73E-33	1.53E-03	6.32E-24
rs9268626	32 437 267	2.37E-06	7.85E-12	7.48E-07	5.12E-11	1.95E-02	9.82E-04
rs3135395	32 437 415	5.71E-48	5.82E-82	2.86E-02	6.92E-33	1.53E-03	6.32E-24
rs9268628	32 438 088	7.36E-08	8.41E-18	3.62E-09	5.12E-19	6.15E-03	8.87E-07
rs9268633	32 438 696	2.41E-21	3.74E-37	9.38E-04	3.24E-16	3.74E-04	4.66E-09
rs14004	32 439 932	4.83E-57	1.34E-101	3.46E-04	2.97E-37	6.84E-10	2.26E-42
rs9268644	32 440 267	1.45E-16	7.87E-31	3.78E-04	1.22E-10	1.42E-02	2.56E-18
rs9268645	32 440 750	4.95E-58	1.43E-103	1.10E-03	3.03E-37	8.47E-11	5.77E-43
rs3135392	32 441 465	5.38E-11	5.01E-20	2.25E-02	9.38E-08	2.64E-04	9.40E-20
rs3129882	32 441 753	1.59E-40	5.32E-74	1.60E-08	2.72E-42	8.30E-06	8.09E-26
rs9268657	32 441 879	5.85E-58	3.93E-103	1.16E-03	1.99E-37	1.58E-10	6.84E-43
rs6931646	32 442 004	1.25E-35	6.52E-65	2.33E-03	8.57E-24	1.72E-07	3.42E-35
rs6911419	32 442 010	2.05E-35	1.31E-64	2.36E-03	1.08E-23	1.76E-07	4.57E-35
rs6911777	32 442 219	7.19E-10	9.77E-17	3.30E-03	3.03E-10	4.93E-03	1.83E-05
rs3129886	32 442 799	3.44E-33	1.07E-56	3.55E-04	1.03E-22	2.84E-04	8.55E-19
rs9268658	32 442 939	1.36E-35	8.02E-65	2.33E-03	8.57E-24	1.60E-07	2.60E-35
rs3135391	32 443 210	3.36E-17	4.37E-28	4.17E-03	5.12E-12	5.61E-04	2.74E-07

rs8084	32 443 258	2.99E-65	2.15E-108	3.24E-06	2.41E-48	3.37E-11	3.88E-57
rs2239804	32 443 746	1.23E-35	7.29E-65	2.33E-03	8.57E-24	1.72E-07	3.42E-35
rs7192	32 443 869	1.57E-57	3.85E-95	3.67E-04	8.26E-44	3.33E-09	1.13E-52
rs3129888	32 443 949	5.87E-26	3.12E-43	3.61E-02	3.94E-17	5.50E-04	4.93E-16
rs2239803	32 444 056	2.49E-40	2.07E-73	2.02E-03	8.81E-30	8.75E-09	1.75E-41
rs2239802	32 444 069	2.64E-28	7.05E-48	4.94E-03	8.59E-20	6.59E-04	4.03E-16
rs7195	32 444 762	3.20E-57	1.25E-94	5.45E-04	1.11E-43	1.36E-09	1.40E-53
rs7197	32 444 803	1.76E-22	1.64E-37	3.68E-02	2.45E-16	3.66E-03	4.80E-13
rs3135388	32 445 274	3.35E-17	5.13E-28	8.71E-03	9.29E-12	5.43E-04	2.26E-07
rs2213586	32 445 317	1.28E-57	2.95E-95	4.86E-04	6.30E-44	3.84E-09	3.80E-53
rs2213585	32 445 373	1.43E-57	3.30E-95	4.90E-04	7.83E-44	3.84E-09	3.80E-53
rs2395182	32 445 540	2.50E-28	6.93E-48	5.83E-03	4.31E-20	7.69E-04	7.24E-16
rs2227139	32 445 682	1.20E-57	2.42E-95	5.12E-04	9.75E-44	3.84E-09	3.80E-53
rs3129889	32 445 768	3.35E-17	5.13E-28	8.71E-03	9.29E-12	5.43E-04	2.26E-07
rs3763326	32 445 780	1.09E-07	2.93E-12	3.21E-04	7.50E-07	5.97E-09	3.21E-09
rs3763327	32 446 053	1.75E-57	5.05E-95	3.05E-04	6.18E-43	3.06E-09	1.18E-52
rs7754768	32 452 402	4.44E-56	3.22E-93	2.06E-04	2.48E-42	5.85E-09	7.91E-54
rs6457590	32 454 021	9.18E-10	1.23E-17	3.33E-02	6.93E-10	3.52E-05	1.16E-09
rs9268831	32 459 971	6.56E-24	2.19E-45	3.19E-03	1.50E-16	1.14E-03	5.05E-23
rs9268832	32 460 012	1.19E-55	1.13E-92	5.83E-05	9.48E-42	2.11E-09	9.18E-54
rs9268835	32 460 338	3.95E-81	3.76E-143	1.55E-07	4.79E-73	2.23E-11	3.46E-64
rs6923504	32 460 409	3.47E-39	7.55E-70	4.01E-06	4.27E-46	4.52E-06	2.87E-21
rs6903608	32 460 508	3.63E-39	8.59E-70	3.98E-06	5.92E-46	4.52E-06	2.87E-21
rs9268838	32 460 938	4.00E-81	4.48E-143	1.46E-07	2.45E-73	2.47E-11	1.91E-64
rs9268853	32 461 866	8.17E-67	2.50E-120	1.02E-06	3.95E-64	1.50E-11	2.86E-57
rs9268882	32 463 846	4.40E-39	1.12E-69	3.17E-06	1.66E-46	5.02E-06	2.16E-21
rs9268923	32 465 058	4.31E-67	1.07E-120	9.84E-07	2.84E-64	1.69E-11	3.76E-57
rs2395185	32 465 390	6.08E-67	1.66E-120	9.84E-07	2.84E-64	1.69E-11	3.76E-57

rs9405108	32 470 871	4.62E-67	9.73E-121	9.84E-07	2.84E-64	1.69E-11	3.76E-57
rs9269081	32 473 323	1.85E-41	6.47E-73	3.73E-06	2.85E-48	7.85E-06	6.22E-21
rs1964995	32 481 634	2.99E-103	5.31E-166	1.42E-15	9.64E-92	4.85E-19	2.15E-79
rs2157339	32 543 895	9.40E-10	1.73E-16	4.60E-02	2.07E-07	9.38E-10	5.19E-11
rs477515	32 601 914	5.82E-63	5.81E-115	7.87E-07	2.08E-60	2.09E-10	4.09E-57
rs9270986	32 606 283	2.68E-15	1.01E-25	1.62E-03	3.94E-10	1.18E-03	2.99E-07
rs2858867	32 607 548	2.06E-34	2.15E-60	5.98E-05	9.08E-37	8.24E-05	1.48E-32
rs482044	32 608 287	6.89E-38	8.07E-73	7.28E-06	1.39E-37	1.09E-08	5.52E-36
rs660895	32 609 603	5.20E-95	5.19E-217	2.11E-07	1.15E-100	1.17E-10	4.69E-68
rs532098	32 610 275	1.08E-23	8.75E-47	2.29E-03	1.61E-25	1.38E-02	8.85E-15
rs13207945	32 611 931	1.09E-23	9.84E-47	2.20E-03	1.71E-25	1.38E-02	8.85E-15
rs4530903	32 614 112	1.28E-05	8.09E-09	1.11E-02	3.91E-05	4.10E-02	6.03E-04
rs521539	32 614 196	5.64E-95	5.73E-217	2.11E-07	1.15E-100	1.29E-10	1.57E-68
rs642093	32 614 298	4.00E-18	1.48E-34	3.67E-04	5.21E-28	1.15E-02	1.15E-18
rs3104413	32 614 873	7.82E-97	6.55E-242	4.56E-07	3.50E-110	7.80E-11	8.49E-86
rs6931277	32 615 580	1.23E-96	4.23E-242	2.90E-07	8.41E-110	7.06E-11	2.47E-86
rs9271366	32 619 077	3.90E-17	1.63E-28	8.04E-04	1.29E-11	1.72E-03	8.43E-07
rs9271488	32 621 223	6.58E-68	1.91E-122	1.09E-07	3.92E-65	5.53E-11	4.44E-57
rs3129763	32 623 148	1.14E-20	3.03E-38	6.22E-05	3.88E-30	6.38E-03	2.56E-20
rs9271588	32 623 176	2.54E-87	2.51E-144	9.91E-13	1.12E-79	3.67E-15	1.35E-72
rs9271640	32 624 423	3.70E-19	4.07E-32	5.75E-03	1.09E-13	5.92E-03	4.02E-13
rs9271775	32 626 551	2.29E-21	2.56E-35	8.20E-03	6.84E-15	3.53E-03	7.87E-13
rs3129768	32 627 306	3.68E-19	4.06E-32	5.83E-03	1.29E-13	5.92E-03	4.02E-13
rs3104389	32 627 320	7.66E-68	2.37E-122	1.04E-07	3.06E-65	3.56E-11	4.62E-57
rs9271858	32 627 446	6.31E-27	1.66E-52	1.50E-05	3.92E-34	6.64E-04	1.07E-26
rs9272105	32 632 222	1.50E-31	1.63E-60	5.41E-07	1.48E-38	2.87E-07	5.38E-36
rs9272143	32 633 026	2.86E-26	1.48E-51	1.57E-05	4.02E-34	7.18E-04	9.75E-27
rs9272219	32 634 492	7.11E-27	2.03E-49	7.24E-04	6.17E-36	6.27E-04	1.27E-27

rs9273012	32 643 864	7.11E-27	2.03E-49	6.22E-04	3.16E-36	6.38E-04	1.12E-27
rs9273363	32 658 495	6.55E-11	1.11E-22	1.15E-03	1.23E-13	1.31E-02	6.35E-13
rs9273448	32 659 970	4.73E-42	1.83E-70	1.40E-03	2.01E-33	5.06E-07	2.08E-31
rs3891175	32 666 690	1.22E-24	3.44E-42	2.48E-03	5.22E-21	2.37E-06	2.48E-21
rs3852215	32 667 724	2.60E-21	3.21E-36	5.83E-03	2.65E-18	1.91E-06	1.10E-17
rs9275141	32 683 340	7.96E-34	1.24E-62	3.57E-03	1.91E-26	5.61E-06	2.94E-31
rs3021061	32 684 062	6.44E-13	2.63E-26	9.23E-05	4.58E-18	8.41E-03	1.76E-22
rs4947342	32 685 293	4.13E-13	9.02E-27	4.74E-05	3.99E-19	8.41E-03	1.76E-22
rs4642516	32 689 766	7.96E-34	1.24E-62	4.60E-03	1.37E-26	4.37E-06	3.73E-31
rs7775228	32 690 302	2.48E-16	4.56E-29	1.92E-02	1.52E-11	2.31E-07	4.13E-13
rs9275224	32 692 101	2.53E-97	6.24E-158	3.53E-09	3.27E-70	6.43E-12	4.06E-65
rs2858324	32 692 598	1.41E-65	1.17E-108	3.78E-06	3.40E-53	5.08E-10	3.18E-55
rs5000634	32 695 787	1.17E-61	8.67E-110	7.45E-04	5.11E-44	9.10E-09	3.64E-40
rs6457617	32 696 074	9.04E-96	3.33E-156	9.14E-09	8.57E-70	1.41E-12	1.44E-64
rs6457620	32 696 222	1.10E-95	4.32E-156	5.55E-09	5.33E-70	1.44E-12	7.73E-65
rs2647015	32 696 316	2.28E-12	1.95E-22	7.01E-03	7.01E-11	8.59E-03	7.96E-06
rs7745040	32 696 555	1.17E-61	8.67E-110	7.38E-04	3.73E-44	1.71E-08	9.44E-40
rs2647012	32 696 681	3.16E-66	9.55E-110	5.22E-06	2.35E-52	8.04E-10	3.03E-55
rs9275332	32 699 166	2.73E-60	4.50E-107	9.18E-08	5.82E-56	1.47E-12	5.60E-47
rs9275334	32 699 330	6.78E-52	2.47E-118	2.82E-06	1.18E-53	1.47E-03	6.07E-51
rs9275338	32 699 566	2.25E-45	3.64E-92	5.38E-06	8.07E-47	1.47E-03	3.10E-34
rs17427599	32 699 587	1.74E-41	4.10E-74	1.17E-05	1.68E-33	7.08E-03	1.12E-15
rs9275371	32 700 519	2.92E-60	4.94E-107	1.14E-07	6.35E-56	4.28E-12	9.14E-46
rs1612904	32 701 241	5.55E-55	7.36E-93	8.73E-05	2.65E-46	1.58E-08	1.98E-51
rs9275390	32 701 379	8.02E-60	1.92E-106	8.18E-08	7.18E-56	1.39E-12	6.08E-47
rs9275393	32 701 662	2.62E-60	4.25E-107	1.16E-07	9.25E-56	1.36E-12	7.46E-47
rs2858308	32 702 223	8.22E-13	4.92E-23	1.08E-02	1.07E-10	3.93E-03	5.46E-06
rs9275407	32 702 260	2.73E-60	4.50E-107	9.18E-08	5.82E-56	1.36E-12	5.77E-47

rs2856717	32 702 531	2.50E-65	2.17E-108	1.02E-06	1.84E-52	7.01E-10	1.51E-54
rs9275425	32 703 097	2.86E-60	4.85E-107	1.64E-07	4.79E-56	1.38E-12	2.18E-46
rs2856705	32 703 179	9.77E-13	4.42E-23	7.00E-03	5.87E-11	4.86E-03	5.65E-06
rs9275428	32 703 201	2.73E-60	4.50E-107	9.18E-08	5.82E-56	1.39E-12	6.08E-47
rs9275439	32 703 744	3.35E-60	8.05E-107	9.18E-08	5.82E-56	1.39E-12	6.08E-47
rs9275495	32 705 797	8.53E-52	1.34E-117	3.75E-06	1.73E-53	1.47E-03	5.06E-51
rs9275530	32 707 746	1.80E-51	9.66E-118	3.81E-06	1.99E-53	1.30E-03	3.21E-50
rs9275532	32 707 857	9.16E-52	4.11E-118	2.47E-06	8.89E-54	1.47E-03	5.06E-51
rs9275580	32 711 685	4.33E-71	3.30E-124	1.86E-07	2.58E-60	7.46E-13	1.83E-60
rs3129727	32 711 913	1.47E-05	3.96E-09	7.96E-04	1.92E-06	1.10E-02	6.10E-04
rs9275582	32 712 293	7.87E-71	3.27E-124	1.17E-06	1.11E-57	6.18E-12	1.60E-60
rs7745656	32 713 193	2.63E-20	2.66E-40	5.83E-06	4.89E-24	1.20E-02	5.86E-12
rs2647087	32 713 272	2.28E-20	1.70E-40	5.55E-06	3.74E-24	1.20E-02	5.86E-12
rs2858332	32 713 384	3.30E-15	6.97E-26	1.05E-02	1.33E-12	2.76E-10	2.19E-28
rs3957146	32 713 753	1.33E-51	7.74E-118	2.48E-06	1.71E-53	1.31E-03	9.53E-51
rs2647089	32 713 791	1.87E-20	1.73E-40	5.60E-06	2.88E-24	1.17E-02	7.21E-12
rs9275596	32 713 854	2.96E-55	3.81E-93	6.41E-05	4.54E-45	1.64E-08	6.38E-50
rs6935723	32 713 892	2.94E-20	2.54E-40	5.55E-06	3.18E-24	1.11E-02	7.82E-12
rs3104402	32 713 899	1.26E-10	1.81E-17	2.56E-03	5.24E-05	3.27E-02	8.36E-06
rs3998158	32 714 215	2.76E-73	6.41E-127	7.78E-08	1.33E-63	5.73E-11	4.68E-60
rs3998159	32 714 242	3.49E-51	1.45E-116	5.36E-06	1.55E-52	1.25E-03	4.63E-51
rs9275599	32 714 652	8.41E-47	9.98E-106	1.53E-05	1.87E-49	3.31E-03	7.05E-48
rs3104407	32 714 675	8.04E-22	1.96E-41	6.35E-03	3.30E-19	9.82E-03	1.56E-20
rs3873444	32 714 947	1.12E-10	8.17E-22	1.04E-06	1.53E-16	2.81E-06	3.21E-08
rs9275698	32 720 196	3.06E-31	1.11E-54	3.28E-04	8.30E-21	3.44E-02	1.61E-14
rs9276189	32 731 548	1.03E-11	1.69E-19	4.89E-03	4.43E-07	2.24E-02	5.24E-05
rs4394270	32 742 187	1.19E-28	6.79E-50	9.95E-04	4.16E-16	1.59E-02	1.66E-14
rs2857208	32 775 326	4.91E-10	4.70E-18	2.96E-02	1.29E-08	1.52E-02	1.05E-04

rs7767167	32 797 405	2.29E-12	7.31E-21	9.93E-03	8.99E-09	5.55E-03	7.24E-06
rs2857107	32 817 738	2.80E-12	6.44E-22	8.38E-04	1.85E-12	1.11E-04	4.66E-07
rs1894411	32 825 196	2.36E-12	5.14E-22	8.77E-04	5.25E-12	1.63E-04	6.55E-07
rs3819721	32 837 021	3.68E-46	4.70E-84	1.91E-02	1.44E-27	5.31E-03	2.45E-22
rs9276831	32 864 256	1.89E-09	1.29E-18	1.26E-04	2.77E-11	1.10E-03	1.70E-06
rs9500927	32 993 584	9.93E-12	3.52E-23	6.04E-03	4.70E-13	2.36E-05	4.98E-09
rs9380335	33 057 397	1.72E-11	7.29E-22	2.73E-02	1.79E-12	3.22E-04	1.46E-08
rs4604307	33 057 894	2.14E-11	1.10E-21	2.88E-02	1.95E-12	2.04E-04	9.51E-09
rs2395309	33 058 469	1.65E-11	7.24E-22	2.81E-02	3.05E-12	2.84E-04	1.22E-08
rs7905	33 065 198	1.65E-09	8.57E-19	3.10E-03	4.47E-11	1.73E-03	5.25E-07
rs3077	33 065 245	1.84E-11	8.89E-22	2.73E-02	1.79E-12	2.84E-04	1.22E-08
rs9469332	33 067 099	1.63E-11	8.05E-22	1.86E-02	8.77E-13	2.84E-04	1.22E-08
rs9469341	33 068 100	1.77E-11	8.61E-22	1.99E-02	1.25E-12	2.77E-04	1.13E-08
rs1126769	33 068 657	1.99E-11	8.85E-22	2.88E-02	2.71E-12	2.84E-04	1.22E-08
rs10214910	33 069 898	2.43E-11	2.51E-21	1.40E-02	3.16E-13	1.39E-04	6.12E-09
rs2301224	33 070 592	1.65E-11	1.36E-21	4.24E-02	2.12E-12	8.97E-05	4.62E-09
rs2301220	33 070 989	1.31E-11	8.79E-22	4.01E-02	2.69E-12	7.62E-05	3.73E-09
rs6914849	33 072 938	1.51E-11	1.04E-21	4.01E-02	2.69E-12	6.78E-05	3.22E-09
rs9348904	33 073 058	1.51E-11	1.04E-21	4.12E-02	2.51E-12	7.55E-05	3.95E-09
rs1431399	33 073 257	1.51E-11	1.04E-21	4.01E-02	2.69E-12	7.62E-05	3.73E-09
rs1431400	33 073 399	1.61E-11	1.16E-21	4.01E-02	2.69E-12	7.29E-05	3.10E-09
rs1431401	33 073 409	1.51E-11	1.04E-21	4.01E-02	2.69E-12	7.29E-05	3.10E-09
rs987870	33 075 103	1.64E-07	1.43E-14	4.75E-03	3.96E-09	4.32E-04	4.89E-07
rs2071351	33 076 153	1.32E-11	9.02E-22	4.01E-02	2.69E-12	6.73E-05	3.61E-09